

Section 3 - Appendix 3

Inventory and Delineation of Wetlands and Watercourses along the Massachusetts Portion of the Northeast Energy Direct Project

This Appendix was formatted in its entirety as part of the Final FERC 7(c) Application, filed on November 20, 2015 (PF-14-22-000), Environmental Reports, Volume I; therefore, appendix references and page numbers contained within this document are not consistent with this permit application.

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**INVENTORY AND DELINEATION OF WETLANDS AND
WATERCOURSES
ALONG THE MASSACHUSETTS PORTION OF THE
NORTHEAST ENERGY DIRECT PROJECT**

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November 2015

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1.0 INTRODUCTION

This report provides a summary of wetland and watercourse inventories and delineations conducted along the Massachusetts portions of the proposed Northeast Energy Direct Project (“NED Project” or “Project”). The proposed project, as currently configured, would involve the construction of approximately 420-miles of new pipeline and pipeline looping (i.e., the installation of additional pipe to adjacent to the existing pipeline) in Pennsylvania, New York, Massachusetts, New Hampshire and Connecticut. The entire proposed NED Project facilities are as follows:

- Approximately 41 miles of pipeline looping on Tennessee’s 300 Line in Pennsylvania;
- Approximately 133 miles of new pipeline to be generally co-located with the certificated Constitution Pipeline Project (“Constitution”)¹ in Pennsylvania and New York (extending from Tennessee’s existing 300 Line near Auburn, Pennsylvania to Wright, New York);
- Approximately 54 miles of pipeline generally co-located with Tennessee’s existing 200 Line and an existing utility corridor in New York;
- Approximately 64 miles of pipeline generally co-located with an existing utility corridor in Massachusetts;
- Approximately 70 miles of pipeline generally co-located with an existing utility corridor in New Hampshire (extending southeast to Dracut, Massachusetts);
- Approximately 58 miles of various laterals and a pipeline loop in Massachusetts, New Hampshire, and Connecticut to serve local markets;
- Construction of nine new compressor stations and 15 new meter stations, and modifications to existing compressor and meter stations throughout the Project area; and
- Construction of appurtenant facilities, including mainline valves (“MLVs”), cathodic protection, and pig facilities through the Project area.

The Project is proposed by Tennessee Gas Pipeline Company (“Tennessee”), a wholly-owned subsidiary of Kinder Morgan, Inc. and a major supplier of natural gas to utilities and power generators in the Northeast. The Massachusetts Portion of the Project consists of approximately 64 miles of 30-inch-diameter pipeline, beginning at the New York/Massachusetts border and extending to the Massachusetts/New Hampshire border in Franklin County in western Massachusetts. This mileage also includes the portion of mainline from the New Hampshire/Massachusetts border to Dracut in Middlesex County in eastern Massachusetts (as part of the Wright to Dracut Pipeline Segment). Portions of the Wright to Dracut Pipeline Segment will be located in New York, Massachusetts, and New Hampshire. Approximately 63 miles of this new proposed mainline pipeline (beginning at the New York/Massachusetts border) will be generally co-located with an existing utility corridor to the extent

¹ On December 2, 2014, the Commission issued an Order Issuing Certificates and Approving Abandonment, Constitution Pipeline Company, LLC, 149 FERC 61,199 (2014), for the Constitution Pipeline Project, which adopted the recommendations from the Constitution “Final Environmental Impact Statement: Constitution Pipeline and Wright Interconnect Projects,” FERC Environmental Impact Statement (“EIS”) No. 0249F, Docket Numbers CP13-499-000, CP13-502-000, and PF12-9-000 (“Constitution Final EIS [“FEIS”]”) issued October 24, 2014. Information contained within this WDR related to the Constitution Pipeline Project was based on the routing included in the FEIS, as approved by the certificate order.

practicable, feasible, and in compliance with existing law. The remainder of the proposed mainline pipeline facilities in Massachusetts will be new pipeline right-of-way (“ROW”).

Additionally, Tennessee is proposing five separate new laterals in Massachusetts as part of the Project:

- The 30-inch diameter Maritimes Delivery Line will be 0.75 miles in length and will extend from the Market Path Tail Station to an interconnect with the Maritimes and Northeast Pipeline System.
- The 24-inch diameter Lynnfield Lateral will be 14.28 miles in length. Approximately 8.95 miles of the 14.28 miles will be co-located with an existing utility corridor.
- The 24-inch diameter Peabody Lateral will be 5.32 miles in length and will extend from the new Lynnfield Lateral proposed as part of the Project. Construction of this lateral will include a take-up and relay of Tennessee’s existing 8-inch-diameter Beverly-Salem Colonial Delivery Lateral pipeline.
- The 20-inch diameter Haverhill Lateral (Massachusetts Portion) will be approximately 9.27 miles in length that will extend from Massachusetts through New Hampshire. Construction of this lateral will include a partial take-up and relay of Tennessee’s existing 10-inch diameter Haverhill Lateral pipeline. Approximately 7.23 miles of the 9.27 miles will be located in Massachusetts. The entire 7.23 miles in Massachusetts will be co-located with an existing utility corridor and 6.95 miles will be a take-up and relay of the existing Haverhill Lateral within Tennessee’s existing ROW.
- The 12-inch-diameter Fitchburg Lateral Extension (Massachusetts Portion) will be 13.97 miles in length. This lateral will be an extension of Tennessee’s existing Fitchburg Lateral which will connect to the Wright to Dracut Pipeline Segment in New Hampshire. Approximately 8.89 miles (of which 3.71 miles will be co-located with an existing utility corridor) of the 13.97 miles will be located in Massachusetts.

In addition to the pipeline facilities, the NED Project includes construction of three new compressor stations in Massachusetts. A summary of Project facilities in Massachusetts is detailed in Table 2e-1. Additional NED Project facilities include use of access roads and contractor yards.

This report discusses the methods used to identify boundaries of both the state and federal wetlands and watercourses encountered along the Massachusetts portion of the Project and summarizes the findings of the surveys. Onsite and offsite wetland and watercourse investigations in Massachusetts were conducted between October 13, 2014, and September 15, 2015. It contains wetland data between Wright to Dracut Pipeline Segment (Massachusetts Portion), Segment G, MP 0.00 to MP 2.53, Wright to Dracut Pipeline Segment (Massachusetts Portion), Segment H, MP 0.00 to MP 28.61, Wright to Dracut Pipeline Segment (Massachusetts Portion), Segment K, MP 0.00 to MP 2.44, Maritimes Delivery Line, Segment L, MP 0.00 to MP 0.75, Lynnfield Lateral, Segment N, MP 0.00 to MP 14.28, Peabody Lateral, Segment O, MP 0.00 to MP 5.32, Haverhill Lateral (Massachusetts Portion), Segment P, MP 0.00 to MP 6.95 and MP 8.99 to MP 9.27, and Fitchburg Lateral Extension (Massachusetts Portion), Segment Q, MP 5.08 to MP 10.37. Because the route determination and survey access permission process are ongoing, additional delineation submissions will be necessary to complete the process of jurisdictional boundary line verification and approval.

Table 2e-1
Summary of Project Facilities in Massachusetts

Facility Name	Facility Type	New / Modified	Associated Pipeline ¹	County	Segment ²	Milepost ³	Length (miles) ⁴
Massachusetts							
Wright to Dracut Pipeline Segment	Pipeline	New	N/A	Berkshire	G	N/A	21.39
Wright to Dracut Pipeline Segment	Pipeline	New	N/A	Hampshire	G	N/A	5.55
Wright to Dracut Pipeline Segment	Pipeline	New	N/A	Franklin	G	N/A	5.73
Wright to Dracut Pipeline Segment	Pipeline	New	N/A	Franklin	H	N/A	28.61
Wright to Dracut Pipeline Segment	Pipeline	New	N/A	Middlesex	K	N/A	2.44
Maritimes Delivery Line	Pipeline	New	N/A	Middlesex	L	N/A	0.75
Lynnfield Lateral	Pipeline	New	N/A	Middlesex	N	N/A	9.45
Lynnfield Lateral	Pipeline	New	N/A	Essex	N	N/A	4.83
Peabody Lateral	Pipeline	New	N/A	Essex	O	N/A	5.32
Haverhill Lateral	Pipeline	New	N/A	Middlesex	P	N/A	2.77
Haverhill Lateral	Pipeline	New	N/A	Essex	P	N/A	4.46
Fitchburg Lateral Extension	Pipeline	New	N/A	Middlesex	Q	N/A	5.29
Fitchburg Lateral Extension	Pipeline	New	N/A	Worcester	Q	N/A	3.60
North Adams Check	Meter Station	New	Wright to Dracut Pipeline Segment	Berkshire	G	7.32	N/A

Table 2e-1
Summary of Project Facilities in Massachusetts

Facility Name	Facility Type	New / Modified	Associated Pipeline ¹	County	Segment ²	Milepost ³	Length (miles) ⁴
Market Path Mid Station 2	Compressor Station	New	Wright to Dracut Pipeline Segment	Berkshire	G	17.09	N/A
West Greenfield	Meter Station	New	Wright to Dracut Pipeline Segment	Franklin	H	9.29	N/A
Market Path Mid Station 3	Compressor Station	New	Wright to Dracut Pipeline Segment	Franklin	H	23.98	N/A
Market Path Tail Station	Compressor Station	New	Wright to Dracut Pipeline Segment	Middlesex	K	1.05	N/A
Maritimes	Meter Station	New	Maritimes Delivery Line	Middlesex	L	0.75	N/A
200-1 Check	Meter Station	New	Lynnfield Lateral	Essex	N	14.28	N/A
Haverhill Check	Meter Station	New	Haverhill Lateral	Middlesex	P	1.53	N/A
Fitchburg Lateral Check	Meter Station	New	Fitchburg Lateral Extension	Worcester	Q	13.97	N/A
Longmeadow ⁵	Meter Station	New	Existing TGP Line 200-2	Hampden	N/A	Proposed Facility	N/A
Everett ⁵	Meter Station	New	Existing TGP Line 270C-1100	Middlesex	N/A	Proposed Facility	N/A
North Adams Custody (20103) ⁵	Meter Station	Modified	Existing TGP Line 256A-100	Berkshire	N/A	Existing Facility	N/A
Lawrence (20121) ⁵	Meter Station	Modified	Existing TGP Line 270B-400	Essex	N/A	Existing Facility	N/A

Table 2e-1
Summary of Project Facilities in Massachusetts

Facility Name	Facility Type	New / Modified	Associated Pipeline ¹	County	Segment ²	Milepost ³	Length (miles) ⁴
Southbridge (20108) ⁵	Meter Station	Modified	Existing TGP Line 264A-100	Worcester	N/A	Existing Facility	N/A
Spencer (20191) ⁵	Meter Station	Modified	Existing TGP Line 264B-100	Worcester	N/A	Existing Facility	N/A
Lunenburg (20949) ⁵	Meter Station	Modified	Existing TGP Line 268A-100	Worcester	N/A	Existing Facility	N/A
Lexington (20192) ⁵	Meter Station	Modified	Existing TGP Line 200-1	Middlesex	N/A	Existing Facility	N/A
Burlington (20341) ⁵	Meter Station	Modified	Existing TGP Line 270A-100	Middlesex	N/A	Existing Facility	N/A
Arlington (20115) ⁵	Meter Station	Modified	Existing TGP Line 270A-100	Middlesex	N/A	Existing Facility	N/A
Reading (20136) ⁵	Meter Station	Modified	Existing TGP Line 270C-200	Middlesex	N/A	Existing Facility	N/A
Essex (20323) ⁵	Meter Station	Modified	Existing TGP Line 270C-500	Essex	N/A	Existing Facility	N/A
Pittsfield (20102) ⁵	Meter Station	Modified	Existing TGP Line 256A-200	Berkshire	N/A	Existing Facility	N/A
North Adams Regulator ⁵	Regulator	New	Existing TGP Line 256A-100	Berkshire	N/A	Proposed Facility	N/A
Wilmington Regulator ⁵	Regulator	New	Existing TGP Line 270C-200	Middlesex	N/A	Proposed Facility	N/A
Massachusetts Total							100.19

**Table 2e-1
Summary of Project Facilities in Massachusetts**

Facility Name	Facility Type	New / Modified	Associated Pipeline¹	County	Segment²	Milepost³	Length (miles)⁴
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¹ N/A-Not Applicable for proposed pipelines. This column indicates the associated pipeline segment for each aboveground facility (compressor stations, meter stations, and regulators).

² Each segment is associated with its own set of mileposts beginning at MP 0.00.

³ N/A-Not Applicable for proposed pipeline facilities. Mileposts are provided for the existing compressor station and the existing and new meter stations located along new proposed pipeline segments only. Mileposts are not provided for meter stations located along TGP's existing system.

⁴ N/A-Not Applicable for aboveground facilities (compressor stations, meter stations, and regulators). Pipeline length applies only to the proposed pipeline facilities as reflected on the alignment sheets.

⁵ Mileposts for these facilities are not provided because these facilities are located along other pipeline segments of Tennessee's existing system that are not proposed to be modified as part of this Project.

Tables listing wetlands and watercourses identified during the course of the surveys are located in Appendix 2e-A. The tables include only those field-delineated wetlands and waterbodies which are located within the Project workspace and will be impacted by construction or operation of the Project. Additional wetlands and watercourses identified in the survey corridor but not impacted by the proposed Project configuration will be included in any future delineation submissions. Appendix 2e-B and Appendix 2e-C contain the wetland and watercourse mapping associated with the Project. Appendix 2e-D contains the field data forms which were used to document the wetland delineations, including representative wetland photographs. Appendix 2e-E contains the field data forms which were used to document the watercourse delineations, including representative watercourse photographs.

2.0 WETLAND AND WATERCOURSE REGULATIONS

Wetlands and watercourses subject to state or federal jurisdiction based upon the Federal Clean Water Act and the Massachusetts Department of Environmental Protection (“MADEP”), Freshwater Wetlands Protection Act (“WPA”), Massachusetts General Law (“MGL”) Chapter 131, section 40, implemented by 310 Code of Massachusetts Regulations (“CMR”) 10.00, and their implementing regulations and mapping requirements are identified..

2.1 SECTION 404 – CLEAN WATER ACT

Wetlands, springs, and other waters of the United States are regulated under Section 404 of the Federal Clean Water Act (“CWA”; 33 U.S.C. 1341) by the U.S. Army Corps of Engineers (“USACE”). Under 33 Code of Federal Regulations (“CFR”) Part 328.3(a), the term “waters of the U.S.” include:

1. All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce, including any such waters:
 - i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - iii. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.
8. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

The term “wetlands” means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3(b)).

Under 33 CFR 328.4(c), the limits of federal jurisdiction for non-tidal waters of the United States extend to:

1. the ordinary high water mark In the absence of adjacent wetlands; or
2. beyond the ordinary high water mark to the limit of the adjacent wetlands when adjacent wetlands are present; or
3. to the limit of the wetland when the water of the United States consists only of wetlands

Wetlands and waterbodies meeting these criteria are subject to federal jurisdiction under Section 404 of the Federal Clean Water Act.

2.2 MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS

In Massachusetts, wetlands and watercourses are regulated by the MADEP under the Massachusetts Wetlands Protection Act (WPA MGL c.131 s.40). The WPA defines Bordering Vegetated Wetlands (“BVW”) as “freshwater wetlands which border on creeks, rivers, streams, ponds and lakes and includes wet meadows, marshes, swamps and bogs. Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants.” The WPA also defines Riverfront Area as being associated with, “any natural flowing body of water that empties to any ocean, lake, pond, or other river and which flows throughout the year.” The Massachusetts Rivers Protection Act (MGL c.258, Acts of 1996) further protects Riverfront Area and defines it as “a 200-foot wide corridor on each side of a perennial river or stream, measured from the mean annual high-water line of the river.”

Bank is defined as the portion of land surface which normally abuts and confines a water body, occurs between a water body and a BVW (310 CMR 10.54(2)(a)). While the Land Under Water Bodies and Water Ways is the land beneath any creek, river, stream, pond or lake, and is therefore also associated with these streams (310 CMR (2)(a)). The limit of this resource area is bound by the mean annual low water level, with Bank resource areas adjacent to it.

The boundary of Bordering Land Subject to Flooding (BLSF) is the estimated lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm. This boundary is determined by reference to the most recently available flood profile data prepared by the Federal Emergency Management Agency (310 CMR 10.57(2)(a)(3)).

3.0 WETLAND DELINEATION PROCEDURES

This report describes area surrounding the current proposed Project Route located in the following counties and township in the State of Massachusetts:

- Berkshire County – Hancock, Lanesborough, Chesire, Dalton, Hinsdale, Peru, and Windsor
- Hampshire County – Plainfield
- Franklin County – Ashfield, Conway, Shelburne, Deerfield, Montague, Erving, Northfield, and Warwick
- Middlesex County – Dracut, Tewksbury, Wilmington, North Reading, Reading, and Townsend
- Essex County – Andover, Lynnfield, Middleton, Peabody, Danvers, and Methuen
- Worcester County – Lunenburg

The attached alignment sheets with wetland and waterbody locations (Appendix 2e-C) identify the Project location in Berkshire, Hampshire, Franklin, Middlesex, Essex, and Worcester Counties and major mileposts along the proposed alignment.

Identification of regulated wetland and waterbody boundaries occurred within a 400-foot wide survey corridor centered over the proposed pipeline (200 feet either side of the pipe centerline) when traversing greenfield, and a 250-foot wide survey corridor where the proposed pipeline is co-located with an existing utility (50 feet on the utility side and 200 feet on the non-utility side), from October 13, 2014, through September 15, 2015 (Study Area). Only land parcels where survey access permission was granted by landowners were surveyed. Therefore, many wetlands identified within the Study Area are incomplete and end at no-access parcel boundaries. Survey access has been granted by approximately 33 percent of landowners in the Study Area in Massachusetts. As of September 15, 2015, surveys have been completed on approximately 28.54 miles (28 percent) of the Study Area in Massachusetts.

For the purpose of this state-specific report, all of the features identified within the Study Area have been refined to only those features falling within the limits of the Project workspace corridor. These features fall within either the limits of both the temporary workspace and permanent ROW or partially within either one of these areas.

This report does not detail survey of all temporary and permanent access roads and some ancillary facilities listed in Section 1.0. Once these areas are identified, access permission is granted, and the sites are surveyed, they will be listed and described as part of the Study Area within subsequent submittals.

3.1 WETLAND DELINEATION PROCEDURES

The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3(b)). Under 33 CFR 328.4(c), the limits of federal jurisdiction for non-tidal waters of the United States extend to:

1. the ordinary high water mark In the absence of adjacent wetlands; or

2. beyond the ordinary high water mark to the limit of the adjacent wetlands when adjacent wetlands are present; or
3. to the limit of the wetland when the water of the United States consists only of wetlands

The wetland delineation methods (“1987 Corps Manual”, USACE, Environmental Laboratory 1987 and “NC/NE Regional Supplement”; USACE 2012), were used to identify and delineate wetlands along the proposed Project alignment in Massachusetts. Though Massachusetts has developed a wetland delineation manual (MADEP 1995) for identification of bordering vegetated wetlands, this manual makes use of methods and information found in the 1987 Corps Manual while offering detailed alternative methods to provide users with a selection to suit a range of circumstances. For consistency in wetland delineation methods and in application of current approved professional standards for wetland delineation, all wetlands were delineated using the 1987 Corps Manual and NC/NE Regional Supplement.

3.2 WATERBODY DELINEATION PROCEDURES

Under 33 CFR 328.4(c), “the limits of federal jurisdiction for non-tidal waters of the United States, in the absence of adjacent wetlands, is the ordinary high water mark.” Waterbody types were classified as perennial, intermittent, or ephemeral, as defined in 72 F.R. 11196-11197. Perennial streams (“P”) were categorized as waterbodies that have flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow and runoff from rainfall is a supplemental source of water for perennial streams. Intermittent streams (“I”) were categorized as waterbodies that have flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water and runoff from rainfall is a supplemental source of water for stream flow. Ephemeral streams (“E”) were categorized as waterbodies that have flowing water only during, and for short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for ephemeral streams and runoff from rainfall is the primary source of water for stream flow. Preliminary waterbody classifications were made during initial field surveys and were confirmed based on a desktop analysis of USGS hydrographic dataset (US Department of the Interior 2014). Additionally, each waterbody was reviewed for the water quality standard and classification assigned by the MADEP to surface waters as described in 314 CMR 4.00 Surface Water Quality Standards.

3.3 PRE-SURVEY DESKTOP INVESTIGATIONS

Prior to the commencement of field surveys, information from multiple sources was reviewed to determine the potential extent of wetlands within the survey areas. Pre-survey information reviewed included: USGS topographical quadrangles, National Wetland Inventory Maps, Natural Resource Conservation Service – Web Soil Surveys, Mass GIS Resource Mapping that includes Massachusetts Natural Heritage Endangered Species Program (“NHESP”) datalayers.

3.4 FIELD SURVEYS

During the field investigations along the ROWs, the boundary between the water resource (wetland and/or watercourse) and non-regulated area were delineated and marked with survey flagging hung on vegetation at approximately 15 to 30-foot intervals. For wetlands, vegetation, soils, and hydrology data were assessed during the field surveys to determine if the wetland parameters were satisfied. The “top of

bank” was used to demarcate the limits of a watercourse when no wetlands were adjacent to the channel. Data plots documenting the wetland boundaries were established at specific locations within each wetland series. Field data summary sheets were completed at each data plot for the wetland and watercourse resource surveys (see Appendix 2e-D and Appendix 2e-E). Each wetland and waterbody was given a unique alphanumeric designation to assist in field survey location and documentation using the feature identification nomenclature in Table 2e-2 (Town, team, feature, and feature number). The Boundary Line and Flag Number are identified in one number representing both features. For example, CS-B-W003-101 is interpreted as “Cheshire, Team B, Wetland Feature 003, Boundary Line 100, Flag Number 101. Mileposts on field data summary sheets are reported in feet.

Table 2e-2
Feature Identification Nomenclature
Town Abbreviation – Team # – Feature IDXXX – Flag # (Wetlands & Waterbodies)
and Start/End designation (if applicable)

County	Town	Abbreviation	Team	Feature	Feature Number	Boundary Line	Flag Number
Berkshire	Cheshire	CS	A-Z A1-Z1	W – Wetland S – Stream	001, 002, 003, etc.	100, 200, 300, etc.	101, 102, 103, etc. 201, 202, 203, etc.
	Dalton	DA					
	Hancock	HA					
	Hinsdale	HN					
	Lanesborough	LN					
	Peru	PE					
	Windsor	WR					
Essex	Andover	AN					
	Danvers	DN					
	Lynnfield	LY					
	Methuen	ME					
	Middleton	MD					
	Peabody	PB					
Middlesex	Reading	RD					
	Tewksbury	TK					
	Wilmington	WL					
	Dracut	DR					
	Lunenburg	LU					
	North Reading	NR					
	Townsend	TN					
Hampshire	Plainfield	PL					
Franklin	Ashfield	AS					

Table 2e-2
Feature Identification Nomenclature
Town Abbreviation – Team # – Feature IDXXX – Flag # (Wetlands & Waterbodies)
and Start/End designation (if applicable)

County	Town	Abbreviation	Team	Feature	Feature Number	Boundary Line	Flag Number
	Conway	CN					
	Deerfield	DF					
	Erving	ER					
	Montague	MO					
	Northfield	NO					
	Shelburne	SH					
	Warwick	WK					

The specific methods for characterizing and evaluating vegetation, hydrology, and soils for a wetland determination were performed as follows:

- *Soils:* At the center of each data plot, the soil profile was recorded to determine the hydric soil status. Borings were taken with a hand-held auger to depths necessary to accurately determine a soil's hydric status (typically 18 to 24 inches below ground surface). The information collected for each soil profile included soil horizons, depth, texture, color, and the presence or absence of redoximorphic features. Colors of the soil matrix and redox features were identified using Munsell Soil Color Charts. All hydric soil determinations were based on criteria established in the USACE Northcentral and Northeast Regional Supplement (2012), along with *Field Indicators of Hydric Soils in the United States* (NRCS 2010). Additionally, the presence of any saturation and/or standing water encountered during the soil profile description was noted. The wetland soil indicators are listed in Table 2e-3.

Table 2e-3
Wetland Soil Indicators for the Northcentral and Northeast Region

Hydric Soil Indicators		Indicators for Problematic Hydric Soil
Histosol (A1)	Dark Surface (S7) (LRR R, MLRA 149B)	2cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	Coast Prairie Redox (A16) (LRR K, L, R)
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)	5cm Mucky Peat or Peat (S3) (LRR K, L, R)

Table 2e-3
Wetland Soil Indicators for the Northcentral and Northeast Region

Hydric Soil Indicators		Indicators for Problematic Hydric Soil
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Dark Surface (S7) (LRR K, L, M)
Stratified Layers (A5)	Depleted Matrix (F3)	Polyvalue Below Surface (S8) (LRR K, L)
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)	Thin Dark Surface (S9) (LRR K, L, R)
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	Iron-Mg Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Gleyed Matrix (S4)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Sandy Redox (S5)		Red Parent Material (F21)
Stripped Matrix (S6)		Very Shallow Dark Surface (TF12)

- *Vegetation*: Species abundance in both non-wetland and wetland communities was visually estimated. Dominant trees and shrubs/saplings were recorded within a 30-foot and 15-foot radius, respectively, from the center of each documentation plot. Woody vines were recorded within a 30-foot radius plot. Dominant herbaceous vegetation was recorded within a 5-foot radius plot. Plant species were identified using appropriate botanical reference material for the region. The hydrophytic indicator status of each species was identified using the North American Digital Flora: National Wetland Plant List (Lichvar and Kartesz 2009). Indicators of hydrophytic vegetation are satisfied by the rapid assessment if all dominant species are rated as OBL or FACW (Indicator 1), the dominance test if more than 50% of the dominant species are OBL, FACW, and/or FAC (Indicator 2), or the prevalence index is less than or equal to 3.0 (Indicator 3) based on the USACE NCNE Regional Supplement (USACE 2012).
- *Hydrology*: Site hydrology was evaluated during field surveys by initially observing whether the soil at the surface was inundated or saturated. If the ground surface was dry, the depth to freestanding groundwater or saturated soil was measured, and the presence or absence of other indicators of wetland hydrology (e.g., drift lines, water-stained leaves, etc.) was noted. The wetland hydrology criterion was met if one or more primary or two or more secondary field indicators were present (USACE 2012). The wetland hydrology indicators are listed in Table 2e-4.

**Table 2e-4
Wetland Hydrology Indicators for the Northcentral and Northeast Region**

Primary Indicators (minimum of one is required)		Secondary Indicators (minimum of two is required)
Surface Water (A1)	Aquatic Fauna (B13)	Surface Soil Cracks (B6)
High Water Table (A2)	Marl Deposits (B15)	Drainage Patters (B10)
Saturation (A3)	Hydrogen Sulfide Odor (C1)	Moss Trim Lines (B16)
Water Marks (B1)	Oxidized Rhizospheres on Living Roots (C3)	Dry Season Water Table (C2)
Sediment Deposits (B2)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3)	Recent Iron Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Thick Muck Surface (C7)	Stunted or Stressed Plants (D1)
Iron Deposits (B5)		Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aquitard (D3)
Sparsely Vegetated Concave Surface (B8)		Microtopographic Relief (D4)
Water Stained Leave (B9)		FAC-Neutral Test (D5)

Wetland and watercourse flag positions and data plot locations were field located using a Global Positioning System (“GPS”) handheld Trimble® Yuma® tablet computer unit coupled with AECOM’s proprietary mobile Geographic Information System (“GIS”) field application software, Environmental Mobile Application for Projects (“EMAP”). The collected GPS data points were then differentially corrected by post-processing and plotted out on aerial photograph imagery.

3.5 WETLAND CLASSIFICATION

While in the field, the various wetlands and watercourses were classified according to the “Cowardin system” as Palustrine Forested (“PFO”), Palustrine Emergent (“PEM”), Palustrine Scrub-Shrub (“PSS”) and Palustrine Open Water (“POW”), as further described below. In some cases, a wetland complex contained more than one wetland classification type. In those situations, each wetland type is listed and the first classification type represents the more dominant characteristic.

- **Palustrine Forested Wetlands (PFO)**

Forested wetlands are characterized by woody vegetation that is six meters (approximately 20 feet) tall or taller and normally includes an overstory of trees, an understory of young trees and/or shrubs and an herbaceous layer.

- **Palustrine Scrub-Shrub Wetlands (PSS)**

Scrub-shrub wetlands are typically dominated by woody vegetation less than six meters (approximately 20 feet) tall. Scrub-shrub land types may represent a successional stage leading to a forested wetland and includes shrubs, saplings, and trees or shrubs that are small and/or stunted due to environmental conditions.

- **Palustrine Emergent Wetlands (PEM)**

Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes not including mosses and lichens. These wetlands maintain the same appearance year after year, and are typically dominated by perennial plants that are present for the majority of the growing season.

- **Palustrine Open Water (POW)**

Areas of permanent open water that border on palustrine systems are referred to as POW. Areas of open water may exist as man-made or natural waterbodies.

3.6 POST-SURVEY DESKTOP ANALYSIS

The wetland and watercourse boundaries were plotted on aerial imagery and subsequently reviewed and confirmed. The aerial-based wetland plans in Appendix 2e-C: Alignment Sheets with Wetland and Waterbody Locations, show the locations of the delineated resources relative to the proposed limits of the Project in Massachusetts. Water quality designations were determined using Massachusetts mapping resources.

4.0 RESULTS

Appendix 2e-A includes tables highlighting the wetlands and watercourses identified during these investigations. Appendix 2e-B and Appendix 2e-C provide project mapping depicting the locations of the inventoried wetlands and watercourses; Appendix 2e-C includes the wetlands and watercourses data forms; and Appendix 2e-D provides representative site photographs of wetlands and watercourses located within the Massachusetts study area.

As illustrated in Tables 2e-A1 and 2e-A2 (Appendix 2e-A), a total of 116 wetlands and 65 watercourses were identified in association with the Massachusetts study area during the October 13, 2014, through September 15, 2015, investigations. A total of 81 wetlands examined in this study area are classified either wholly or in-part as PFO. A total of 36 wetlands examined during this study are classified either wholly or in-part as PSS, and another 31 wetlands examined during this study are classified either wholly or in-part as PEM. The wetland totals include only those field-delineated wetlands and waterbodies which are located within the Project workspace and will be impacted by construction or operation of the Project. Additional wetlands and watercourses identified in the survey corridor but not impacted by the proposed Project configuration will be included in any future delineation submissions.

4.1 WETLAND VEGETATION

The wetlands inventoried during the course of these investigations ranged from the drier PFO wetlands, to PEM wetlands and deepwater habitat. Common species encountered in the various PFO wetlands during the investigations included: Eastern hemlock (*Tsuga canadensis*) red maple (*Acer rubrum*), American elm (*Ulmus americana*), northern arrowwood (*Viburnum dentatum*), spicebush (*Lindera benzoin*), arrowleaf tearthumb (*Persicaria sagittatum*), skunk cabbage (*Symplocarpus foetidus*), sensitive fern (*Onoclea sensibilis*), winterberry (*Ilex verticillata*), cinnamon fern (*Osmundastrum cinnamomeum*), poison ivy (*Toxicodendron radicans*), jewelweed (*Impatiens capensis*), and swamp white oak (*Quercus bicolor*).

Common vegetation species encountered during the PSS wetland investigations included: red maple, multiflora rose (*Rosa multiflora*), silky dogwood (*Cornus amomum*), northern arrowwood, arrowleaf tearthumb, sensitive fern, jewelweed, woolgrass (*Scirpus cyperinus*), and reed canary grass (*Phalaris arundinacea*).

Common vegetation types found within the PEM wetland areas included: common cattail (*Typha latifolia*), jewelweed, arrowleaf tearthumb, woolgrass, willow (*Salix* spp.), arrowwood, meadowsweet (*Spiraea latifolia*), purple loosestrife (*Lythrum salicaria*), lurid sedge (*Carex lurida*), aster spp. (*Symphyotrichum* spp.), goldenrods (*Solidago* spp.), soft rush (*Juncus effusus*), Joe-Pye-weed (*Eutrochium maculatum*), sedges (*Carex* spp.) and sensitive fern. See Appendix 2e-D for additional details and site specific information for each wetland area.

4.2 WETLAND SOILS

Multiple soil types representing a wide variety of soil series designations were identified during this wetland and watercourse inventory. Soils described in the various wetlands appear to have formed in parent material including glacial till, glaciolacustrine sediments and glacial outwash. The soil types were identified as poorly drained to very poorly drained mineral soil with varying degrees of organics, and

included fine sandy loams, silt loams, sandy loams and mucks. Many areas were also identified as frequently flooded. Poor drainage was noted in areas with the presence of deep organic soils, sapric material in the surface layers, high organic contents in the topsoil and/or prolonged standing water. Additionally, varying degrees of stoniness and rockiness were observed. In the more developed and industrial portions of the study area, the wetland soils were often described as, or officially mapped as, disturbed.

See Appendix 2e-D for additional soils details and site specific information for each wetland area.

4.3 WATERCOURSES

The watercourses encountered during this inventory varied greatly in type, size and character. Some of the streams that were inventoried are natural, whereas others were anthropic. Silty sediments, sand, rock, gravel, riprap, and/or cobble bottoms dominated the natural stream beds that were inventoried. The shape, height, susceptibility to erosion and direction of flow of the individual watercourses also varied. Anthropic watercourses that were inventoried included those with culverts and corrugated and smooth drainage pipes, retention ponds, and anthropic farm ponds.

See Appendix 2e-E and for additional details and site specific information for each watercourse area.

5.0 REFERENCES

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APPENNDIX 2e-A

Tables

Table 2e-A1 Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Table 2e-A2 Waterbodies Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

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Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Pipeline Facilities								
Wright to Dracut Pipeline Segment	G	0.75	HA-N-W001-PFO	PFO	A2 A3 B10	DT PI	F3	Slope - Mid
Wright to Dracut Pipeline Segment	G	8.29	CS-M-W002-PEM	PEM	C4 B10 D5	DT PI	F3	Slope - mid
Wright to Dracut Pipeline Segment	G	13.52	HN-M-W001-PFO	PFO	A2 C1 A3 B10	DT PI	F3 S4	Depression
Wright to Dracut Pipeline Segment	G	13.58	HN-M-W002-PFO	PFO	A2 A3 D5	DT	S4 S5	Stream Fringe
Wright to Dracut Pipeline Segment	G	13.59	HN-M-W002-PSS	PSS	A1 D5	DT PI	F3 F2 S4	Depression
Wright to Dracut Pipeline Segment	G	13.90	HN-M-W004-PSS	PSS	C4 A3 B10 D5	DT PI	F3	Slope - mid
Wright to Dracut Pipeline Segment	G	14.01	HN-N-W005-PFO	PFO	A2 C4 B10 D2		F6	Depression
Wright to Dracut Pipeline Segment	G	14.01	HN-M-W005-PFO	PFO	A2 C4 D5	DT	F3	Depression
Wright to Dracut Pipeline Segment	G	14.01	HN-M-W005-PSS	PSS	A2 C4 D5	DT PI	F3	Depression
Wright to Dracut Pipeline Segment	G	14.04	HN-N-W005-PSS	PSS	C3 D5 D2	DT PI	F6	Depression
Wright to Dracut Pipeline Segment	G	14.63	HN-M-W007-PEM	PEM	C4 A3 D5 D2	DT PI	A11 F3	Depression
Wright to Dracut Pipeline Segment	G	14.66	HN-M-W006-PSS	PSS	A3 B10 D5	DT PI	F3	Depression
Wright to Dracut Pipeline Segment	G	14.74	HN-N-W006-PSS	PSS	A2 A3 A1 B10 D2	DT PI	F3	Depression
Wright to Dracut Pipeline Segment	G	14.87	HN-N-W001-PSS	PSS	A3 A1 D5	DT PI	A1	Depression
Wright to Dracut Pipeline Segment	G	14.98	HN-N-W002-PFO	PFO	A2 A3 A1 B10 D2		F3	Slope - mid
Wright to Dracut Pipeline Segment	G	15.14	HN-M-W008-PFO	PFO	A2 A3 D4	DT PI	F3	Flat

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Wright to Dracut Pipeline Segment	G	15.19	HN-M-W008-PSS	PSS	A2 D5	DT PI	F3	Flat
Wright to Dracut Pipeline Segment	G	15.51	HN-M-W009-PFO	PFO	A2 A3 B10 D5	DT PI	F3	Slope - mid
Wright to Dracut Pipeline Segment	G	15.56	HN-M-W011-PFO	PFO	A2 A3 B10 D2	DT	F3 F12	Slope - toe
Wright to Dracut Pipeline Segment	G	15.57	HN-M-W010-PSS	PSS	A2 C4 A3 D5	DT PI	F3 F12	Slope - mid
Wright to Dracut Pipeline Segment	G	18.71	WR-M-W012-PSS	PSS	A2 C3 C4 A3 B10 D5	DT PI	F3	Depression
Wright to Dracut Pipeline Segment	G	19.16	WR-N-W002-PFO	PFO	A2 C3 C4 A3 A1 B10 D5 D2 D3	DT PI	F3F8	Depression
Wright to Dracut Pipeline Segment	G	19.19	WR-N-W002-PSS	PSS	A2 C3 C4 A3 A1 C8 B10 D5 D2	RT DT PI	S5	Floodplain Terrace
Wright to Dracut Pipeline Segment	G	20.37	WR-M-W015-PFO	PFO	A2 A3 A1 B9 B10 D5	RT DT PI	F3	Slope - Mid
Wright to Dracut Pipeline Segment	G	20.43	WR-M-W016-PFO	PFO	A2 A3 B9 B10 D5	DT	S4	Slope - Mid
Wright to Dracut Pipeline Segment	G	20.62	WR-M-W020-PFO	PFO	A2 A3 A1 B9 B10 D5	DT MA	S4	Slope - Mid
Wright to Dracut Pipeline Segment	G	21.98	PL-M-W006-PFO	PFO	A2 C3 A3 A1 NONE	PI	S4	Slope - Mid, Logging road access area
Wright to Dracut Pipeline Segment	G	22.02	PL-M-W004-PFO	PFO	A2 A3 B9 D5 D4	DT	A2	Depression
Wright to Dracut Pipeline Segment	G	22.05	PL-E-W001-PFO	PFO	A2 A3 A1 B9		F3	Depression, Use PL-M-W004_UPL as a representative upland plot
Wright to Dracut Pipeline Segment	G	23.27	PL-M-W002-PEM	PEM	A2 A3 A1 B10 D5	RT DT PI	F3	Depression
Wright to Dracut Pipeline Segment	G	23.42	PL-M-W001-PFO	PFO	A2 C3 A3 B9 D5		F3	Depression

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Wright to Dracut Pipeline Segment	G	23.43	PL-M-W007-PSS	PSS	A2 A3 NONE	DT PI	F3	Flat
Wright to Dracut Pipeline Segment	G	25.18	PL-E-W003-PEM	PEM	C4 A3 D5	RT DT PI	S4	Slope - mid
Wright to Dracut Pipeline Segment	G	25.20	PL-E-W003-PFO	PFO	A2 A3 A1 B9 B10 D5 D2 B16	RT DT PI	A2	Stream fringe
Wright to Dracut Pipeline Segment	G	25.25	PL-E-W003-PSS	PSS	A2 A3 D5 D2	RT DT PI	A11 S6	Depression
Wright to Dracut Pipeline Segment	G	25.58	PL-E-W002-PFO	PFO	C4 B10 D5 D4	MA	F3	Stream fringe
Wright to Dracut Pipeline Segment	G	26.72	PL-M-W009-PEM	PEM	A2 C3 C4 A3 A1 B9 D5 C9	DT PI	F3	Depression
Wright to Dracut Pipeline Segment	G	26.73	PL-M-W009-PFO	PFO	A2 C3 C4 A3 A1 B9 C9	DT	F3	Depression
Wright to Dracut Pipeline Segment	G	26.80	PL-M-W010-PFO	PFO	A2 C4 A3 A1 B9 B10 D4	DT	S4	Depression
Wright to Dracut Pipeline Segment	G	26.96	AS-M-W001-PFO	PFO	C4 A3 B10 D5 D2 D4	DT PI MA	F3	Stream fringe floodplain
Wright to Dracut Pipeline Segment	G	27.07	AS-M-W001-PSS	PSS	A2 C3 C4 A3 A1 D5 D2	RT DT PI	F3 F6	Stream fringe
Wright to Dracut Pipeline Segment	G	27.55	AS-M-W004-PFO	PFO	A2 A3 A1 B9 C8 B10 D5 D4	RT DT PI MA	A1	Depression
Wright to Dracut Pipeline Segment	G	27.90	AS-M-W005-PFO	PFO	A2 C4 A3 A1 B10 D5	RT DT PI	S5	Slope - mid
Wright to Dracut Pipeline Segment	G	28.05	AS-M-W005-PSS	PSS	C3 C4 B10 D5	RT DT PI	A11F3	Slope - mid
Wright to Dracut Pipeline Segment	G	28.17	AS-M-W006-PFO	PFO	A2 C4 A3 A1 B9 B10 D5	DT MA	F3	Depression
Wright to Dracut Pipeline Segment	G	28.85	AS-M-W008-PFO	PFO	A2 C4 A3 B9 D5 D4	RT DT	F6	Depression
Wright to Dracut Pipeline Segment	G	28.93	AS-M-W009-PFO	PFO	A2 C3 A3 A1 B9 B10 D5	RT DT PI	F6	Depression

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Wright to Dracut Pipeline Segment	G	29.00	AS-M-W010-PFO	PFO	C4 A3 B10 D2	RT DT	F3	Depression
Wright to Dracut Pipeline Segment	G	29.05	AS-M-W011-PFO	PFO	A2 C4 A3 D2 D4		A3 A2	Depression
Wright to Dracut Pipeline Segment	G	29.17	AS-M-W012-PFO	PFO	A2 A3 B10 D5 D2	DT PI	A2	Depression
Wright to Dracut Pipeline Segment	G	29.20	AS-M-W013-PEM	PEM	A2 C3 A3 A1 D5 D3	PI	F7 F6	Depression, Tree stratum reduced to '15
Wright to Dracut Pipeline Segment	G	29.50	AS-M-W014-PEM	PEM	A2 C1 C3 A3 D5 D2	RT DT PI	F3 A4	Depression, Beaver damn downstream has inundated the PEM wetland upstream
Wright to Dracut Pipeline Segment	G	29.54	AS-M-W014-PFO	PFO	A2 C3 C4 A3 A1 B9 D5 D4	RT DT	A2	Depression
Wright to Dracut Pipeline Segment	G	29.62	AS-M-W015-PFO	PFO	C3 C4 B9 B10 D5	RT	F3	Slope - mid
Wright to Dracut Pipeline Segment	G	29.75	AS-M-W016-PFO	PFO	C3 C4 B10 D5	DT	F3	Slope - mid
Wright to Dracut Pipeline Segment	G	29.93	AS-M-W017-PSS	PSS	A2 C4 A3 D5	RT DT PI	F3	Slope - mid
Wright to Dracut Pipeline Segment	G	31.49	AS-M-W018-PFO	PFO	A2 C4 A3 B10 D5	RT DT PI	F3	Depression
Wright to Dracut Pipeline Segment	G	31.71	AS-M-W021-PEM	PEM	C3 C4 D5 D2	RT PI	F6	Floodplain Terrace
Wright to Dracut Pipeline Segment	H	4.18	CN-M-W002-PFO	PFO	A2 C3 C4 A3 A1 B10 D5 D3	DT PI	F3	Slope - toe, Veg. disturbance due to logging operation in surrounding forest
Wright to Dracut Pipeline Segment	H	4.20	CN-M-W002-PEM2	PEM	C3 C4 B10 D5	DT PI	F3	Depression, Veg. disturbance due to power line maintenance
Wright to Dracut Pipeline Segment	H	4.23	CN-M-W002-PEM	PEM				
Wright to Dracut Pipeline Segment	H	4.39	CN-M-W003-PSS	PSS	A2 C4 A3 B10 D5 D2	PI	F3	Slope - mid, Floodplain

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Wright to Dracut Pipeline Segment	H	4.39	CN-M-W003-PFO	PFO	C3 C4 D2	DT	F3	Slope - toe, Stream fringe
Wright to Dracut Pipeline Segment	H	4.48	CN-M-W004-PFO	PFO	A2 C4 A3 B10 D5	DT PI	F3	Slope - mid, Recent forestry activity by landowner
Wright to Dracut Pipeline Segment	H	16.34	ER-M-W002-PFO	PFO	B9 B10 D4	DT MA	F3	Depression
Wright to Dracut Pipeline Segment	H	21.56	NO-M-W003-PSS	PSS	C3 C4 B10 D5 D2	DT PI	F7 F3 F6	Slope - toe, Use NO-M-W004-UPL as representative upland plot
Wright to Dracut Pipeline Segment	H	21.63	NO-M-W004-PSS	PSS	C3 C4 B10 D5 D2	DT	F7 F3 F6	Slope - mid
Wright to Dracut Pipeline Segment	H	23.07	NO-M-W001-PEM	PEM	C3 C4 B8 B9 D5 D3 B6	PI	S4	Depression
Wright to Dracut Pipeline Segment	H	23.07	NO-M-W001-PFO	PFO	C4 B9 D4		F3	Depression
Wright to Dracut Pipeline Segment	H	23.22	NO-M-W002A-PEM	PEM	C3 C4 B9 NONE D3	DT PI	F3 F12	Depression, Access road bisects wetland
Wright to Dracut Pipeline Segment	H	23.87	NO-L-W006-PSS	PSS	A2 A3 B10	DT PI	F3	Slope - mid, Use NO-L-W007-UPL as representative upland plot
Wright to Dracut Pipeline Segment	H	23.89	NO-L-W008-PSS	PSS	A2 A3 B10	RT DT PI	F3	Slope - mid, Use NO-L-W007-UPL as representative upland plot
Wright to Dracut Pipeline Segment	H	27.76	WK-M-W001-PFO	PFO	C3 C4 B9 D5 D4	DT PI	F6	Depression
Wright to Dracut Pipeline Segment	K	1.75	DR-J-W004-PEM	PEM	B13 A2 A3 A1 B9 B10 D2	DT PI	A2	Flat, Use Dr-J-W003-Upl As Representative Upland Plot
Wright to Dracut Pipeline Segment	K	1.76	DR-J-W004-PSS	PSS	A2 A3 D2	DT PI	A2	Slope - Toe, Use Dr-J-W003-Upl As Repepresentative Upland Plot
Wright to Dracut Pipeline Segment	K	1.78	DR-J-W003-PFO	PFO	B13 A2 A3 B8 B9 D2	DT PI	F3	Depression
Lynnfield Lateral	N	2.99	AN-K-W002-PFO	PFO	C4 A3 B10 D2	DT PI	A3 A11 A2	Depression
Lynnfield Lateral	N	3.11	AN-K-W003-PFO	PFO	B9 B10 D2 D1	DT PI	F6	Depression, Stunted Vegetation - Buttressed Tree Roots

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Lynnfield Lateral	N	3.26	TK-K-W002-PFO	PFO	B4 A3 B9 B10	DT PI	A11	Depression
Lynnfield Lateral	N	4.38	TK-K-W001-PFO	PFO	A2 A3 B9 D2	DT PI	A3	Depression
Lynnfield Lateral	N	5.90	AN-K-W006-PFO	PFO	A3 B10 D2	DT PI	A1	Depression
Lynnfield Lateral	N	6.15	TK-K-W004-PFO	PFO	A2 A3 B9 B10 D2	DT PI	A1	Depression
Lynnfield Lateral	N	6.33	TK-K-W005-PFO	PFO	A2 A3 B9 D2	DT PI	F3	Depression
Lynnfield Lateral	N	6.34	TK-K-W005-PEM	PEM	A2 A3 D2	DT PI	A3	Stream Fringe
Lynnfield Lateral	N	7.33	AN-K-W008-PFO	PFO	A3 B8 B9 D2	DT PI	A1	Depression
Lynnfield Lateral	N	7.73	AN-M-W001-PEM	PEM	A2 C1 A3 D5 D2 D4	DT PI	A1	Depression
Lynnfield Lateral	N	7.87	AN-K-W011-PEM	PEM	A2 C1 A3 D4	DT PI	A1	Depression
Lynnfield Lateral	N	7.88	AN-K-W011-PFO	PFO	A2 C1 A3 D4	DT PI	A1	Depression
Lynnfield Lateral	N	8.04	AN-G-W002-PSS	PSS	A3 A1 B10 D2	DT PI	F2 S9	Depression
Lynnfield Lateral	N	8.29	WL-K-W002-PEM	PEM	A2 B7 A3 NONE	DT PI	OTHER	Depression
Lynnfield Lateral	N	13.55	RD-K-W001-PFO	PFO	A2 C1 A3 B9 D4	DT PI	A1	Depression
Lynnfield Lateral	N	13.59	RD-K-W001-PSS	PSS	A2 C1 A3 B9 D4	DT PI	A1	Depression
Peabody Lateral	O	0.07	LY-D-W001-PEM	PEM	A3	DT PI	F6	Depression
Peabody Lateral	O	0.10	LY-P-W001-PFO	PFO	A2 A3 A1 B9	DT PI	F3	Depression

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Peabody Lateral	O	0.14	LY-P-W001-PSS	PSS	A2 A3 A1 B9	DT PI	F3	Depression
Peabody Lateral	O	0.21	LY-D-W002-PFO	PFO	C3 A3 B9 D4	DT PI	F6	Depression
Peabody Lateral	O	0.28	LY-D-W002-PEM	PEM	A3	DT PI	A11	Depression, Soil, Vegetation And Hydrology Disturbed By Gas Line
Peabody Lateral	O	0.47	LY-D-W003-PFO	PFO	A3 B9	DT PI	A11 F6	Depression
Peabody Lateral	O	0.51	LY-M-W002-PFO	PFO	B9 D5 D2 D4	DT PI	A11 F3	Floodplain Terrace
Haverhill Lateral	P	4.77	ME-P-W004-PEM	PEM	A2 A3 A1 B9 NONE	DT PI	F3 A2	Depression
Haverhill Lateral	P	4.78	ME-P-W004-PFO	PFO	A2 A3 B9 NONE	DT PI	F3 A1	Depression
Haverhill Lateral	P	5.54	ME-P-W005-PEM	PEM	A2 A3 B9 NONE	DT PI	A12	Flat
Haverhill Lateral	P	5.60	ME-P-W005-PSS	PSS	A2 A3 NONE	DT PI	A1	Slope - Mid
Haverhill Lateral	P	5.66	ME-P-W005-PFO	PFO	A2 A3 NONE	DT PI	A3 A2 A1	Flat
Haverhill Lateral	P	6.30	ME-P-W001-PEM	PEM	A2 A3 A1	RT DT PI	F3	Depression, Soils Were Disturbed Due To Gas Line. Due To Snow Melt Flood Levels And Bank Full Conditions Present
Haverhill Lateral	P	6.34	ME-P-W001-PFO	PFO	A2 A3 A1	DT PI	F3 F2	Depression, Flood Levels And Bank Full Due To Snow Melt Conditions
Haverhill Lateral	P	6.67	ME-E-W001-PEM	PEM	C3 B9 NONE	DT PI	S5	Depression
Haverhill Lateral	P	6.96	ME-P-W007-PSS	PSS	C3 A3 NONE	DT PI	F3	Slope - Toe
Haverhill Lateral	P	9.16	ME-E-W004-PFO	PFO	A2 A3 B9 D2	DT PI	A2	Depression

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
Fitchburg Lateral Extension	Q	13.87	LU-D-W001-PFO	PFO	A3 B2 B9 D2		F3	Depression
Aboveground Facilities								
Wright to Dracut Pipeline Segment	G	17.07	WR-M-W023-PEM	PEM	C3 C4 D5 D1	DT PI	F3	Slope - Toe
Wright to Dracut Pipeline Segment	G	23.69	NO-L-W002-PFO	PFO	A2 A3 B10	DT PI	F6	Depression
Wright to Dracut Pipeline Segment	H	23.69	NO-L-W016-PFO	PFO	A2 A3 A1 B9 D2	DT MA	S5	Depression
Wright to Dracut Pipeline Segment	H	23.79	NO-L-W007-PEM	PEM	A3 D2	RT DT PI	F3	Slope - Mid
Wright to Dracut Pipeline Segment	K	1.05	DR-N-W009-PFO	PFO	C3 A3 NONE	DT PI	A6	Flat
Wright to Dracut Pipeline Segment	K	1.05	DR-N-W010-PFO	PFO	A3 NONE	DT PI	F3	Flat
Maritimes Delivery Line	L	1.05	DR-N-W003-PFO	PFO	A3 B9 NONE	DT PI	F3	Depression
Maritimes Delivery Line	L	1.05	DR-N-W004-PFO	PFO	A2 A3 B9 NONE	DT PI	A2	Depression
Maritimes Delivery Line	L	1.05	DR-N-W005-PFO	PFO	A2 A3 B9 B10	DT PI	F3	Stream Fringe
Contractor Yards								
NED-G-0700	G	17.19	WR-M-W011-PEM	PEM	A2 D5	DT PI	S4	Depression
NED-K-0100	K	1.48	DR-G-W003-PFO	PFO	A3 B8 B10 D2	DT PI	S5	Slope - Mid
NED-K-0100	K	1.48	DR-D-W002-PFO	PFO	C3 A3	RT DT PI	A11 F3	Depression
NED-K-0100	K	1.48	DR-D-W003-PFO	PFO	A3 B9	RT DT PI	A11 F3	Depression
NED-K-0100	K	1.48	DR-D-W004-PFO	PFO	C3 A3 B9	RT DT PI	A11 F3	Depression
NED-K-0100	K	1.48	DR-D-W005-PFO	PFO	A3 B9	RT DT PI	A11 F3	Depression

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
NED-K-0100	K	1.48	DR-G-W001-PFO	PFO	A3 A1 B9 D2	DT PI	F3	Slope - Toe, Use DR-G-W005-Upl As Representative Upland Plot
NED-K-0100	K	1.48	DR-A-W002-PFO	PFO	A3 B9 D4	DT PI	A11 F3 S1	Depression
NED-K-0100	K	1.48	DR-A-W001-PFO	PFO	A2 A3 B9 B10	DT	A11 F3	Drainageway
NED-K-0100	K	1.48	DR-G-W002-PSS	PSS	A2 A3 D2	DT PI	F3	Slope - Toe, Use DR-A-W001-Upl As Representative Upland Plot
NED-K-0100	K	1.48	DR-D-W001-PSS	PSS	A3 NONE	DT PI	F3	Flat
NED-K-0100	K	1.48	DR-D-W001-PFO	PFO	A2 A3 NONE	DT PI	F3	Slope - Mid
NED-K-0100	K	1.48	DR-D-W006-PFO	PFO	A2 A3 NONE	DT PI	F6	Slope - Mid
NED-K-0100	K	1.48	DR-G-W005-PFO	PFO	A3 A1	DT PI	F3	Slope - Toe
NED-K-0100	K	1.48	DR-G-W006-PFO	PFO	A1 D2	DT PI	F3	Slope - Mid, Use Dr-G-W005-Upl As Representative Upland Plot
NED-K-0100	K	1.48	DR-G-W004-PFO	PFO	A3 A1 D2	DT PI	S4 S5	Slope - Mid
NED-K-0100	K	1.48	DR-G-W002-PFO	PFO	A2 A3 D2	DT PI	F3 S4	Slope - Mid, Use DR-A-W001-Upl As Representative Upland Plot
Access Roads								
NED-TAR-G-1300	G	13.57	HN-M-W002-PFO	PFO	A2 A3 D5	DT	S4 S5	Stream Fringe
NED-TAR-G-1300	G	13.57	HN-M-W002-PEM	PEM	A2 C1 C3	DT PI	A1	Depression
NED-TAR-G-1300	G	13.57	HN-M-W004-PSS	PSS	C4 A3 B10 D5	DT PI	F3	Slope - Mid
NED-TAR-G-1300	G	13.57	HN-M-W010-PSS	PSS	A2 C4 A3 D5	DT PI	F3 F12	Slope - Mid
NED-TAR-G-1300	G	13.57	HN-M-W011-PFO	PFO	A2 A3 B10 D2	DT	F3 F12	Slope - Toe
NED-TAR-G-1400	G	17.32	WR-M-W002-PEM	PEM	C3 C4 A3 D5	RT DT PI	A11 F3	Flat
NED-TAR-G-1800	G	21.57	PL-M-W004-PFO	PFO	A2 A3 B9 D5 D4	DT	A2	Depression

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
NED-TAR-G-1800	G	21.57	PL-M-W004-PEM	PEM	A2 C1 A3 A1 D5 D4	RT DT PI	A1	Depression
NED-TAR-G-1800	G	21.57	PL-E-W001-PFO	PFO	A2 A3 A1 B9		F3	Depression, Use PL-M-W004_Upl As Representative Upland Plot
NED-TAR-G-2000	G	25.34	PL-E-W002-PEM	PEM	A2 A3 A1 D5 D2	RT DT PI	A2	Depression
NED-TAR-G-2000	G	25.61	PL-E-W002-PFO	PFO	C4 B10 D5 D4	MA	F3	Stream Fringe
NED-TAR-G-2300	G	27.23	AS-M-W002-PSS	PSS	A2 C4 A3 B10 D5	RT DT PI	F3	Depression
NED-TAR-G-2300	G	27.23	AS-M-W003-PSS	PSS	C3 C4 B10 D5	RT DT PI	F3 F12	Slope - Mid
NED-TAR-G-2600	G	29.41	AS-M-W014-PEM	PEM	A2 C1 C3 A3 D5 D2	RT DT PI	F3 A4	Depression, Beaver Dam Downstream Has Inundated The Pem Wetland Upstream
NED-TAR-G-2600	G	29.41	AS-M-W014-PSS	PSS	A2 C4 A3 B10 D5	RT DT PI	A11 F3	Slope - Mid, Surface Hydrolic Connection To Smith Brook
NED-TAR-G-2600	G	29.41	AS-M-W014-PFO	PFO	A2 C3 C4 A3 A1 B9 D5 D4	RT DT	A2	Depression
NED-TAR-G-2600	G	29.41	AS-M-W015-PFO	PFO	C3 C4 B9 B10 D5	RT	F3	Depression
NED-TAR-H-0300	H	2.29	CN-M-W001-PFO	PFO	A2 A3 B10 D5 D4	DT PI	F2 F6	Depression
NED-TAR-H-0500	H	4.14	CN-M-W003-PSS	PSS	A2 C4 A3 B10 D5 D2	PI	F3	Slope - Mid, Floodplain
NED-TAR-H-1800	H	22.91	NO-M-W002A-PEM	PEM	C3 C4 B9 NONE D3	DT PI	F3 F12	Depression, Access Road Bisects Wetland
NED-TAR-H-1800	H	22.91	NO-M-W002-PEM	PEM	C3 C4 B10 D3	DT PI	F3 F12	Depression
NED-TAR-K-0100	K	0.1	DR-D-W008-PSS	PSS	A3	DT PI	S4 A12	Depression
NED-TAR-N-1000	N	8.53	WL-P-W003-PSS	PSS	A3 A1 B9	DT PI	F3	Depression

¹ Each segment is associated with its own set of mileposts beginning at 0.00

² Mileposts for Contractor Yards and Access Roads are given as nearest MP, which indicates the point at which the Access Road or Contractor Yard connects with the pipeline construction ROW, or closest MP to the construction ROW if there is no direct connection.

³ Wetland series number generated to identify wetlands within and adjacent to the Project corridor in accordance with the feature identification nomenclature described in Table 2e-2.

⁴ Wetlands classification according to Cowardin et al 1979; PEM = Palustrine Emergent Wetland; PFO = Palustrine Forested Wetland; PSS = Palustrine Scrub-Shrub Wetland; POW = Palustrine Open Water; Other = accommodates all other wetland types.

Table 2e-A1
Wetlands Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Milepost ²	Wetland Identificaiton Number ³	Wetland Class ⁴	Wetland Hydrology Indicator ⁵	Hydrophytic Vegetation Indicator ⁶	Hydric Soil Indicator ⁷	Wetland Description
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⁵ Wetland Hydrology Indicators are described in Table 2e-4.

⁶ RT = Rapid Test (all dominant species are rated as OBL or FACW); DT=Dominance Test (more than 50% of the dominant species are OBL, FACW, and/or FAC); PI = Prevelance Index is less than or equal to 3.0.

⁷ Hydric Soil Indicators are described in Table 2e-3.

Table 2e-A2
Waterbodies Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Nearest Milepost ²	Waterbody Identification Number ³	Waterbody Name ⁴	Waterbody Frequency Type ⁵	Water Quality Designation/Fishery Classification ⁶	Crossing Length (ft) ⁷
Pipeline Facilities							
Wright to Dracut Pipeline Segment	G	0.69	HA-N-S001	UNT to Kinderhook Creek	I	B/CFR	36
Wright to Dracut Pipeline Segment	G	0.76	HA-N-S002	UNT to Kinderhook Creek	I	B/CFR	10
Wright to Dracut Pipeline Segment	G	13.53	HN-M-S001	UNT to Cleveland Brook	P	B/CFR	10
Wright to Dracut Pipeline Segment	G	13.59	HN-M-S002	UNT to Cleveland Brook	P	B/CFR	0
Wright to Dracut Pipeline Segment	G	14.65	HN-M-S003	UNT to Cady Brook	E	A/CFR	0
Wright to Dracut Pipeline Segment	G	14.96	HN-M-S004	Cady Brook	P	A/HQ/CFR	23
Wright to Dracut Pipeline Segment	G	14.96	HN-M-S004A	Cady Brook	I	A/CFR	26
Wright to Dracut Pipeline Segment	G	15.41	HN-N-S001	UNT to Cady Brook	P	A/CFR	26
Wright to Dracut Pipeline Segment	G	15.55	HN-N-S002	UNT to Cady Brook	I	B/CFR	12
Wright to Dracut Pipeline Segment	G	17.75	WR-M-S005	UNT to Westfield Brook	P	B/CFR	0
Wright to Dracut Pipeline Segment	G	18.88	WR-M-S009	UNT to Westfield Brook	P	B/HQ/CFR	19
Wright to Dracut Pipeline Segment	G	19.10	WR-M-S016	UNT to Westfield Brook	P	B/CFR	15
Wright to Dracut Pipeline Segment	G	19.15	WR-M-S018	UNT to Westfield Brook	I	B/CFR	29
Wright to Dracut Pipeline Segment	G	19.18	WR-M-S019	UNT to Westfield Brook	P	B/CFR	22
Wright to Dracut Pipeline Segment	G	19.20	WR-M-S017B	UNT to Westfield Brook	P	B/CFR	14
Wright to Dracut Pipeline Segment	G	19.21	WR-M-S017C	UNT to Westfield Brook	I	B/CFR	0
Wright to Dracut Pipeline Segment	G	20.63	WR-M-S015	UNT to Westfield River	I	B/CFR	0
Wright to Dracut Pipeline Segment	G	25.26	PL-E-S003	UNT to Meadow Brook	I	B/CFR	8
Wright to Dracut Pipeline Segment	G	25.49	PL-E-S002	UNT to Meadow Brook	P	B/CFR	20
Wright to Dracut Pipeline Segment	G	25.58	PL-E-S001A	UNT to Meadow Brook	I	B/CFR	12
Wright to Dracut Pipeline Segment	G	26.81	PL-M-S003	UNT to North Branch Swift River	I	B/CFR	0
Wright to Dracut Pipeline Segment	G	26.93	PL-M-S004	UNT to North Branch Swift River	I	B/CFR	0
Wright to Dracut Pipeline Segment	G	27.09	AS-M-S001	Billings Brook	P	B/HQ/CFR	51
Wright to Dracut Pipeline Segment	G	27.20	AS-M-S002	Swift River	P	B/HQ/CFR	0
Wright to Dracut Pipeline Segment	G	27.48	AS-M-S003	UNT to Swift River	P	B/CFR	9
Wright to Dracut Pipeline Segment	G	27.97	AS-M-S004	Ford Brook	NF	B/HQ/CFR	419
Wright to Dracut Pipeline Segment	G	28.99	AS-M-S006	UNT to Swift River	I	B/HQ/CFR	5
Wright to Dracut Pipeline Segment	G	29.06	AS-M-S007	UNT to Swift River	P	B/HQ/CFR	5
Wright to Dracut Pipeline Segment	G	29.17	AS-M-S008	UNT to Swift River	I	B/CFR	9
Wright to Dracut Pipeline Segment	G	29.51	AS-M-S009B	UNT to Smith Brook	P	A/CFR	4

Table 2e-A2
Waterbodies Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Nearest Milepost ²	Waterbody Identification Number ³	Waterbody Name ⁴	Waterbody Frequency Type ⁵	Water Quality Designation/Fishery Classification ⁶	Crossing Length (ft) ⁷
Wright to Dracut Pipeline Segment	G	29.50	AS-M-S009A	Smith Brook	P	A/CFR	75
Wright to Dracut Pipeline Segment	G	29.85	AS-M-S010	UNT to South River	I	B/CFR	21
Wright to Dracut Pipeline Segment	G	31.71	AS-M-S011	UNT to Bear River	P	B/CFR	7
Wright to Dracut Pipeline Segment	H	4.21	CN-M-S005	UNT to Deerfield River	P	B/CFR	11
Wright to Dracut Pipeline Segment	H	4.62	CN-M-S003	UNT to Deerfield River	I	B/CFR	9
Wright to Dracut Pipeline Segment	H	4.63	CN-M-S004	UNT to Deerfield River	P	B/CFR	5
Wright to Dracut Pipeline Segment	H	15.72	MO-M-S002	UNT to Millers River	I	B	0
Wright to Dracut Pipeline Segment	H	15.72	MO-M-S002A	UNT to Millers River	E	B	6
Wright to Dracut Pipeline Segment	H	16.07	ER-M-S001	Millers River	P	B	84
Wright to Dracut Pipeline Segment	H	16.40	ER-M-S002	UNT to Millers River	I	B	13
Wright to Dracut Pipeline Segment	H	23.72	NO-L-S002	UNT to Millers Brook	I	B	11
Wright to Dracut Pipeline Segment	H	23.82	NO-G-S002	UNT to Millers Brook	I	B	0
Wright to Dracut Pipeline Segment	K	1.68	DR-E-S006	UNT to Trout Brook	P	B	0
Wright to Dracut Pipeline Segment	K	1.69	DR-E-S006A	UNT to Trout Brook	P	B	0
Lynnfield Lateral	N	2.91	AN-K-S001A	UNT to Ames Pond	E	B	11
Lynnfield Lateral	N	3.28	TK-K-S001	UNT to Ames Pond	E	B	0
Lynnfield Lateral	N	4.39	TK-K-S002	UNT to Meadow Brook	P	B	13
Lynnfield Lateral	N	6.12	TK-K-S003	UNT to Shawsheen River	P	B	11
Lynnfield Lateral	N	6.34	TK-K-S004A	UNT to Shawsheen River	P	B	13
Lynnfield Lateral	N	6.62	TK-K-S005	Shawsheen River	P	B	0
Lynnfield Lateral	N	6.81	AN-P-S001	UNT to Shawsheen River	P	B	0
Lynnfield Lateral	N	7.73	AN-K-S004	UNT to Shawsheen River	P	B	10
Lynnfield Lateral	N	8.01	AN-G-S003	UNT to Shawsheen River	P	B	0
Lynnfield Lateral	N	8.10	WL-K-S001	UNT to Shawsheen River	I	B	0
Lynnfield Lateral	N	8.77	WL-P-S002	UNT to Martins Brook	NF	B	338
Haverhill Lateral	P	2.36	ME-P-S004	UNT to Harris Brook	P	B	0
Haverhill Lateral	P	3.63	ME-P-S007B	UNT to Harris Brook	I	B	0
Haverhill Lateral	P	3.73	ME-P-S007	UNT to Harris Brook	I	B	30
Haverhill Lateral	P	4.49	ME-P-S005	UNT to Bartlett Brook	NF	B	19
Fitchburg Lateral Extension	Q	13.37	LU-K-S001	UNT to Falulah Brook	I	B	3
Fitchburg Lateral Extension	Q	13.61	LU-A-S001A	UNT to Falulah Brook	E	B	13

Table 2e-A2
Waterbodies Identified Along the Massachusetts Portion of the Northeast Energy Direct Project

Facility Name	Segment ¹	Nearest Milepost ²	Waterbody Identification Number ³	Waterbody Name ⁴	Waterbody Frequency Type ⁵	Water Quality Designation/Fishery Classification ⁶	Crossing Length (ft) ⁷
Fitchburg Lateral Extension	Q	13.62	LU-A-S001B	UNT to Falulah Brook	E	B	0
Aboveground Facilities							
Market Path Mid Station 3	H	23.98	NO-G-S001	UNT to Millers Brook	P	B	N/A
Contractor Yards							
NED-K-0100	K	1.41	DR-A-S001	UNT to Potash Brook	E	B	N/A
NED-K-0100	K	1.50	DR-A-S001B	UNT to Potash Brook	E	B	N/A
Access Roads							
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

¹ Each segment is associated with its own set of mileposts beginning at 0.00

² Mileposts for Contractor Yards and Access Roads are given as nearest MP, which indicates the point at which the Access Road or Contractor Yard connects with the pipeline construction ROW, or closest MP to the construction ROW if there is no direct connection.

³ Waterbody series number generated to identify waterbodies within and adjacent to the Project corridor in accordance with the feature identification nomenclature described in Table 2e-2.

⁴ Unnamed tributary: waterbody is not mapped as a tributary on available GIS data layers; tributary name will be identified based on review of USGS topographical mapping in the final filing.

⁵ P = perennial; I = intermittent; E = Ephemeral; NF = No Flow; AP = Artificial Path; C = Connector

⁶ Water quality classifications were identified through a desktop review of available GIS data layers.

⁷ Existing waterbodies will not be impacted. Any improvements to existing culverts will be permitted as necessary.

APPENNDIX 2e-B

Wetland and Waterbody Locations Identified on USGS 7.5 Minute Topographic Map Excerpts

(provided under separate cover in Volume II, Appendix E of the FERC Environmental Report)

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APPENNDIX 2e-C

Wetland and Waterbody Locations Identified on Aerial Alignment Sheets

(provided under separate cover in Volume II, Appendix F, of the FERC Environmental Report)

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APPENDIX 2e-D

Army Corps of Engineers Wetland Data Sheets and Photographs

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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 4047.4	County: Berkshire	Date: 06/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HA-N-W001-PFO
Investigators: N		Quad Name: Hancock	Township: Hancock	
Logbook No.: 1	Logbook Pg.: 60	Tract: 20930		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.538628	Long: -73.327313	Datum: NAD83	
Soil Map Unit Name: Lanesboro-Dummerston association, steep, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 5</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	30	YES	FACU
<i>Acer rubrum</i>	30	YES	FAC
Total Cover:	60		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lonicera morrowii</i>	5	YES	FACU
<i>Rhamnus cathartica</i>	15	YES	FAC
<i>Spiraea latifolia</i>	1	NO	FACW
<i>Carya sp</i>	2	NA	NA
Total Cover:		23	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	85	YES	FACW
Total Cover:		85	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>86</u>	x 2 = <u>172</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>35</u>	x 4 = <u>140</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>166 (A)</u>	<u>447 (B)</u>
Prevalence Index = B/A = <u>2.69</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	2.5YR3/1	100					LOAM	
10-20	2.5Y4/1	95	5YR4/6	5	C	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 4114.2	County: Berkshire	Date: 06/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HA-N-W001-UPL
Investigators: N		Quad Name: Hancock	Township: Hancock	
Logbook No.: 1	Logbook Pg.: 61	Tract: 20930		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 5	
Subregion (LRR): Middle Atlantic	Lat: 42.538605	Long: -73.327066	Datum: NAD83	
Soil Map Unit Name: Lanesboro-Dummerston association, steep, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula papyrifera</i>	5	NO	FACU
<i>Acer saccharum</i>	80	YES	FACU
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	15	YES	FACU
<i>Prunus serotina</i>	10	YES	FACU
<i>Acer pensylvanicum</i>	5	NO	FACU
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Polygonatum biflorum</i>	10	YES	FACU
<i>Carya spp</i>	1	NA	NONE
<i>Prunus serotina</i>	5	NO	FACU
<i>Acer saccharum</i>	10	YES	FACU
Total Cover:		26	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>140</u>	x 4 = <u>560</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>560 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR3/2	100					LOAM	
4-10	10YR5/4	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 43825.9	County: Berkshire	Date: 06/04/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CS-M-W002-PEM
Investigators: CM		Quad Name: Cheshire		Township: Cheshire
Logbook No.: 3	Logbook Pg.: 24	Tract: 20856		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.519637 Long: -73.184651 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input checked="" type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 11 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea tomentosa</i>	10	YES	FACW
<i>Acer rubrum</i>	5	YES	FAC
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acorus calamus</i>	10	NO	OBL
<i>Onoclea sensibilis</i>	80	YES	FACW
<i>Solidago rugosa</i>	10	NO	FAC
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>90</u>	x 2 = <u>180</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>115 (A)</u>	<u>235 (B)</u>
Prevalence Index = B/A = <u>2.04</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/1	100					CLAY LOAM	
4-14	10YR 4/2	30	10YR 6/1 10YR 4/6	60 10	D C	M M	CLAY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 43857.4	County: Berkshire	Date: 06/04/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: CS-M-W002-UPL
Investigators: CM	Quad Name: Cheshire	Township: Cheshire	

Logbook No.: 3 Logbook Pg.: 25 Tract: 20856

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.519684 Long: -73.184509 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: MOWED LAWN. DISTURBED

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
--	--

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Taxus canadensis</i>	15	YES	FACU
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Poa sp</i>	40	NA	NONE
<i>Duchesnea indica</i>	60	YES	FACU
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>75</u>	x 4 = <u>300</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75 (A)</u>	<u>300 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR4/4	50	10YR3/2	50	C	M	SILT LOAM	
6-18	10YR4/6	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 71511.1	County: Berkshire	Date: 06/01/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W001-PFO
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 2	Logbook Pg.: 128	Tract: 20963		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 0	
Subregion (LRR): Middle Atlantic	Lat: 42.473571	Long: -73.110322	Datum: NAD83	
Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony			NWI Classification: PFO4E	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Picea mariana</i>	50	YES	FACW
<i>Hamamelis virginiana</i>	40	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lindera benzoin</i>	10	YES	FACW
<i>Hamamelis virginiana</i>	10	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex stricta</i>	50	YES	OBL
<i>Toxicodendron radicans</i>	20	YES	FAC
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Carex crinita</i>	10	NO	OBL
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>60</u>	x 1 = <u>60</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>50</u>	x 4 = <u>200</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>210 (A)</u>	<u>490 (B)</u>
Prevalence Index = B/A = <u>2.33</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-14	10G 5/2	70	N2.5	30	C	M	LOAMY VERY FINE SAND	MICA FLAKES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 71594.1	County: Berkshire	Date: 06/01/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W001-UPL
Investigators: CM		Quad Name: Peru		Township: Hinsdale
Logbook No.: 2	Logbook Pg.: 130	Tract: 20963		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 7

Subregion (LRR): Middle Atlantic Lat: 42.473431 Long: -73.110078 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe) </p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	5	NO	FACU
<i>Tsuga canadensis</i>	95	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	15	YES	FACU
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>115</u>	x 4 = <u>460</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>115 (A)</u>	<u>460 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/2	100					ORGANIC	
3-5	10YR 3/3	70	10YR 4/1	30	C	M	SANDY LOAM	
5-16	7.5YR 4/5	100					LOAMY SAND	
16-22	7.5YR 3/6	100					LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

22

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 71855.7	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W002-PFO
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 2	Logbook Pg.: 139	Tract: 20963		
Landform (hillslope, terrace, etc.): Stream fringe		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.473107	Long: -73.109208	Datum: NAD83	
Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony			NWI Classification: PEM1E	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
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<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	40	YES	FAC
<i>Tsuga canadensis</i>	20	YES	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Betula alleghaniensis</i>	10	YES	FAC
<i>Abies balsamea</i>	10	YES	FAC
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	5	YES	OBL
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>5</u>	x 1 = <u>5</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>30</u>	x 4 = <u>120</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>335 (B)</u>
Prevalence Index = B/A = <u>3.19</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-14	GLE Y2 5/10G	70	GLE Y1 2.5N	30	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS

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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 71864.6	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W002-PSS
Investigators: CM		Quad Name: Peru		Township: Hinsdale
Logbook No.: 2	Logbook Pg.: 138	Tract: 20963		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.472944	Long: -73.109307	Datum: NAD83	
Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony			NWI Classification: PEM1E	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	10	YES	FAC
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:	20		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	20	YES	FACW
<i>Alnus incana</i>	35	YES	FACW
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex alopecoidea</i>	10	NO	FACW
<i>Onoclea sensibilis</i>	30	YES	FACW
<i>Carex crinita</i>	30	YES	OBL
<i>Galium asprellum</i>	15	NO	OBL
<i>Impatiens capensis</i>	10	NO	FACW
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>45</u>	x 1 = <u>45</u>
FACW Species: <u>105</u>	x 2 = <u>210</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>170 (A)</u>	<u>315 (B)</u>

Prevalence Index = B/A = 1.85

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-14	10G 2.5/2	70	N2.5	30	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 72223.7	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W002-UPL
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 2/3	Logbook Pg.: 136	Tract: 20963	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.472298 Long: -73.108284 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhododendron roseum</i>	10	YES	FAC
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	40	YES	FACU
<i>Dennstaedtia punctilobula</i>	30	YES	UPL
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>40</u>	x 4 = <u>160</u>
UPL Species: <u>30</u>	x 5 = <u>150</u>
Column Totals: <u>110 (A)</u>	<u>400 (B)</u>
Prevalence Index = B/A = <u>3.64</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	90	10YR 6/1	10	C	M	SANDY LOAM	
4-8	7.5YR 4/5	100					SANDY LOAM	
8-15	7.5YR 4/5	90	7.5YR 5/6	10	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

15

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 73509.9	County: Berkshire	Date: 06/04/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W004-PSS
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 30	Tract: 20963	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.470371 Long: -73.104466 Datum: NAD83

Soil Map Unit Name: Lyman-Tunbridge association, steep, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present? Yes
 No
 Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input checked="" type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lindera benzoin</i>	30	YES	FACW
<i>Spiraea alba</i>	30	YES	FACW
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Carex crinita</i>	10	NO	OBL
<i>Solidago rugosa</i>	40	YES	FAC
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>300 (B)</u>
Prevalence Index = B/A = <u>2.31</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/2	90	10 YR 4/1	10	C	PL	SILT LOAM	
7-16	10YR 5/2	30	10 YR 6/1 10YR 5/6	60 10	D C	M M	SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown				
General Comments:								

PHOTOS



WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 73400.7	County: Berkshire	Date: 06/04/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W004-UPL
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 31	Tract: 20963	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 15

Subregion (LRR): Middle Atlantic Lat: 42.470556 Long: -73.104609 Datum: NAD83

Soil Map Unit Name: Lyman-Tunbridge association, steep, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: VEG DISTURBED POSSIBLE MANAGEMENT PLAN IN EFFECT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	40	YES	FACU
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	20	YES	FAC
<i>Carex sp</i>	15	NA	NONE
<i>Phalaris arundinacea</i>	15	YES	FACW
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>40</u>	x 4 = <u>160</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75 (A)</u>	<u>250 (B)</u>
Prevalence Index = B/A = <u>3.33</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	5YR 3/3	100					ORGANIC	
3-7	5YR 4/4	90	5YR 5/6	10	C	M	SANDY LOAM	
7-16	7.5YR 5/6	100					LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 81733.5	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W005-PFO
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 1	Logbook Pg.: 39	Tract: 20984		
Landform (hillslope, terrace, etc.): Floodplain terrace		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.472253	Long: -73.076413	Datum: NAD83	
Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input type="checkbox"/> Moss Trim Lines (B16)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Crayfish Burrows (C8)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> Microtopographic Relief (D4)</td> </tr> <tr> <td><input type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 5 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	20	YES	FAC
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Acer saccharum</i>	70	YES	FACU
Total Cover:		100	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Acer rubrum</i>	15	YES	FAC
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dennstaedtia punctilobula</i>	20	YES	UPL
<i>Phegopteris connectilis</i>	2	NO	FACU
<i>Parathelypteris novaboracensis</i>	40	YES	FACW
<i>Dryopteris intermedia</i>	15	NO	FAC
Total Cover:		77	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>92</u>	x 4 = <u>368</u>
UPL Species: <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>202 (A)</u>	<u>698 (B)</u>
Prevalence Index = B/A = <u>3.46</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	7.5YR 2.5/1	100					FINE SANDY LOAM	
10-20	7.5YR 3/1	93	7.5YR 4/6 10YR 3/1	7 30	C C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 81564.8	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W005-PSS
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 38	Tract: 20984		
Landform (hillslope, terrace, etc.): Floodplain terrace		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.471839	Long: -73.076850	Datum: NAD83	
Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 12	
Saturation Present? (includes capillary fringe) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 12	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Salix spp</i>	20	NA	NA
<i>Spiraea latifolia</i>	35	YES	FACW
<i>Rhamnus cathartica</i>	15	YES	FAC
Total Cover:	70		

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Equisetum pratense</i>	20	NO	FACW
<i>Carex crinita</i>	10	NO	OBL
<i>Solidago rugosa</i>	40	YES	FAC
<i>Veratrum viride</i>	10	NO	FACW
Total Cover:	80		

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>65</u>	x 2 = <u>130</u>
FAC Species: <u>55</u>	x 3 = <u>165</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>305 (B)</u>
Prevalence Index = B/A = <u>2.35</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR3/1	93	5Y4/4	7	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown ROCK REFUS AL - STONY 12	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



11-08-15 11:23:17

Lat: 42° 28' 18" N Lon: 73° 4' 36" W

EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 81779.2	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W005-UPL
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 1	Logbook Pg.: 40	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.472399 Long: -73.076260 Datum: NAD83

Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	30	YES	FACU
<i>Fagus grandifolia</i>	35	YES	FACU
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Acer saccharum</i>	5	NO	FACU
<i>Tsuga canadensis</i>	5	NO	FACU
<i>Acer pensylvanicum</i>	10	YES	FACU
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris noveboracensis</i>	10	YES	FAC
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>105</u>	x 4 = <u>420</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>470 (B)</u>
Prevalence Index = B/A = <u>3.76</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	7.5YR 2.5/1	100					FINE SANDY LOAM	
2-4	7.5YR 5/2	100					FINE SANDY LOAM	
2-0	ORGANIC							
4-20	7.5YR 5/6	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 74119.6	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W005-PFO
Investigators: CM		Quad Name: Peru		Township: Hinsdale
Logbook No.: 3	Logbook Pg.: 12	Tract: 20963		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.469726 Long: -73.102166 Datum: NAD83

Soil Map Unit Name: Lyman-Tunbridge association, steep, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
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<input type="checkbox"/> Geomorphic Position (D2)																																
<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	45	YES	FAC
<i>Betula papyrifera</i>	40	YES	FACU
<i>Fagus grandifolia</i>	5	NO	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula populifolia</i>	15	YES	FAC
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Acer rubrum</i>	25	YES	FAC
Total Cover:		60	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris noveboracensis</i>	30	YES	FAC
<i>Dryopteris intermedia</i>	30	YES	FAC
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>145</u>	x 3 = <u>435</u>
FACU Species: <u>65</u>	x 4 = <u>260</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>210 (A)</u>	<u>695 (B)</u>
Prevalence Index = B/A = <u>3.31</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	100					ORGANIC	
3-7	10YR 3/1	95	10YR 3/6	5	C	PL	SANDY LOAM	
7-14	10YR 4/3	35	10YR 6/1 10YR 5/8	60 5	D C	M PL	SANDY LOAM	
14-20	10YR 5/2	50	10YR 6/1	50	D	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

20

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 74126.4	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W005-PSS
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 13	Tract: 20963	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.469619 Long: -73.102227 Datum: NAD83

Soil Map Unit Name: Lyman-Tunbridge association, steep, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
Total Cover:		15	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Salix discolor</i>	20	YES	FACW
<i>Spiraea alba</i>	50	YES	FACW
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda claytoniana</i>	10	YES	FAC
<i>Onoclea sensibilis</i>	10	YES	FACW
<i>Solidago rugosa</i>	30	YES	FAC
<i>Carex spp</i>	15	NA	NONE
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>80</u>	x 2 = <u>160</u>
FAC Species: <u>55</u>	x 3 = <u>165</u>
FACU Species: <u>65</u>	x 4 = <u>260</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200 (A)</u>	<u>585 (B)</u>
Prevalence Index = B/A = <u>2.92</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	100					SANDY LOAM	
3-7	10YR 3/1	95	10YR 3/6	5	C	PL	SANDY LOAM	
7-14	10YR 4/3	35	10YR 6/1 10YR 5/8	60 5	D C	M PL	SANDY LOAM	
14-20	10YR 5/2	50	10YR 6/1	50	D	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

20

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 74035.2	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W005-UPL
Investigators: CM		Quad Name: Peru		Township: Hinsdale
Logbook No.: 3	Logbook Pg.: 14	Tract: 20963		
Landform (hillslope, terrace, etc.): Floodplain terrace		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 2
Subregion (LRR): Middle Atlantic		Lat: 42.469832	Long: -73.102446	Datum: NAD83
Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula papyrifera</i>	50	YES	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Betula populifolia</i>	20	YES	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	NO	FAC
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Prunus serotina</i>	25	YES	FACU
Total Cover:	50		

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	30	YES	FACU
<i>Thelyopteris noveboracensis</i>	40	YES	FAC
Total Cover:	70		

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2 (A)</u>
Total Number of Dominant Species Across All Strata:	<u>6 (B)</u>
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>33 (A/B)</u>

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>75</u>	x 3 = <u>225</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200 (A)</u>	<u>725 (B)</u>
Prevalence Index = B/A = <u>3.63</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is > 50%
- 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					ORGANIC	
2-12	10YR 3/4	100					SANDY LOAM	
12-18	10YR 4/6	100					LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown ROCK 18	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 77600.6	County: Berkshire	Date: 06/09/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W007-PEM
Investigators: CM		Quad Name: Peru		Township: Hinsdale
Logbook No.: 3	Logbook Pg.: 54	Tract: 20984		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.469593	Long: -73.091125	Datum: NAD83	
Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony			NWI Classification: PFO1E	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Field Wetland Classification: PEM	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
<i>Betula alleghaniensis</i>	10	YES	FAC
Total Cover:	20		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
<i>Acer spicatum</i>	5	YES	FACU
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	5	NO	FACW
<i>Dryopteris intermedia</i>	10	NO	FAC
<i>Thalictrum pubescens</i>	35	YES	FACW
<i>Solidago erecta</i>	25	YES	UPL
<i>Impatiens capensis</i>	20	YES	FACW
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>60</u>	x 2 = <u>120</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>5</u>	x 4 = <u>20</u>
UPL Species: <u>25</u>	x 5 = <u>125</u>
Column Totals: <u>130 (A)</u>	<u>385 (B)</u>
Prevalence Index = B/A = <u>2.96</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100					FINE SANDY LOAM	
12-16	2.5Y 3/1	40	2.5Y 7/1 10YR 4/6	55 5	D C	M M	SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains.						² Location: PL=Pore Lining, M=Matrix		
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown					Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low					Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown			
General Comments:								

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 77769.7	County: Berkshire	Date: 06/09/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W006-PSS
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 50	Tract: 20984		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 2
Subregion (LRR): Middle Atlantic	Lat: 42.469177	Long: -73.090555	Datum: NAD83	
Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony			NWI Classification: PSS4E	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 3</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	10	YES	FACU
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
<i>Acer rubrum</i>	15	YES	FAC
Total Cover:	35		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	NO	FACU
<i>Spiraea latifolia</i>	10	YES	FACW
<i>Acer rubrum</i>	10	YES	FAC
<i>Lindera benzoin</i>	10	YES	FACW
<i>Alnus incana</i>	15	YES	FACW
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris noveboracensis</i>	20	YES	FACW
<i>Impatiens capensis</i>	10	NO	FACW
<i>Carex lacustris</i>	50	YES	OBL
<i>Carex lurida</i>	15	NO	OBL
<i>Onoclea sensibilis</i>	20	YES	FACW
Total Cover:		115	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90 (A/B)

Prevalence Index Worksheet:

Total % Cover of: Multiply by:

OBL Species: 65 x 1 = 65

FACW Species: 95 x 2 = 190

FAC Species: 25 x 3 = 75

FACU Species: 15 x 4 = 60

UPL Species: 0 x 5 = 0

Column Totals: 200 (A) 390 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					ORGANIC	
2-10	5Y 3/1	50	5Y 5/2	50	D	M	LOAMY SAND	
10-15	5Y 4/2	50	5Y 6/1	50	D	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 77674.6	County: Berkshire	Date: 06/09/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W006-UPL
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 51	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.469292 Long: -73.090893 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **Is the Sampled Area within a Wetland?** Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (2 or more required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	25	YES	FACU
<i>Fraxinus americana</i>	10	NO	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Acer saccharum</i>	40	YES	FACU
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus americana</i>	10	YES	FACU
<i>Acer saccharum</i>	10	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris noveboracensis</i>	30	YES	FAC
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>165 (A)</u>	<u>560 (B)</u>
Prevalence Index = B/A = <u>3.39</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					FINE SANDY LOAM	
3-12	7.5YR 3/4	100					FINE SANDY LOAM	
12-18	7.5YR 4/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 69415.6	County: Berkshire	Date: 06/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W006-PSS
Investigators: M	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 1	Logbook Pg.: 48	Tract: 20968		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.477221 Long: -73.115834 Datum: NAD83

Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea latifolia</i>	45	YES	FACW
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	85	YES	FACW
<i>Impatiens capensis</i>	10	NO	FACW
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>140</u>	x 2 = <u>280</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>280 (B)</u>
Prevalence Index = B/A = <u>2.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	7.5YR2.5/1	100					FINE SANDY LOAM	
10-12	7.5YR5/1	100					FINE SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown					Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
VERY STONY AREA 12								
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown								
General Comments:								

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 69448.6	County: Berkshire	Date: 06/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W006-UPL
Investigators: N	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 1	Logbook Pg.: 49	Tract: 20968		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.477163 Long: -73.115611 Datum: NAD83

Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	60	YES	FACU
<i>Betula alleghaniensis</i>	40	YES	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	25	YES	FACU
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>85</u>	x 4 = <u>340</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>460 (B)</u>
Prevalence Index = B/A = <u>3.68</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	7.5YR2.5/2	100					LOAM	
2-20	7.5YR4/4	100					LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



12-06-15 10:13:24 Lat: 42° 29' 37" N Lon: 73° 0' 50" W

EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 78908.1	County: Berkshire	Date: 06/09/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-N-W001-PSS
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 56	Tract: 20984	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.470135 Long: -73.086458 Datum: NAD83

Soil Map Unit Name: Tunbridge-Lyman association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	10	YES	FAC
<i>Betula papyrifera</i>	10	YES	FACU
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:	30		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lindera benzoin</i>	40	YES	FACW
<i>Acer spicatum</i>	10	YES	FACU
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	10	YES	FACW
<i>Maianthemum canadense</i>	5	YES	FACU
<i>Impatiens capensis</i>	5	YES	FACW
Total Cover:		20	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>55</u>	x 2 = <u>110</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>25</u>	x 4 = <u>100</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100 (A)</u>	<u>270 (B)</u>
Prevalence Index = B/A = <u>2.70</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	5Y 2.5/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

DATA IN TEAM M LOGBOOK

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 78915.8	County: Berkshire	Date: 06/09/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W001-UPL
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 57	Tract: 20984		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None
		Slope%.: 0		
Subregion (LRR): Middle Atlantic	Lat: 42.470231	Long: -73.086470	Datum: NAD83	
Soil Map Unit Name: Tunbridge-Lyman association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	10	NO	FACU
<i>Prunus serotina</i>	30	YES	FACU
<i>Abies balsamea</i>	40	YES	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer spicatum</i>	40	YES	FACU
<i>Abies balsamea</i>	20	YES	FAC
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Trientalis borealis</i>	10	NO	FAC
<i>THLYOPTERIS NOVEBORACENSIS</i>	10	NO	FACU
<i>DENNSTAEDTIA PUNCTLOBULA</i>	25	YES	FACU
<i>Maianthemum canadense</i>	20	YES	FACU
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>135</u>	x 4 = <u>540</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>205 (A)</u>	<u>750 (B)</u>
Prevalence Index = B/A = <u>3.66</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					SANDY LOAM	
4-14	7.5YR 4/6	80	7.5YR 4/4	20	D	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 79476.8	County: Berkshire	Date: 06/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W002-PFO
Investigators: JM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 1	Logbook Pg.: 20	Tract: 20984		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None
		Slope%.: 2		
Subregion (LRR): Middle Atlantic	Lat: 42.470848	Long: -73.084555	Datum: NAD83	
Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	5	NO	FAC
<i>Tsuga canadensis</i>	95	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer spicatum</i>	1	NO	FACU
<i>Tsuga canadensis</i>	5	YES	FACU
Total Cover:		6	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tiarella cordifolia</i>	10	YES	FACU
<i>Dryopteris marginalis</i>	5	NO	FACU
<i>tall meadow rue</i>	2	NO	FACW
<i>Impatiens capensis</i>	10	YES	FACW
Total Cover:		27	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>12</u>	x 2 = <u>24</u>
FAC Species: <u>5</u>	x 3 = <u>15</u>
FACU Species: <u>116</u>	x 4 = <u>464</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>133 (A)</u>	<u>503 (B)</u>
Prevalence Index = B/A = <u>3.78</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: Tsuga was growing on hummocks within wetland

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/1	100					FINE SANDY LOAM	
3-20	2.5Y 3/1	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 79465.3	County: Berkshire	Date: 06/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-N-W002-UPL
Investigators: JM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 1	Logbook Pg.: 21	Tract: 20984		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 5
Subregion (LRR): Middle Atlantic	Lat: 42.470687	Long: -73.084528	Datum: NAD83	
Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	95	YES	FACU
Total Cover:		95	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Fagus grandifolia</i>	1	YES	FACU
Total Cover:		11	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris noveboracensis</i>	10	YES	FAC
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>106</u>	x 4 = <u>424</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>116 (A)</u>	<u>454 (B)</u>
Prevalence Index = B/A = <u>3.91</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 2.5/1	100					LOAM	
1-0	7.5YR 2.5/1	100					ORGANIC	
3-12	7.5YR 5/4	100					LOAM	
12-20	2.5Y 5/3	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 80299.1	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W008-PFO
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 68	Tract: 20984	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.:

Subregion (LRR): Middle Atlantic Lat: 42.471103 Long: -73.081460 Datum: NAD83

Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present?
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2 (includes capillary fringe)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	60	YES	FAC
<i>Fraxinus americana</i>	25	YES	FACU
<i>Acer saccharum</i>	10	NO	FACU
Total Cover:	95		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	80	YES	FAC
<i>Fagus grandifolia</i>	10	NO	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
Total Cover:		100	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda claytoniana</i>	5	NO	FAC
<i>Onoclea sensibilis</i>	70	YES	FACW
<i>Tiarella cordifolia</i>	10	NO	FACU
<i>Dryopteris intermedia</i>	5	NO	FAC
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>160</u>	x 3 = <u>480</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>285 (A)</u>	<u>840 (B)</u>
Prevalence Index = B/A = <u>2.95</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-10	2.5Y 4/1	80	5Y 5/1	20	D	M	FINE SANDY LOAM	
10-16	2.5Y 5/2	30	2.5Y 6/1	70	D	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 80602.3	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W008-PSS
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 69	Tract: 20984	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.471407 Long: -73.080412 Datum: NAD83

Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8 <small>(includes capillary fringe)</small>	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer spicatum</i>	5	YES	FACU
Total Cover:		5	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
<i>Lindera benzoin</i>	10	YES	FACW
<i>Rubus allegheniensis</i>	20	YES	FACU
<i>Spirea latifolia</i>	10	YES	FACW
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	20	YES	FAC
<i>Carex crinita</i>	10	YES	OBL
<i>Iris versicolor</i>	5	YES	OBL
Total Cover:		35	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>15</u>	x 1 = <u>15</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>25</u>	x 4 = <u>100</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>90 (A)</u>	<u>245 (B)</u>

Prevalence Index = B/A = 2.72

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-8	10YR 4/1	40	10YR 5/2	60	D	M	FINE SANDY LOAM	
8-12	10YR 6/1	60	10YR 5/6 10YR 3/1	10 30	C C	M M	LOAMY SAND	
12-16	5YR 6/1	70	10YR 3/1	30	C	M	SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

16

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 80399.8	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W008-UPL
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 70	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.471254 Long: -73.081135 Datum: NAD83

Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	60	YES	FACU
<i>Fraxinus americana</i>	20	YES	FACU
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	30	YES	FACU
<i>Acer pensylvanicum</i>	10	NO	FACU
<i>Fagus grandifolia</i>	15	YES	FACU
<i>Betula populifolia</i>	15	YES	FAC
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	5	YES	FAC
<i>Onoclea sensibilis</i>	5	YES	FACW
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>135</u>	x 4 = <u>540</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>160 (A)</u>	<u>610 (B)</u>
Prevalence Index = B/A = <u>3.81</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/3	100					SANDY LOAM	
7-10	10YR 4/6	50	7.5YR 4/6	50	C	M	COARSE SAND	DISTURBED FILL
10-18	10YR 5/4	100					LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 82282.2	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W009-PFO
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 74	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.472976 Long: -73.074554 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes
 No

Hydric Soil Present? Yes
 No

Wetland Hydrology Present? Yes
 No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
Total Cover:		20	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Picea rubens</i>	10	NO	FACU
<i>Abies balsamea</i>	10	NO	FAC
<i>Acer rubrum</i>	30	YES	FAC
<i>Fagus grandifolia</i>	15	YES	FACU
Total Cover:		65	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex lurida</i>	10	NO	OBL
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Dryopteris intermedia</i>	30	YES	FAC
<i>Impatiens capensis</i>	15	NO	FACW
<i>Tiarella cordifolia</i>	25	YES	FACU
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: 10	x 1 = 10
FACW Species: 45	x 2 = 90
FAC Species: 70	x 3 = 210
FACU Species: 50	x 4 = 200
UPL Species: 0	x 5 = 0
Column Totals: 175 (A)	510 (B)
Prevalence Index = B/A = <u>2.91</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	2.5Y4/1	80	10YR6/1 10YR5/8	12 8	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

12

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 82358.3	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W009-UPL
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 75	Tract: 20984	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.473015 Long: -73.074274 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	80	YES	FACU
<i>Fagus grandifolia</i>	20	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	10	YES	FACU
<i>Prunus serotina</i>	10	YES	FACU
<i>Fagus grandifolia</i>	5	YES	FACU
Total Cover:		25	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Dennstaedtia punctilobula</i>	30	YES	UPL
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>30</u>	x 5 = <u>150</u>
Column Totals: <u>155 (A)</u>	<u>650 (B)</u>

Prevalence Index = B/A = 4.19

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR3/3	100					FINE SANDY LOAM	
3-7	5YR4/6	100					FINE SANDY LOAM	
7-16	7.5YR5/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 82513.3	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W011-PFO
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 82	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.473253 Long: -73.073775 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes
 No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes
 No
 Hydric Soil Present? Yes
 No
 Wetland Hydrology Present? Yes
 No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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Field Observations:

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	45	YES	FAC
<i>Acer saccharum</i>	30	YES	FACU
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	10	YES	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Thlypteris novaboracensis</i>	20	YES	FAC
<i>Dryopteris intermedia</i>	5	NO	FAC
<i>Impatiens capensis</i>	5	NO	FACW
<i>Veratrum viride</i>	15	YES	FACW
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>35</u>	x 2 = <u>70</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>50</u>	x 4 = <u>200</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155 (A)</u>	<u>480 (B)</u>
Prevalence Index = B/A = <u>3.10</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 3/1	100					FINE SANDY LOAM	
6-14	2.5Y 4/1	40	2.5Y 6/1	60	D	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 82572.9	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W010-PSS
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 78	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.472969 Long: -73.073417 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:	30		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
<i>Alnus incana</i>	20	YES	FACW
<i>Lindera benzoin</i>	25	YES	FACW
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	80	YES	OBL
<i>Osmunda claytoniana</i>	5	NO	FAC
<i>Galium asprellum</i>	10	NO	OBL
<i>Onoclea sensibilis</i>	5	NO	FACW
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>90</u>	x 1 = <u>90</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>190 (A)</u>	<u>330 (B)</u>

Prevalence Index = B/A = 1.74

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/1	100					SANDY LOAM	
4-12	2.5Y 3/1	50	2.5Y 6/1 10YR 4/6	45 5	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 82557.2	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W010-UPL
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 79	Tract: 20984	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.473264 Long: -73.073609 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	20	YES	FAC
<i>Acer saccharum</i>	30	YES	FACU
<i>Fagus grandifolia</i>	50	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Acer pensylvanicum</i>	15	YES	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Picea rubens</i>	10	YES	FACU
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Polygonatum biflorum</i>	15	YES	FACU
<i>Polystichum acrostichoides</i>	5	NO	FACU
<i>Parathelypteris novborachensis</i>	10	YES	FAC
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 22 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>670 (B)</u>
Prevalence Index = B/A = <u>3.83</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	5YR 2.5/1	100					ORGANIC	
1-10	5YR 5/8	100					LOAM	
10-18	5YR 4/6	80	7.5YR 3/4	20	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

18

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 99276.9	County: Berkshire	Date: 06/17/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W012-PSS
Investigators: CM	Quad Name: Peru		Township: Windsor	
Logbook No.: 3M	Logbook Pg.: 112	Tract: 26951		

Landform (hillslope, terrace, etc.): Stream fringe Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.491856 Long: -73.021978 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	10	NO	FAC
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Salix nigra</i>	20	YES	OBL
<i>Spiraea alba</i>	10	NO	FACW
<i>Vaccinium corymbosum</i>	10	NO	FACW
<i>Hamamelis virginiana</i>	50	YES	FACU
Total Cover:		90	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	10	NO	FAC
<i>Onoclea sensibilis</i>	50	YES	FACW
<i>Galium palustre</i>	5	NO	OBL
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>25</u>	x 1 = <u>25</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>50</u>	x 4 = <u>200</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>165 (A)</u>	<u>425 (B)</u>
Prevalence Index = B/A = <u>2.58</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	5YR 2.5/1	100					SILT LOAM	
5-9	5YR 3/1	95	10YR 4/6	5	C	PL	LOAMY SAND	
9-16	7.5YR 5/2	35	7.5YR 6/1 10YR 4/6	60 5	D C	M M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 99336.8	County: Berkshire	Date: 06/17/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W012-UPL
Investigators: CM	Quad Name: Peru		Township: Windsor	
Logbook No.: 3M	Logbook Pg.: 113	Tract: 26951		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.492006 Long: -73.021790 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **Is the Sampled Area within a Wetland?** Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe) </p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	80	YES	FACU
<i>Pinus strobus</i>	10	NO	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Gaultheria procumbens</i>	10	NO	FACU
Total Cover: 10			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>100</u>	x 4 = <u>400</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100 (A)</u>	<u>400 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-5	10YR 3/4	100					FINE SANDY LOAM	
5-18	10YR 4/3	70	7.5YR 4/4	30			SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 100470.2	County: Berkshire	Date: 06/15/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-N-W002-PFO
Investigators: JM		Quad Name: Peru	Township: Windsor	
Logbook No.: 3M	Logbook Pg.: 104	Tract: 1014		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.495273 Long: -73.021082 Datum: NAD83

Soil Map Unit Name: Tunbridge-Lyman association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	15	NO	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Acer rubrum</i>	15	NO	FAC
Total Cover:	40		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhamnus alnifolia</i>	30	YES	OBL
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex sp</i>	40	YES	FACW
<i>Solidago rugosa</i>	5	NO	FAC
<i>Onoclea sensibilis</i>	25	YES	FACW
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>30</u>	x 1 = <u>30</u>
FACW Species: <u>65</u>	x 2 = <u>130</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150 (A)</u>	<u>340 (B)</u>

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	2.5Y 2.5/1	95	7.5YR 4/6	5	C	PL	SILT LOAM	
4-12	2.5Y 4/1	40	2.5Y 6/2 10YR 5/6	50 10	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input checked="" type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 101451.2	County: Berkshire	Date: 07/19/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-N-W002-PSS
Investigators: CM	Quad Name: Peru		Township: Windsor	
Logbook No.: 5M	Logbook Pg.: 60	Tract: 1014		

Landform (hillslope, terrace, etc.): Floodplain terrace Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.495655 Long: -73.017461 Datum: NAD83

Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	20	NO	FACU
Total Cover:		20	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus glutinosa</i>	5	NO	FACW
<i>Alnus incana</i>	30	YES	FACW
<i>Salix interior</i>	30	YES	FACW
Total Cover:		65	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	10	YES	FACW
<i>Typha latifolia</i>	10	YES	OBL
<i>Equisetum fluviatile</i>	10	YES	OBL
<i>Phragmites australis</i>	20	YES	FACW
<i>Carex crinita</i>	10	YES	OBL
<i>Eurybia radula</i>	10	YES	OBL
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>40</u>	x 1 = <u>40</u>
FACW Species: <u>95</u>	x 2 = <u>190</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155 (A)</u>	<u>310 (B)</u>
Prevalence Index = B/A = <u>2.00</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	2.5Y 4/1	100					FINE SAND	
4-8	2.5Y 6/1	60	2.5Y 5/2 10YR 6/8	30 10	C C	M PL	FINE SAND	
8-16	2.5Y 5/1	70	2.5Y 6/1 2.5Y 5/6	25 5	D C	M M	SAND	20% SILT

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input checked="" type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

WR-M-SH002 (BEAVER COMPLEX) & WR-M-SH003 (WESTFIELD BROOK)

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 100493.9	County: Berkshire	Date: 06/15/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-N-W002-UPL
Investigators: CM	Quad Name: Peru		Township: Windsor	
Logbook No.: 3M	Logbook Pg.: 105	Tract: 1014		
Landform (hillslope, terrace, etc.): Flat		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 1	
Subregion (LRR): Middle Atlantic	Lat: 42.495124	Long: -73.020913	Datum: NAD83	
Soil Map Unit Name: Tunbridge-Lyman association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	10	NO	FACU
<i>Fraxinus americana</i>	25	YES	FACU
<i>Tsuga canadensis</i>	15	NO	FACU
<i>Carya cordiformis</i>	10	NO	FAC
Total Cover:	60		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	5	NO	FACU
<i>Acer pensylvanicum</i>	35	YES	FACU
<i>Fagus grandifolia</i>	10	NO	FACU
<i>Pinus strobus</i>	20	YES	FACU
<i>Tsuga canadensis</i>	5	NO	FACU
Total Cover:		75	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>THELYPTERIS NOVEBORACENSIS</i>	20	YES	NONE
Total Cover:		20	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135 (A)</u>	<u>530 (B)</u>
Prevalence Index = B/A = <u>3.93</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	5Y 2.5/1	100					ORGANIC	
1-9	5YR 6/8	50	5YR 4/6	50	C	M	LOAM	
9-18	10YR 4/4	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 107775.0	County: Berkshire	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W015-PFO
Investigators: CM		Quad Name: Plainfield		Township: Windsor
Logbook No.: 3M	Logbook Pg.: 136	Tract: 1003		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.501327 Long: -72.995775 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
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<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	10	NO	FACU
<i>Acer saccharum</i>	10	NO	FACU
<i>Fraxinus pennsylvanica</i>	50	YES	FACW
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	50	YES	FAC
<i>Acer saccharum</i>	20	YES	FACU
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Thelypteris palustris</i>	40	YES	FACW
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>90</u>	x 2 = <u>180</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>40</u>	x 4 = <u>160</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180 (A)</u>	<u>490 (B)</u>
Prevalence Index = B/A = <u>2.72</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 3/2	100					FINE SANDY LOAM	
6-14	10YR 5/2	40	10YR 6/1	60	D	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 108021.5	County: Berkshire	Date: 06/19/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: WR-M-W016-PFO
Investigators: CM	Quad Name: Plainfield	Township: Windsor	
Logbook No.: 4M	Logbook Pg.: 9	Tract: 1003	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.501586 Long: -72.994929 Datum: NAD83

Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	40	YES	FACU
<i>Ostrya virginiana</i>	15	NO	FACU
<i>Acer rubrum</i>	40	YES	FAC
Total Cover:	95		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Betula alleghaniensis</i>	20	YES	FAC
<i>Fraxinus pennsylvanica</i>	15	NO	FACW
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	NO	FACW
<i>Impatiens capensis</i>	30	YES	FACW
Total Cover:		45	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>60</u>	x 2 = <u>120</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>65</u>	x 4 = <u>260</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>195 (A)</u>	<u>590 (B)</u>
Prevalence Index = B/A = <u>3.03</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-12	5GY 6/1	70	N6	30	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 109098.2	County: Berkshire	Date: 06/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W020-PFO
Investigators: CM		Quad Name: Plainfield	Township: Windsor	
Logbook No.: 4M	Logbook Pg.: 24	Tract: 1003		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 5	
Subregion (LRR): Middle Atlantic	Lat: 42.502454	Long: -72.991108	Datum: NAD83	
Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	70	YES	FAC
<i>Tsuga canadensis</i>	20	NO	FACU
<i>Fagus grandifolia</i>	10	NO	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	5	NO	FACU
<i>Betula alleghaniensis</i>	20	NO	FAC
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	5	NO	FACW
<i>Dryopteris intermedia</i>	5	NO	FAC
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>95</u>	x 3 = <u>285</u>
FACU Species: <u>35</u>	x 4 = <u>140</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135 (A)</u>	<u>435 (B)</u>
Prevalence Index = B/A = <u>3.22</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: BUTTRESSED ROOTS PRESENT

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	5Y 2.5/1	100					ORGANIC	
1-14	N7	30	10Y 6/1	70	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 108998.6	County: Berkshire	Date: 06/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W020-UPL
Investigators: CM		Quad Name: Plainfield	Township: Windsor	
Logbook No.: 4M	Logbook Pg.: 26	Tract: 1003		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 7

Subregion (LRR): Middle Atlantic Lat: 42.502532 Long: -72.991537 Datum: NAD83

Soil Map Unit Name: Berkshire-Marlow association, 15 to 45 percent slopes, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	50	YES	FACU
<i>Acer saccharum</i>	40	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	5	NO	FACU
Total Cover:		5	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	5	NO	FAC
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>5</u>	x 3 = <u>15</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100 (A)</u>	<u>395 (B)</u>
Prevalence Index = B/A = <u>3.95</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-7	7.5YR 5/6	100					LOAM	
7-18	7.5YR 5/4	50	7.5YR 5/8	50			LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 116307.8	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W006-PFO
Investigators: PF CM		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 2015-1	Logbook Pg.: 24	Tract: 930		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 5
Subregion (LRR): Middle Atlantic	Lat: 42.509537	Long: -72.966132	Datum: NAD83	
Soil Map Unit Name: Lyman-Tunbridge association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Field Wetland Classification: PFO		
Remarks: LOGGING ROAD RUT AREA		

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Tsuga canadensis</i>	30	YES	FACU
<i>Betula alleghaniensis</i>	10	YES	FAC
Total Cover:	50		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	15	YES	FACU
<i>Acer pensylvanicum</i>	5	YES	FACU
<i>Viburnum lantanoides</i>	5	YES	FACU
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Juncus effusus</i>	20	YES	OBL
<i>Carex vulpinoidea</i>	25	YES	OBL
<i>Parathelypteris noveboracensis</i>	15	NO	FAC
<i>Carex lurida</i>	25	YES	OBL
<i>Carex crinita</i>	20	YES	OBL
Total Cover:		105	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>90</u>	x 1 = <u>90</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>65</u>	x 4 = <u>260</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180 (A)</u>	<u>425 (B)</u>
Prevalence Index = B/A = <u>2.36</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/2	98	7.5YR 3/4	2	C	M,PL	FINE SANDY LOAM	
10-20	5G 4/1	95	7.5YR 4/4	5	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
---	--

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 116369.6	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W006-UPL
Investigators: SE		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 51	Tract: 930		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 6	
Subregion (LRR): Middle Atlantic	Lat: 42.509444	Long: -72.965845	Datum: NAD83	
Soil Map Unit Name: Lyman-Tunbridge association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	25	YES	FACU
<i>Fagus grandifolia</i>	15	YES	FACU
<i>Betula alleghaniensis</i>	8	NO	FAC
<i>Fraxinus americana</i>	10	NO	FACU
Total Cover:	58		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Viburnum lantanoides</i>	3	NO	FACU
Total Cover:		3	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>8</u>	x 3 = <u>24</u>
FACU Species: <u>53</u>	x 4 = <u>212</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>61 (A)</u>	<u>236 (B)</u>

Prevalence Index = B/A = 3.87

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 3/2	100					ORGANIC	
3-5	10YR 2/1	100					ORGANIC	
5-9	10YR 4/3	100					SANDY LOAM	
9-20	7.5YR 4/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 116524.4	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W004-PFO
Investigators: SE		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.:	Tract: 930		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.509324	Long: -72.965180	Datum: NAD83	
Soil Map Unit Name: Lyman-Tunbridge association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input checked="" type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus americana</i>	10	NO	FACU
<i>Acer rubrum</i>	15	NO	FAC
<i>Tsuga canadensis</i>	60	YES	FACU
<i>Betula alleghaniensis</i>	35	YES	FAC
Total Cover:	120		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris carthusiana</i>	8	YES	FACW
Total Cover: 8			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>8</u>	x 2 = <u>16</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>128 (A)</u>	<u>446 (B)</u>
Prevalence Index = B/A = <u>3.48</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	100					ORGANIC	MUCK
10-18	10YR 6/1	97	10YR 5/3	3	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 116550.2	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W004-UPL
Investigators: SE	Quad Name: Plainfield		Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 50	Tract: 930		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input type="checkbox"/> Convex <input checked="" type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.509458	Long: -72.965142	Datum: NAD83	
Soil Map Unit Name: Lyman-Tunbridge association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	65	YES	FACU
<i>Fagus grandifolia</i>	25	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Viburnum lantanoides</i>	8	YES	FACU
Total Cover:		28	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>118</u>	x 4 = <u>472</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>118 (A)</u>	<u>472 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	100					ORGANIC	
3-6	5YR 5/2	100					FINE SANDY LOAM	
6-16	7.5YR 4/4	100					FINE SANDY LOAM	
16-20	10YR 4/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 116631.5	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-E-W001-PFO
Investigators: SE	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 52	Tract: 930	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.:

Subregion (LRR): Middle Atlantic Lat: 42.509336 Long: -72.964764 Datum: NAD83

Soil Map Unit Name: Tunbridge-Lyman association, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: USE PL-M-W004_UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 18 Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	8	NO	FACU
<i>Fagus grandifolia</i>	35	YES	FACU
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Betula alleghaniensis</i>	25	YES	FAC
Total Cover:	78		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>53</u>	x 4 = <u>212</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>78 (A)</u>	<u>287 (B)</u>
Prevalence Index = B/A = <u>3.68</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: VEGETATION IS GROWING IN UPLAND ADJACENT TO A VERY SMALL POOL

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1	100					ORGANIC	
6-14	10YR 5/1	94	10YR 5/6	6	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 123064.5	County: Hampshire	Date: 06/23/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W002-PEM
Investigators: DS	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: DS'S BOOK	Logbook Pg.: 59	Tract: 925	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.514962 Long: -72.942145 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 5	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Aronia prunifolia</i>	10	YES	FACW
<i>Spiraea alba</i>	25	YES	FACW
<i>Viburnum dentatum</i>	15	YES	FAC
Total Cover:	50		

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex sp</i>	15	NA	NONE
<i>Juncus effusus</i>	10	NO	OBL
<i>Lysimachia terrestris</i>	20	YES	OBL
<i>Glyceria sp</i>	5	NA	NONE
Total Cover:	50		

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus hispidus</i>	25	YES	FACW
Total Cover:	25		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>30</u>	x 1 = <u>30</u>
FACW Species: <u>60</u>	x 2 = <u>120</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>195 (B)</u>

Prevalence Index = B/A = 1.86

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0.5-0							ORGANIC	
0-12	10YR 3/2	50	10YR 4/1 7.5YR 4/6 10YR 4/2	20 5 10	RM	M	SANDY LOAM	15% ORGANIC; DISTURBED SOILS IN RIGHT OF WAY
12-16	10YR 4/2 & 4/3	90	10YR 5/2	10	D	M	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:
 DISTURBANCE OBSERVED

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 123096.2	County: Hampshire	Date: 06/23/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W002-UPL
Investigators: DS	Quad Name: Plainfield	Township: Plainfield	

Logbook No.: DS'S BOOK Logbook Pg.: 59 Tract: 925

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.515112 Long: -72.942092 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
<i>Picea glauca</i>	25	YES	FACU
<i>Quercus rubra</i>	20	YES	FACU
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	NO	FAC
<i>Betula populifolia</i>	10	YES	FAC
<i>Populus tremuloides</i>	15	YES	FACU
<i>Ilex verticillata</i>	5	NO	FACW
Total Cover:		35	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Danthonia spicata</i>	15	YES	UPL
<i>Osmunda claytoniana</i>	15	YES	FAC
<i>Dennstaedtia punctilobula</i>	25	YES	UPL
Total Cover:		55	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus flagellaris</i>	10	YES	FACU
Total Cover:		10	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>40</u>	x 5 = <u>200</u>
Column Totals: <u>165 (A)</u>	<u>640 (B)</u>
Prevalence Index = B/A = <u>3.88</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0.5-12	10YR 4/4	100					LOAM	
0-0.5	10YR 3/3	100					LOAM	
0.5-0							ORGANIC	
12-16	10YR 4/3	95	7.5YR 4/6	5	D	M	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 123895.0	County: Hampshire	Date: 06/22/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W001-PFO
Investigators: PF	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: PF'S BOOK	Logbook Pg.: 6	Tract: 925	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.516187 Long: -72.939463 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	NO	FACU
<i>Acer rubrum</i>	50	YES	FAC
<i>Betula alleghaniensis</i>	20	YES	FAC
<i>Picea rubens</i>	10	NO	FACU
<i>Acer saccharum</i>	20	YES	FACU
Total Cover:		110	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	YES	FACU
<i>Acer pensylvanicum</i>	5	YES	FACU
<i>Betula alleghaniensis</i>	10	YES	FAC
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Trientalis borealis</i>	20	YES	FAC
<i>Maianthemum racemosum</i>	15	YES	FACU
<i>Dryopteris intermedia</i>	10	NO	FAC
<i>Streptopus lanceolatus</i>	20	YES	FACU
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 44 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>110</u>	x 3 = <u>330</u>
FACU Species: <u>85</u>	x 4 = <u>340</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>195 (A)</u>	<u>670 (B)</u>
Prevalence Index = B/A = <u>3.44</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					ORGANIC	
2-10	10YR 3/2	95	7.5YR 3/3	5	C	PL	FINE SANDY LOAM	
10-20	5Y 4/2	95	10YR 3/3	5	C	M	FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 123826.7	County: Hampshire	Date: 06/22/2015
Applicant/Owner: Kinder Morgan	State: MA		Sampling Point: PL-M-W001-UPL
Investigators: PF	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: PF'S BOOK	Logbook Pg.: 8	Tract: 925	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.515968 Long: -72.939627 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
Hydric Soil Present? Yes No **Is the Sampled Area within a Wetland?** Yes No
Wetland Hydrology Present? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Marl Deposits (B15) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Moss Trim Lines (B16) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Microtopographic Relief (D4) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes No Depth (inches):
Water Table Present? Yes No Depth (inches):
Saturation Present? Yes No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes No

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	60	YES	FAC
<i>Pinus strobus</i>	5	NO	FACU
<i>Acer saccharum</i>	20	NO	FACU
<i>Picea rubens</i>	10	NO	FACU
<i>Prunus serotina</i>	10	NO	FACU
Total Cover:		105	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	15	NO	FACU
<i>Fagus grandifolia</i>	40	YES	FACU
<i>Acer saccharum</i>	5	NO	FACU
<i>Acer pensylvanicum</i>	15	NO	FACU
<i>Abies balsamea</i>	5	NO	FAC
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	5	NO	FACW
<i>Trientalis borealis</i>	25	YES	FAC
<i>Maianthemum canadense</i>	5	NO	FACU
Total Cover:		35	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>90</u>	x 3 = <u>270</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>220 (A)</u>	<u>780 (B)</u>
Prevalence Index = B/A = <u>3.55</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					FINE SANDY LOAM	
8-20	10YR 3/4	90	7.5YR 3/4	10	D	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 123942.4	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W007-PSS
Investigators: PF CM	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 2015-1	Logbook Pg.: 28	Tract: 927	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.515804 Long: -72.939094 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	40	YES	FAC
<i>Viburnum dentatum</i>	10	NO	FAC
<i>Spiraea tomentosa</i>	30	YES	FACW
<i>Cornus amomum</i>	20	NO	FACW
<i>Spiraea alba</i>	30	YES	FACW
Total Cover:		130	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	20	YES	FAC
<i>Rubus hispidus</i>	15	YES	FACW
<i>Thelypteris palustris</i>	30	YES	FACW
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>125</u>	x 2 = <u>250</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>195 (A)</u>	<u>460 (B)</u>
Prevalence Index = B/A = <u>2.36</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100					FINE SANDY LOAM	
2-14	10YR 3/2	95	7.5YR 3/4	5	C	PL	FINE SANDY LOAM	
14-20	2.5Y 4/3	90	10YR 3/2 10YR 4/4	5 5	C C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 124009.2	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W007-UPL
Investigators: SE	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 54	Tract: 927	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.515862 Long: -72.938859 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea latifolia</i>	60	YES	FACW
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	15	NO	FAC
<i>Rubus flagellaris</i>	10	NO	FACU
<i>Carex sp</i>	6	NA	NONE
<i>Rubus idaeus</i>	20	YES	FACU
Total Cover:		51	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>60</u>	x 2 = <u>120</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>30</u>	x 4 = <u>120</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>285 (B)</u>
Prevalence Index = B/A = <u>2.71</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					FINE SANDY LOAM	
4-14	10YR 4/4	100					FINE SANDY LOAM	
14-20	2.5Y 5/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 133301.2	County: Hampshire	Date: 07/01/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-E-W003-PEM
Investigators: CM	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 4M	Logbook Pg.: 41	Tract: 891	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.524004 Long: -72.909301 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Salix interior</i>	10	YES	FACW
<i>Spiraea tomentosa</i>	10	YES	FACW
<i>Acer rubrum</i>	5	YES	FAC
Total Cover:		25	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	35	YES	OBL
<i>Onoclea sensibilis</i>	15	NO	FACW
<i>Solidago rugosa</i>	10	NO	FAC
<i>Scirpus cyperinus</i>	15	NO	OBL
<i>Carex scoparia</i>	20	YES	FACW
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus hispidus</i>	15	YES	FACW
Total Cover:		15	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>50</u>	x 1 = <u>50</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135 (A)</u>	<u>235 (B)</u>

Prevalence Index = B/A = 1.74

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2						ORGANIC	
2-12	N6	70	10Y 3/1 7.5YR 4/6	20 10	C C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 133714.4	County: Hampshire	Date: 06/27/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-E-W003-PFO
Investigators: SE		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 60	Tract: 919		

Landform (hillslope, terrace, etc.): Stream fringe Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.523329 Long: -72.907822 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <1 Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	30	YES	FAC
<i>Larix laricina</i>	10	NO	FACW
<i>Acer rubrum</i>	15	YES	FAC
Total Cover:	55		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ilex verticillata</i>	6	YES	FACW
Total Cover:		6	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Equisetum pratense</i>	5	YES	FACW
<i>Glyceria sp</i>	45	NA	NONE
<i>Galium obtusum</i>	5	YES	FACW
<i>Impatiens capensis</i>	12	YES	FACW
Total Cover:		67	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>38</u>	x 2 = <u>76</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>83 (A)</u>	<u>211 (B)</u>
Prevalence Index = B/A = <u>2.54</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 2/1	100					ORGANIC	
9-10	10YR 6/1	100					COARSE SAND	VERY GRAVELLY

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown GRAVE L & ROCK 10	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 133715.4	County: Hampshire	Date: 06/27/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-E-W003-PSS
Investigators: SE	Quad Name: Plainfield		Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 60	Tract: 919		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.523665 Long: -72.907903 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea tomentosa</i>	10	NO	FACW
<i>Salix discolor</i>	5	NO	FACW
<i>Viburnum dentatum</i>	15	YES	FAC
<i>Spiraea latifolia</i>	35	YES	FACW
<i>Ilex verticillata</i>	10	NO	FACW
<i>Larix laricina</i>	5	NO	FACW
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Thelypteris palustris</i>	30	YES	FACW
<i>Carex lurida</i>	5	NO	OBL
<i>Carex scoparia</i>	15	YES	FACW
<i>Carex sp</i>	25	NA	NONE
Total Cover:		75	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of: Multiply by:

OBL Species: 5 x 1 = 5

FACW Species: 110 x 2 = 220

FAC Species: 15 x 3 = 45

FACU Species: 0 x 4 = 0

UPL Species: 0 x 5 = 0

Column Totals: 130 (A) 270 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1	100					ORGANIC	MUCK
6-12	10YR 6/1	96	10YR 6/4	4	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 133823.5	County: Hampshire	Date: 06/27/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-E-W003-UPL
Investigators: SE		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 50	Tract: 919		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 4

Subregion (LRR): Middle Atlantic Lat: 42.523692 Long: -72.907502 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Kalmia angustifolia</i>	12	YES	FAC
<i>Juniperus communis</i>	25	YES	FACU
<i>Hamamelis virginiana</i>	5	NO	FACU
<i>Tsuga canadensis</i>	5	NO	FACU
<i>Picea glauca</i>	8	NO	FACU
<i>Pinus strobus</i>	5	NO	FACU
<i>Spiraea latifolia</i>	12	YES	FACW
Total Cover:		72	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	5	NO	FAC
<i>Rubus flagellaris</i>	15	NO	FACU
<i>Potentilla simplex</i>	20	NO	FACU
<i>Polytrichum commune</i>	85	YES	UPL
Total Cover:		125	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>12</u>	x 2 = <u>24</u>
FAC Species: <u>17</u>	x 3 = <u>51</u>
FACU Species: <u>83</u>	x 4 = <u>332</u>
UPL Species: <u>85</u>	x 5 = <u>425</u>
Column Totals: <u>197 (A)</u>	<u>832 (B)</u>
Prevalence Index = B/A = <u>4.22</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/4	100					ORGANIC	
2-6	10YR 4/6	100					FINE SANDY LOAM	
6-18	10YR 5/6	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 135228.3	County: Hampshire	Date: 06/26/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-E-W002-PFO
Investigators: SE		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 58	Tract: 919		
Landform (hillslope, terrace, etc.): Stream fringe		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 1	
Subregion (LRR): Middle Atlantic	Lat: 42.524535	Long: -72.902413	Datum: NAD83	
Soil Map Unit Name: Pillsbury-Peacham-Wonsqueak association, undulating, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input checked="" type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	65	YES	FAC
<i>Acer rubrum</i>	20	NO	FAC
<i>Tsuga canadensis</i>	55	YES	FACU
Total Cover:		140	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>85</u>	x 3 = <u>255</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>475 (B)</u>
Prevalence Index = B/A = <u>3.39</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: SURFACE ROOT SYSTEMS

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					ORGANIC	
2-8	10YR 4/2	98	10YR 4/4	2	C	M	SILT LOAM	
8-14	10YR 5/1	94	10YR 4/4 7.5YR 3/3	3 3	C C	M M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 14

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 135327.2	County: Hampshire	Date: 06/26/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-E-W002-UPL
Investigators: SE	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 56	Tract: 919	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.524557 Long: -72.902045 Datum: NAD83

Soil Map Unit Name: Pillsbury-Peacham-Wonsqueak association, undulating, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	80	YES	FACU
<i>Betula alleghaniensis</i>	6	NO	FAC
<i>Populus grandidentata</i>	25	YES	FACU
<i>Picea glauca</i>	12	NO	FACU
Total Cover:	123		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>6</u>	x 3 = <u>18</u>
FACU Species: <u>117</u>	x 4 = <u>468</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>123 (A)</u>	<u>486 (B)</u>
Prevalence Index = B/A = <u>3.95</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 3/2	100					ORGANIC	
4-8	10YR 2/1	100					VERY FINE SANDY LOAM	
8-12	10YR 4/4	100					FINE SANDY LOAM	
12-18	2.5Y 4/4	97	2.5Y 5/6	3	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 141331.8	County: Hampshire	Date: 07/03/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W009-PEM
Investigators: CM	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 4	Logbook Pg.: 55	Tract: 898	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.527338 Long: -72.880087 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 3	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Ulmus americana</i>	10	YES	FACW
<i>Acer rubrum</i>	10	YES	FAC
<i>Betula alleghaniensis</i>	10	YES	FAC
Total Cover:	30		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Betula alleghaniensis</i>	10	YES	FAC
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex lupulina</i>	15	YES	OBL
<i>Polygonum arifolium</i>	40	YES	OBL
<i>Impatiens capensis</i>	10	NO	FACW
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>55</u>	x 1 = <u>55</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>265 (B)</u>
Prevalence Index = B/A = <u>2.12</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	95	10YR 3/6	5	C	PL	SILT LOAM	
4-12	10YR 4/2	30	10YR 5/1 10YR 5/6	60 10	D C	M M	LOAMY COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 141353.7	County: Hampshire	Date: 07/03/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W009-PFO
Investigators: CM	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 4	Logbook Pg.: 54	Tract: 898	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.527482 Long: -72.880041 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input checked="" type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input checked="" type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	40	YES	FAC
<i>Betula alleghaniensis</i>	30	YES	FAC
<i>Betula papyrifera</i>	20	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	NO	FAC
<i>Fagus grandifolia</i>	55	YES	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
Total Cover:		75	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	10	YES	FACW
<i>Parathelypteris noveboracensis</i>	10	YES	FAC
Total Cover:		20	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>4 (A)</u>
Total Number of Dominant Species Across All Strata:	<u>6 (B)</u>
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>67 (A/B)</u>

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>100</u>	x 3 = <u>300</u>
FACU Species: <u>75</u>	x 4 = <u>300</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185 (A)</u>	<u>620 (B)</u>
Prevalence Index = B/A = <u>3.35</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is > 50%
- 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	95	10YR 3/6	5	C	PL	LOAM	
4-12	10YR 4/2	30	10YR 5/1 10YR5/6	60 10	D C	M M	LOAMY COARSE SAND	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains.						² Location: PL=Pore Lining, M=Matrix		
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low				Isolated Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown				
General Comments:								

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 141290.0	County: Hampshire	Date: 07/03/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W009-UPL
Investigators: CM	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 4	Logbook Pg.: 56	Tract: 898	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.527559 Long: -72.880301 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p>Secondary Indicators (2 or more required)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	70	YES	FACU
<i>Betula alleghaniensis</i>	20	YES	FAC
<i>Acer saccharum</i>	10	NO	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	NO	FAC
<i>Acer pensylvanicum</i>	5	NO	FACU
<i>Fagus grandifolia</i>	40	YES	FACU
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris noveboracensis</i>	15	YES	FAC
Total Cover:		15	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>165 (A)</u>	<u>620 (B)</u>
Prevalence Index = B/A = <u>3.76</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	7.5YR 2.5/1	100					ORGANIC	
1-12	7.5YR 4/6	70	7.5YR 5/4	30	C	M	LOAMY SAND	
12-16	7.5YR 5/8	90	7.5YR 4/4	10	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 141793.6	County: Hampshire	Date: 07/03/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-M-W010-PFO
Investigators: CM	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 4	Logbook Pg.: 60	Tract: 898	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.527752 Long: -72.878449 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes
 No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	15	NO	FAC
<i>Tsuga canadensis</i>	80	YES	FACU
<i>Acer rubrum</i>	5	NO	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	5	YES	FACU
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Alnus glutinosa</i>	5	YES	FACW
<i>Fraxinus pennsylvanica</i>	5	YES	FACW
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	10	NO	FACW
<i>Osmunda claytoniana</i>	15	YES	FAC
<i>Dryopteris intermedia</i>	5	NO	FAC
<i>Parathelypteris noveboracensis</i>	30	YES	FAC
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185 (A)</u>	<u>630 (B)</u>
Prevalence Index = B/A = <u>3.41</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/2	100					ORGANIC	
3-12	10Y 4/1	40	N7 10B 6/2	50 10	D C	M M	LOAMY FINE SAND	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
ROCKY 12								
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low Isolated Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown								
General Comments:								

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 141907.6	County: Hampshire	Date: 07/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W010-UPL
Investigators: CM		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 4	Logbook Pg.: 62	Tract: 898		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.527674 Long: -72.877999 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe) </p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Fagus grandifolia</i>	30	YES	FACU
<i>Tsuga canadensis</i>	40	YES	FACU
<i>Acer saccharum</i>	20	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	5	YES	FACU
<i>Tsuga canadensis</i>	5	YES	FACU
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:		Prevalence Index Worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0 (A)</u>	Total % Cover of:	Multiply by:
Total Number of Dominant Species Across All Strata:	<u>5 (B)</u>	OBL Species:	<u>0</u> x 1 = <u>0</u>
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0 (A/B)</u>	FACW Species:	<u>0</u> x 2 = <u>0</u>
		FAC Species:	<u>10</u> x 3 = <u>30</u>
		FACU Species:	<u>100</u> x 4 = <u>400</u>
		UPL Species:	<u>0</u> x 5 = <u>0</u>
		Column Totals:	<u>110 (A)</u> <u>430 (B)</u>
		Prevalence Index = B/A = <u>3.91</u>	

Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> 2 - Dominance Test is > 50%	
<input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0	
<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					SILT LOAM	
1-14	7.5YR 5/6	70	10YR 5/6	30	C	M	SANDY LOAM	
14-18	10YR 3/4	90	7.5YR 4/6	10	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 143427.3	County: Franklin	Date: 07/07/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W001-PFO
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 80	Tract: 339	

Landform (hillslope, terrace, etc.): Stream fringe floodplain Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.528630 Long: -72.872505 Datum: NAD83

Soil Map Unit Name: Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	30	YES	FAC
<i>Picea glauca</i>	40	YES	FACU
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	20	YES	FACW
<i>Abies balsamea</i>	5	NO	FAC
<i>Prunus serotina</i>	5	NO	FACU
<i>Spiraea alba</i>	15	YES	FACW
<i>Acer rubrum</i>	5	NO	FAC
<i>Alnus glutinosa</i>	10	NO	FACW
<i>Lindera benzoin</i>	15	YES	FACW
Total Cover:		75	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago gigantea</i>	15	YES	FACW
<i>Phalaris arundinacea</i>	20	YES	FACW
<i>Lysimachia terrestris</i>	15	YES	OBL
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fragaria virginiana</i>	10	YES	FACU
Total Cover:		10	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 78 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>15</u>	x 1 = <u>15</u>
FACW Species: <u>95</u>	x 2 = <u>190</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>205 (A)</u>	<u>545 (B)</u>
Prevalence Index = B/A = <u>2.66</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: TREES GROWING ON HUMMOCKS; SHALLOW ROOT SYSTEMS

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					ORGANIC	
2-12	10YR 4/2	30	2.5YR 4/1 10YR 4/6	60 10	D C	M M	FINE SANDY LOAM	
12-18	10YR 4/2	30	2.5YR 4/1 10YR 4/6	60 10	D C	M M	LOAMY COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 143372.1	County: Franklin	Date: 07/07/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W001-PSS
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 81	Tract: 339	

Landform (hillslope, terrace, etc.): Stream fringe Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.528591 Long: -72.872703 Datum: NAD83

Soil Map Unit Name: Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus incana</i>	30	YES	FACW
<i>Spiraea alba</i>	20	YES	FACW
<i>Alnus glutinosa</i>	20	YES	FACW
Total Cover:		70	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Phalaris arundinacea</i>	35	YES	FACW
<i>Carex stricta</i>	20	YES	OBL
<i>Eutrochium fistulosum</i>	15	NO	FACW
<i>Scirpus atrovirens</i>	10	NO	OBL
Total Cover:		80	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>30</u>	x 1 = <u>30</u>
FACW Species: <u>120</u>	x 2 = <u>240</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>165 (A)</u>	<u>315 (B)</u>
Prevalence Index = B/A = <u>1.91</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 2/1	95	10YR 4/6	5	C	PL	SILT LOAM	
9-14	5Y 6/1	40	2.5Y 5/2 10YR 4/6	55 5	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 143497.5	County: Franklin	Date: 07/07/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W001-UPL
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 82	Tract: 339	

Landform (hillslope, terrace, etc.): Floodplain terrace Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.528662 Long: -72.872248 Datum: NAD83

Soil Map Unit Name: Peacham muck, 0 to 3 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	40	YES	FACU
<i>Acer saccharum</i>	20	YES	FACU
<i>Picea glauca</i>	25	YES	FACU
<i>Abies balsamea</i>	15	NO	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris campyloptera</i>	5	YES	FACU
Total Cover: 5			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>90</u>	x 4 = <u>360</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>405 (B)</u>
Prevalence Index = B/A = <u>3.86</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5Y 2.5/4	100					ORGANIC	
3-4	2.5Y 2.5/1	100					ORGANIC	
4-5	5YR 3/2	20	5YR 7/1	80	C	M	LOAM	
5-12	7.5YR 5/8	70	7.5YR 4/4	30	C	M	LOAM	
12-18	10YR 6/6	50	10YR 3/3	50	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 145756.0	County: Franklin	Date: 07/08/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W004-PFO
Investigators: CM		Quad Name: Ashfield		Township: Ashfield
Logbook No.: 4M	Logbook Pg.: 98	Tract: 11968		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.529767 Long: -72.864003 Datum: NAD83

Soil Map Unit Name: Peru fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1 Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	40	YES	FAC
<i>Acer rubrum</i>	40	YES	FAC
<i>Abies balsamea</i>	15	NO	FAC
<i>Tsuga canadensis</i>	15	NO	FACU
Total Cover:	110		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus americana</i>	10	NO	FACU
<i>Abies balsamea</i>	10	NO	FAC
<i>Tsuga canadensis</i>	20	YES	FACU
<i>Hamamelis virginiana</i>	15	YES	FACU
<i>Acer rubrum</i>	5	NO	FAC
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	5	NO	FAC
<i>Impatiens capensis</i>	70	YES	FACW
Total Cover:		75	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>115</u>	x 3 = <u>345</u>
FACU Species: <u>60</u>	x 4 = <u>240</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>245 (A)</u>	<u>725 (B)</u>
Prevalence Index = B/A = <u>2.96</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-25	2.5Y 2.5/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 145808.6	County: Franklin	Date: 07/08/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W004-UPL
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 100	Tract: 11968	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.529702 Long: -72.863788 Datum: NAD83

Soil Map Unit Name: Peru fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	NO	FAC
<i>Acer saccharum</i>	20	YES	FACU
<i>Tsuga canadensis</i>	60	YES	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Acer pensylvanicum</i>	10	NO	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris campyloptera</i>	10	NO	FACU
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>110</u>	x 4 = <u>440</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>500 (B)</u>
Prevalence Index = B/A = <u>3.85</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5YR 2.5/1	100					SILT LOAM	
3-4	2.5YR 7/1	100					LOAM	
4-12	2.5YR 4/6	100					LOAMY SAND	
12-18	2.5YR 4/4	50	2.5YR 4/8	50	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 147421.7	County: Franklin	Date: 07/09/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W005-PFO
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 110	Tract: 26881	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.530572 Long: -72.857920 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Malus sp.</i>	20	NA	NONE
<i>Fraxinus pennsylvanica</i>	40	YES	FACW
<i>Prunus serotina</i>	10	NO	FACU
<i>Acer rubrum</i>	40	YES	FAC
Total Cover:	110		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	YES	FACU
<i>Acer rubrum</i>	5	YES	FAC
<i>Vaccinium corymbosum</i>	5	YES	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	10	NO	FAC
<i>Impatiens capensis</i>	60	YES	FACW
<i>Thelypteris palustris</i>	10	NO	FACW
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Veratrum viride</i>	5	NO	FACW
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>130</u>	x 2 = <u>260</u>
FAC Species: <u>55</u>	x 3 = <u>165</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200 (A)</u>	<u>485 (B)</u>
Prevalence Index = B/A = <u>2.42</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 147385.8	County: Franklin	Date: 07/09/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W005-PSS
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 111	Tract: 26881	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.530168 Long: -72.857954 Datum: NAD83

Soil Map Unit Name: Ashfield fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
<i>Prunus virginiana</i>	15	NO	FACU
<i>Fraxinus pennsylvanica</i>	5	NO	FACW
<i>Spiraea alba</i>	40	YES	FACW
<i>Salix interior</i>	15	NO	FACW
Total Cover:		95	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	10	NO	FACU
<i>Euthamia caroliniana</i>	10	NO	FAC
<i>Solidago rugosa</i>	15	YES	FAC
<i>Woodwardia virginica</i>	5	NO	OBL
<i>Solidago gigantea</i>	15	YES	FACW
Total Cover:		55	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of: Multiply by:

OBL Species: 5 x 1 = 5

FACW Species: 75 x 2 = 150

FAC Species: 45 x 3 = 135

FACU Species: 25 x 4 = 100

UPL Species: 0 x 5 = 0

Column Totals: 150 (A) 390 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					SILT LOAM	
4-8	10YR 4/2	90	10YR 4/6	10	C	PL	SANDY LOAM	
8-14	7.5YR 5/1	60	7.5YR 5/4	40	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 14

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

AS-M-SH002 LOCATED IN PSS

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 147322.4	County: Franklin	Date: 07/09/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W005-UPL
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 112	Tract: 26881	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.530407 Long: -72.858254 Datum: NAD83

Soil Map Unit Name: Ashfield fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **Is the Sampled Area within a Wetland?** Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe) </p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	10	NO	FACU
<i>Acer saccharum</i>	60	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	NO	FAC
<i>Prunus serotina</i>	15	YES	FACU
<i>Fraxinus americana</i>	15	YES	FACU
<i>Rosa multiflora</i>	5	NO	FACU
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	20	YES	FACU
<i>Thelypteris noveboracensis</i>	10	YES	FAC
<i>Impatiens capensis</i>	15	YES	FACW
Total Cover:		45	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>165 (A)</u>	<u>605 (B)</u>
Prevalence Index = B/A = <u>3.67</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/3	85	10YR 4/2	15	C	M	SANDY LOAM	
7-14	10YR 5/4	90	10YR 6/3	10	D	M	SANDY LOAM	
14-16	10YR 4/4	100					LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

16

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 148986.1	County: Franklin	Date: 07/10/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W006-PFO
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 118	Tract: 26881	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.531436 Long: -72.852234 Datum: NAD83

Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

Ground water seep

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	30	YES	FACU
<i>Prunus serotina</i>	10	NO	FACU
<i>Acer rubrum</i>	45	YES	FAC
<i>Fraxinus nigra</i>	10	NO	FACW
Total Cover:		95	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	YES	FACU
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
<i>Pinus strobus</i>	5	YES	FACU
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	5	NO	FACW
<i>Onoclea sensibilis</i>	10	YES	FACW
<i>Dryopteris intermedia</i>	15	YES	FAC
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>45</u>	x 2 = <u>90</u>
FAC Species: <u>60</u>	x 3 = <u>180</u>
FACU Species: <u>50</u>	x 4 = <u>200</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155 (A)</u>	<u>470 (B)</u>
Prevalence Index = B/A = <u>3.03</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: UPLAND SPECIES PRESENT IN PLOT DUE TO PROXIMITY OF LINE

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/2	100					ORGANIC	
3-10	10YR 3/3	30	10YR 4/1 10YR 4/4	60 10	D C	M M	SILT LOAM	10" rocky cobble refusal

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

10

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 148989.8	County: Franklin	Date: 07/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W006-UPL
Investigators: CM		Quad Name: Ashfield		Township: Ashfield
Logbook No.: 4M	Logbook Pg.: 120	Tract: 26881		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 5
Subregion (LRR): Middle Atlantic		Lat: 42.531331	Long: -72.852193	Datum: NAD83
Soil Map Unit Name: Ashfield fine sandy loam, 8 to 15 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	NO	FAC
<i>Pinus strobus</i>	35	YES	FACU
<i>Acer saccharum</i>	50	YES	FACU
Total Cover:		95	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	10	NO	FAC
<i>Fagus grandifolia</i>	40	YES	FACU
<i>Fraxinus americana</i>	5	NO	FACU
<i>Pinus strobus</i>	5	NO	FACU
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris campyloptera</i>	25	YES	FACU
<i>Vaccinium angustifolium</i>	5	NO	FACU
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>45</u>	x 2 = <u>90</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>165</u>	x 4 = <u>660</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>230 (A)</u>	<u>810 (B)</u>
Prevalence Index = B/A = <u>3.52</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 4/3	80	7.5YR 5/6	20	C	M	LOAM	
4-8	7.5YR 5/6	90	7.5YR 4/3	10	C	M	LOAM	
8-18	7.5YR 5/4	50	7.5YR 6/3	50	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 152557.5	County: Franklin	Date: 07/12/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W008-PFO
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 131	Tract: 347	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.533033 Long: -72.839159 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	60	YES	FAC
<i>Betula papyrifera</i>	15	NO	FACU
<i>Prunus serotina</i>	10	NO	FACU
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	30	YES	FAC
<i>Tsuga canadensis</i>	20	YES	FACU
<i>Acer pensylvanicum</i>	5	NO	FACU
<i>Abies balsamea</i>	10	NO	FAC
Total Cover:		65	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Thelypteris noveboracensis</i>	30	YES	FAC
<i>Maianthemum canadense</i>	5	NO	FACU
<i>Dryopteris carthusiana</i>	15	YES	FACW
<i>Maianthemum racemosum</i>	10	NO	FACU
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>130</u>	x 3 = <u>390</u>
FACU Species: <u>65</u>	x 4 = <u>260</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>210 (A)</u>	<u>680 (B)</u>
Prevalence Index = B/A = <u>3.24</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	2.5Y 2.5/1	100					ORGANIC	
1-5	2.5Y 3/1	95	10YR 4/6	5	C	PL	SILT LOAM	
5-14	2.5Y 5/2	35	2.5Y 6/1 10YR 5/6	60 5	D C	M M	SANDY LOAM	20% SILT

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 152659.2	County: Franklin	Date: 07/12/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W008-UPL
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 130	Tract: 344	

Landform (hillslope, terrace, etc.): Hilltop Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.533188 Long: -72.838813 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No

Hydric Soil Present? Yes No

Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

Distressed roots

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Acer rubrum</i>	25	YES	FAC
<i>Fagus grandifolia</i>	25	YES	FACU
<i>Betula alleghaniensis</i>	25	YES	FAC
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	10	YES	FAC
<i>Acer pensylvanicum</i>	10	YES	FACU
<i>Fagus grandifolia</i>	15	YES	FACU
<i>Tsuga canadensis</i>	15	YES	FACU
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum racemosum</i>	15	YES	FACU
<i>Maianthemum canadense</i>	15	YES	FACU
<i>Lycopodium clavatum</i>	5	NO	FAC
Total Cover:		35	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>105</u>	x 4 = <u>420</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>170 (A)</u>	<u>615 (B)</u>
Prevalence Index = B/A = <u>3.62</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 2.5/1	100					ORGANIC	
3-4	5YR 5/1	90	5YR 7/1 5YR 4/4	5 5	C C	M M	LOAM	
4-10	5YR 4/6	100					LOAM	Rock at 10"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

10

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 152957.7	County: Franklin	Date: 07/12/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W009-PFO
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 134	Tract: 344	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.533348 Long: -72.837727 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ulmus americana</i>	30	YES	FACW
<i>Ulmus rubra</i>	10	NO	FAC
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Acer rubrum</i>	30	YES	FAC
<i>Fraxinus nigra</i>	20	YES	FACW
Total Cover:		100	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	NO	FAC
<i>Ulmus americana</i>	20	YES	FACW
<i>Vaccinium corymbosum</i>	10	NO	FACW
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Ulmus rubra</i>	10	NO	FAC
<i>Abies balsamea</i>	15	YES	FAC
Total Cover:		75	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	40	YES	FACW
<i>Veratrum viride</i>	15	YES	FACW
<i>Onoclea sensibilis</i>	10	NO	FACW
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>145</u>	x 2 = <u>290</u>
FAC Species: <u>85</u>	x 3 = <u>255</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>240 (A)</u>	<u>585 (B)</u>
Prevalence Index = B/A = <u>2.44</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	2.5Y 3/1	90	10YR 4/6	10	C	PL	SANDY LOAM	
14-22	7.5YR 4/2	40	5YR 6/2	60	D	M	LOAMY COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 153108.9	County: Franklin	Date: 07/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W009-UPL
Investigators: CM MN	Quad Name: Ashfield		Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 141	Tract: 344		
Landform (hillslope, terrace, etc.): Hilltop		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 5
Subregion (LRR): Middle Atlantic	Lat: 42.533559	Long: -72.837210	Datum: NAD83	
Soil Map Unit Name: Tunbridge-Lyman complex, 8 to 15 percent slopes, very rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Field Wetland Classification: UPLAND PLOT		
Remarks:		

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula papyrifera</i>	10	NO	FACU
<i>Fagus grandifolia</i>	50	YES	FACU
<i>Acer rubrum</i>	20	YES	FAC
<i>Prunus serotina</i>	10	NO	FACU
Total Cover:		90	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Picea glauca</i>	20	YES	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Fagus grandifolia</i>	25	YES	FACU
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lycopodium lagopus</i>	5	NO	FACU
<i>Maianthemum canadense</i>	20	YES	FACU
<i>Lycopodium clavatum</i>	10	YES	FAC
<i>Pteridium aquilinum</i>	5	NO	FACU
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185 (A)</u>	<u>700 (B)</u>

Prevalence Index = B/A = 3.78

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-2	7.5YR 5/1	50	7.5YR 3/1 7.5YR 4/4	40 10	C C	M M	LOAM	
2-10	7.5YR 5/4	100					LOAM	
10-18	10YR 4/4	90	10YR 5/4	10	C	M	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

AS-M-W010 SHARED UPLAND PLOT

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 153296.2	County: Franklin	Date: 07/13/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W010-PFO
Investigators: CM MN	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 140	Tract: 344	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.533521 Long: -72.836493 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	25	YES	FAC
<i>Betula alleghaniensis</i>	30	YES	FAC
<i>Fraxinus pennsylvanica</i>	15	NO	FACW
<i>Tsuga canadensis</i>	30	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	5	YES	FAC
<i>Tsuga canadensis</i>	15	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Thelypteris noveboracensis</i>	30	YES	FAC
<i>Onoclea sensibilis</i>	5	NO	FACW
<i>Dryopteris intermedia</i>	20	YES	FAC
Total Cover:		55	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>110</u>	x 3 = <u>330</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>550 (B)</u>
Prevalence Index = B/A = <u>3.14</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	7.5YR 2.5/1	100					ORGANIC	
1-3	7.5YR 3/1	100					SILT LOAM	
3-12	7.5YR 4/1	35	7.5YR 7/1 7.5YR 4/4	60 5	D C	M M	COARSE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 153861.2	County: Franklin	Date: 07/13/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W011-PFO
Investigators: CM JW	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 2015-5	Logbook Pg.: 6	Tract: 344	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.533794 Long: -72.834430 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input checked="" type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input checked="" type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Tsuga canadensis</i>	40	YES	FACU
<i>Prunus serotina</i>	15	NO	FACU
<i>Acer rubrum</i>	20	YES	FAC
<i>Betula alleghaniensis</i>	15	NO	FAC
Total Cover:		100	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Taxus canadensis</i>	40	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Viburnum lantanoides</i>	10	NO	FACU
<i>Kalmia latifolia</i>	20	YES	FACU
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180 (A)</u>	<u>655 (B)</u>
Prevalence Index = B/A = <u>3.64</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	2.5Y 2.5/1	100					ORGANIC	
15-20	2.5Y 6/1	60	2.5Y 3/1 10YR 4/6	35 5	C C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 153919.8	County: Franklin	Date: 07/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W011-UPL
Investigators: CM JW		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 2015-5	Logbook Pg.: 8	Tract: 341		
Landform (hillslope, terrace, etc.): Slope - toe		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 7	
Subregion (LRR): Middle Atlantic	Lat: 42.533867	Long: -72.834227	Datum: NAD83	
Soil Map Unit Name: Tunbridge-Lyman complex, 8 to 15 percent slopes, very rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Tsuga canadensis</i>	50	YES	FACU
<i>Acer saccharum</i>	15	YES	FACU
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Kalmia latifolia</i>	30	YES	FACU
<i>Acer spicatum</i>	5	NO	FACU
<i>Taxus canadensis</i>	15	YES	FACU
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>115</u>	x 4 = <u>460</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>490 (B)</u>
Prevalence Index = B/A = <u>3.92</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					ORGANIC	ROCK REFUSAL AT 8 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	---

Remarks:
 ORGANIC DUFF MATTER COMPRISED THE OI LAYER. NOT SATURATED SOUL ON BOULDER FIELD.

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 154200.2	County: Franklin	Date: 07/14/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W012-PFO
Investigators: CM SB	Quad Name: Ashfield	Township: Ashfield	

Logbook No.: 2015-5 Logbook Pg.: 18 Tract: 341

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.533956 Long: -72.833191 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p><u>Secondary Indicators (2 or more required)</u></p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus nigra</i>	25	YES	FACW
<i>Betula alleghaniensis</i>	20	YES	FAC
<i>Acer rubrum</i>	10	NO	FAC
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Tsuga canadensis</i>	20	YES	FACU
Total Cover:		85	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Hamamelis virginiana</i>	10	YES	FACU
<i>Acer spicatum</i>	10	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	20	YES	FAC
CAREX SP	15	YES	FAC
<i>Impatiens capensis</i>	10	NO	FACW
<i>Woodwardia virginica</i>	10	NO	OBL
<i>Thelypteris palustris</i>	15	YES	FACW
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>60</u>	x 2 = <u>120</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>40</u>	x 4 = <u>160</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>485 (B)</u>
Prevalence Index = B/A = <u>2.77</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR2/1	100					ORGANIC	
10-16	5Y3/1	30	5Y5/2	70	D	M	LOAMY COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 154172.8	County: Franklin	Date: 07/14/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W012-UPL
Investigators: CM SB	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 2015-5	Logbook Pg.: 19	Tract: 341	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 15

Subregion (LRR): Middle Atlantic Lat: 42.533971 Long: -72.833298 Datum: NAD83

Soil Map Unit Name: Tunbridge-Lyman complex, 8 to 15 percent slopes, very rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	30	YES	FACU
<i>Tsuga canadensis</i>	40	YES	FACU
<i>Acer spicatum</i>	10	NO	FACU
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Taxus canadensis</i>	40	YES	FACU
<i>Tsuga canadensis</i>	15	YES	FACU
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Polystichum acrostichoides</i>	5	YES	FACU
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>140</u>	x 4 = <u>560</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>560 (B)</u>

Prevalence Index = B/A = 4.00

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 4/4	100					ORGANIC	DUFF LAYER OI ORGANIC LAYER BOULDER FIELD. ROCK REFUSAL 6 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ROCK 6	

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 154427.6	County: Franklin	Date: 07/14/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W013-PEM
Investigators: CM MN	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 22	Tract: 341	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.534313 Long: -72.832423 Datum: NAD83

Soil Map Unit Name: Millsite-Westminster complex, 3 to 8 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: TREE STRATUM REDUCED TO 15'

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input checked="" type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
<input type="checkbox"/> Moss Trim Lines (B16)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:	20		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	5	NO	FACW
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Prunus serotina</i>	10	YES	FACU
<i>Acer pensylvanicum</i>	5	NO	FACU
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex scoparia</i>	10	NO	FACW
<i>Scirpus cyperinus</i>	10	NO	OBL
<i>Solidago gigantea</i>	25	YES	FACW
<i>Panicum capillare</i>	25	YES	FAC
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>365 (B)</u>
Prevalence Index = B/A = <u>2.81</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-6	2.5Y 5/3	30	2.5Y 2.5/1 10YR 4/6	65 5	C C	M PL	FINE SANDY LOAM	
6-14	2.5Y 3/2	30	2.5Y 5/1 2.5Y 4/4	65 5	D C	M M	SILT LOAM	
14-18	10YR 4/2	60	10YR 2/1 10YR 6/4	10 30	C C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 154454.3	County: Franklin	Date: 07/14/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W013-UPL
Investigators: CM MN	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 23	Tract: 341	

Landform (hillslope, terrace, etc.): Hilltop
 Local Relief:
 Concave
 Convex
 None
 Slope%.: 4

Subregion (LRR): Middle Atlantic
 Lat: 42.534261
 Long: -72.832309
 Datum: NAD83

Soil Map Unit Name: Millsite-Westminster complex, 3 to 8 percent slopes, rocky
 NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?:
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? (includes capillary fringe) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Acer rubrum</i>	15	YES	FAC
<i>Acer saccharum</i>	15	YES	FACU
<i>Tsuga canadensis</i>	20	YES	FACU
<i>Fraxinus americana</i>	10	NO	FACU
Total Cover:		70	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	5	NO	FAC
<i>Taxus canadensis</i>	20	YES	FACU
<i>Fagus grandifolia</i>	10	NO	FACU
<i>Tsuga canadensis</i>	20	YES	FACU
<i>Quercus alba</i>	15	YES	FACU
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	5	YES	FAC
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 29 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>110</u>	x 4 = <u>440</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145 (A)</u>	<u>535 (B)</u>
Prevalence Index = B/A = <u>3.69</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					ORGANIC	
2-7	7.5YR 4/4	100					SILT LOAM	
7-16	10YR 5/4	100					SILT LOAM	16" Rock refusal

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 16

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 156046.1	County: Franklin	Date: 07/16/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W014-PEM
Investigators: CM SB	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 33	Tract: 358	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.534837 Long: -72.826455 Datum: NAD83

Soil Map Unit Name: Wonsqueak woody peat, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: BEAVER DAM DOWNSTREAM HAS INUNDATED THE PEM WETLAND UPSTREAM

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	YES	FACU
<i>Acer rubrum</i>	10	YES	FAC
<i>Spiraea alba</i>	5	YES	FACW
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex lurida</i>	5	NO	OBL
<i>Carex comosa</i>	35	YES	OBL
<i>Scirpus cyperinus</i>	35	YES	OBL
<i>Euthamia caroliniana</i>	10	NO	FAC
<i>Typha latifolia</i>	15	NO	OBL
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>90</u>	x 1 = <u>90</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>220 (B)</u>
Prevalence Index = B/A = <u>1.69</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 2.5/2	100					ORGANIC	
4-8	7.5YR 3/3	95	7.5YR 4/4	5	C	PL	SILT LOAM	
8-12	7.5YR 5/2	70	7.5YR 3/1	30	C	M	COARSE SANDY LOAM	
12-16	10YR 5/3	30	10YR 6/1	70	D	M	LOAMY COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

BEAVER DAM

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 156174.8	County: Franklin	Date: 07/16/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W014-PFO
Investigators: CM SB	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 32	Tract: 358	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.535002 Long: -72.826003 Datum: NAD83

Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1 Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

RED MAPLE-CONIFER PEAT BOG

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer pensylvanicum</i>	15	NO	FACU
<i>Betula alleghaniensis</i>	30	YES	FAC
<i>Acer rubrum</i>	40	YES	FAC
<i>Tsuga canadensis</i>	20	YES	FACU
Total Cover:	105		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	15	YES	FAC
<i>Acer rubrum</i>	10	NO	FAC
<i>Ilex verticillata</i>	20	YES	FACW
<i>Fraxinus pennsylvanica</i>	15	YES	FACW
<i>Picea glauca</i>	10	NO	FACU
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	10	YES	FAC
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>35</u>	x 2 = <u>70</u>
FAC Species: <u>105</u>	x 3 = <u>315</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185 (A)</u>	<u>565 (B)</u>
Prevalence Index = B/A = <u>3.05</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	5YR 3/2	90	10YR 4/6	10	C	PL	ORGANIC	
12-16	7.5YR 5/2	40	7.5YR 7/1	60	D	M	FINE SANDY LOAM	
16-18	10YR 7/3	40	10YR 6/1	60	D	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:
 PEAT BOG

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 156126.3	County: Franklin	Date: 07/16/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W014-UPL
Investigators: CM SB		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 34	Tract: 358		
Landform (hillslope, terrace, etc.): Hilltop		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 30
Subregion (LRR): Middle Atlantic	Lat: 42.534924	Long: -72.826166	Datum: NAD83	
Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: TOP OF NARROW RIDGE LINE

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	30	YES	FACU
<i>Betula populifolia</i>	70	YES	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer pensylvanicum</i>	10	YES	FACU
<i>Tsuga canadensis</i>	15	YES	FACU
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>430 (B)</u>
Prevalence Index = B/A = <u>3.44</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	2.5YR 3/2	100					ORGANIC	
5-6	7.5YR 6/2	100					LOAM	
6-8	2.5YR 4/6	80	5YR 5/6	20	C	M	LOAM	
8-10	10YR 5/6	60	7.5YR 5/8	40	C	M	SANDY LOAM	Restrictive rock layer at 10"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

YES

10

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 156992.0	County: Franklin	Date: 07/20/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W015-PFO
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 74	Tract: 358		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.535318 Long: -72.822998 Datum: NAD83

Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input type="checkbox"/> Moss Trim Lines (B16)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Crayfish Burrows (C8)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td> </tr> <tr> <td><input type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> Microtopographic Relief (D4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	60	YES	FAC
<i>Tsuga canadensis</i>	30	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	10	YES	FAC
<i>Quercus rubra</i>	10	YES	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Betula alleghaniensis</i>	30	YES	FAC
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus idaeus</i>	10	YES	FACU
<i>Parathelypteris noveboracensis</i>	30	YES	FAC
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 44 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>130</u>	x 3 = <u>390</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>205 (A)</u>	<u>680 (B)</u>
Prevalence Index = B/A = <u>3.32</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5Y 2.5/1	100					ORGANIC	
3-8	2.5Y 4/1	70	2.5Y 6/1 2.5Y 4/4	25 5	D C	M PL	LOAM	
8-16	2.5Y 5/1	20	2.5Y 6/2 2.5Y 4/4	70 10	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

AC4-VP009 LOCATED IN PFO

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 157076.9	County: Franklin	Date: 07/20/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W015-UPL
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 76	Tract: 358		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.535363	Long: -72.822689	Datum: NAD83	
Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	15	NO	FAC
<i>Prunus serotina</i>	15	NO	FACU
<i>Acer rubrum</i>	30	YES	FAC
<i>Tsuga canadensis</i>	30	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Fraxinus americana</i>	10	NO	FACU
<i>Quercus rubra</i>	10	NO	FACU
<i>Acer pensylvanicum</i>	25	YES	FACU
<i>Tsuga canadensis</i>	15	NO	FACU
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris campyloptera</i>	5	YES	FACU
<i>Maianthemum canadense</i>	15	YES	FACU
Total Cover:		20	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>190 (A)</u>	<u>715 (B)</u>
Prevalence Index = B/A = <u>3.76</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					ORGANIC	
2-4	10YR 3/2	100					SILT LOAM	
4-10	10YR 3/3	100					LOAM	
10-18	10YR 3/3	50	10YR 4/4	50	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 157329.0	County: Franklin	Date: 07/21/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W016-PFO
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 82	Tract: 358		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.535502	Long: -72.821773	Datum: NAD83	
Soil Map Unit Name: Ashfield fine sandy loam, 8 to 15 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	15	NO	FACU
<i>Acer rubrum</i>	15	NO	FAC
<i>Fraxinus pennsylvanica</i>	30	YES	FACW
<i>Betula lenta</i>	30	YES	FACU
Total Cover:		90	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
<i>Acer pensylvanicum</i>	5	NO	FACU
<i>Acer saccharum</i>	10	YES	FACU
<i>Acer spicatum</i>	10	YES	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Parathelypteris noveboracensis</i>	25	YES	FAC
<i>Osmunda claytoniana</i>	30	YES	FAC
<i>Dryopteris intermedia</i>	25	YES	FAC
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 56 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>105</u>	x 3 = <u>315</u>
FACU Species: <u>80</u>	x 4 = <u>320</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>225 (A)</u>	<u>715 (B)</u>
Prevalence Index = B/A = <u>3.18</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 4/1	95	10YR 5/6	5	C	PL	FINE SANDY LOAM	
6-18	2.5Y 4/1	30	2.5Y 6/2 10YR 5/6	60 10	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 157670.7	County: Franklin	Date: 07/21/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W016-UPL
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 84	Tract: 358		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 7	
Subregion (LRR): Middle Atlantic	Lat: 42.535572	Long: -72.820422	Datum: NAD83	
Soil Map Unit Name: Ashfield fine sandy loam, 8 to 15 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION			
Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
<i>Betula lenta</i>	15	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Tsuga canadensis</i>	15	YES	FACU
<i>Fraxinus americana</i>	20	YES	FACU
Total Cover:	80		
Sapling/Shrub Stratum			
Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Fraxinus americana</i>	10	NO	FACU
<i>Acer saccharum</i>	20	YES	FACU
<i>Kalmia latifolia</i>	25	YES	FACU
<i>Acer spicatum</i>	20	YES	FACU
<i>Prunus serotina</i>	10	NO	FACU
Total Cover:	95		
Herb Stratum			
Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda regalis</i>	10	NO	OBL
<i>Polystichum acrostichoides</i>	5	NO	FACU
<i>Dryopteris intermedia</i>	25	YES	FAC
<i>Phegopteris hexagonoptera</i>	10	NO	FACU
<i>Phegopteris connectilis</i>	25	YES	FACU
Total Cover:	75		
Woody Vine Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus idaeus</i>	10	YES	FACU
Total Cover:	10		
Dominance Test Worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2 (A)</u> Total Number of Dominant Species Across All Strata: <u>10 (B)</u> Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20 (A/B)</u>	Prevalence Index Worksheet: Total % Cover of: Multiply by: OBL Species: <u>10</u> x 1 = <u>10</u> FACW Species: <u>20</u> x 2 = <u>40</u> FAC Species: <u>35</u> x 3 = <u>105</u> FACU Species: <u>195</u> x 4 = <u>780</u> UPL Species: <u>0</u> x 5 = <u>0</u> Column Totals: <u>260 (A)</u> <u>935 (B)</u> Prevalence Index = B/A = <u>3.60</u>		
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Remarks:			

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	2.5Y 3/3	100					FINE SANDY LOAM	
8-12	10YR 3/3	100					FINE SANDY LOAM	
12-18	2.5Y 4/4	100					FINE SANDY LOAM	
18-20	2.5Y 4/1	30	2.5Y 6/1	70	D	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 158171.4	County: Franklin	Date: 07/21/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W017-PSS
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 90	Tract: 358		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%: .

Subregion (LRR): Middle Atlantic Lat: 42.535654 Long: -72.818632 Datum: NAD83

Soil Map Unit Name: Millsite-Westminster complex, 15 to 25 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	10	YES	FACU
<i>Betula alleghaniensis</i>	10	YES	FAC
Total Cover:	20		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Viburnum dentatum</i>	5	NO	FAC
<i>Ilex verticillata</i>	50	YES	FACW
<i>Spiraea alba</i>	15	NO	FACW
<i>Salix interior</i>	15	NO	FACW
Total Cover:		95	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Parathelypteris noveboracensis</i>	25	YES	FAC
<i>Osmunda regalis</i>	10	NO	OBL
<i>Dryopteris intermedia</i>	25	YES	FAC
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>100</u>	x 2 = <u>200</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185 (A)</u>	<u>445 (B)</u>
Prevalence Index = B/A = <u>2.41</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5Y 2.5/1	100					ORGANIC	
3-6	2.5Y 4/1	95	10YR 4/6	5	C	PL	FINE SANDY LOAM	
6-14	2.5Y 4/1	30	2.5Y 6/1 10YR 4/6	60 10	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 158052.7	County: Franklin	Date: 07/21/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W017-UPL
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 91	Tract: 358		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 1	
Subregion (LRR): Middle Atlantic	Lat: 42.535695	Long: -72.819090	Datum: NAD83	
Soil Map Unit Name: Millsite-Westminster complex, 15 to 25 percent slopes, rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
<i>Betula papyrifera</i>	20	YES	FACU
Total Cover:	40		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Fraxinus americana</i>	20	YES	FACU
<i>Acer saccharum</i>	15	YES	FACU
Total Cover:		65	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fragaria virginiana</i>	25	YES	FACU
<i>Phegopteris connectilis</i>	20	YES	FACU
Total Cover:		45	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>120</u>	x 4 = <u>480</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150 (A)</u>	<u>570 (B)</u>
Prevalence Index = B/A = <u>3.80</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/3	100					FINE SANDY LOAM	
4-10	2.5Y 4/3	100					FINE SANDY LOAM	
10-20	2.5Y 4/3	30	5Y 4/4	70			SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 166495.8	County: Franklin	Date: 07/22/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W018-PFO
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 96	Tract: 11973	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.538766 Long: -72.788214 Datum: NAD83

Soil Map Unit Name: Colrain-Millsite complex, 15 to 25 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	70	YES	FAC
<i>Acer rubrum</i>	10	NO	FAC
<i>Tsuga canadensis</i>	10	NO	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	20	YES	FAC
<i>Betula alleghaniensis</i>	40	YES	FAC
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Hamamelis virginiana</i>	15	NO	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:		95	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Toxicodendron radicans</i>	5	NO	FAC
<i>Impatiens capensis</i>	35	YES	FACW
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>45</u>	x 2 = <u>90</u>
FAC Species: <u>155</u>	x 3 = <u>465</u>
FACU Species: <u>25</u>	x 4 = <u>100</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>225 (A)</u>	<u>655 (B)</u>
Prevalence Index = B/A = <u>2.91</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	100					ORGANIC	
3-6	10YR 2/2	50	10YR 4/1	50	D	M	FINE SANDY LOAM	
6-15	10YR 5/3	30	10YR 6/1 10YR 4/6	60 10	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 166430.2	County: Franklin	Date: 07/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W018-UPL
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 97	Tract: 11973		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 6	
Subregion (LRR): Middle Atlantic	Lat: 42.538702	Long: -72.788452	Datum: NAD83	
Soil Map Unit Name: Colrain-Millsite complex, 15 to 25 percent slopes, rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	15	NO	FACU
<i>Acer rubrum</i>	15	NO	FAC
<i>Acer saccharum</i>	30	YES	FACU
<i>Betula lenta</i>	30	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	5	YES	FACU
<i>Tsuga canadensis</i>	5	YES	FACU
Total Cover:		10	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Polystichum acrostichoides</i>	15	YES	FACU
Total Cover:		15	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>100</u>	x 4 = <u>400</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>115 (A)</u>	<u>445 (B)</u>
Prevalence Index = B/A = <u>3.87</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 3/2	100					ORGANIC	
3-6	7.5YR 2.5/3	100					SILT LOAM	
6-10	7.5YR 4/4	90	7.5YR 3/2	10	C	M	LOAM	
10-12	7.5YR 4/2	100					COARSE SANDY LOAM	12" restrictive rock layer

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

YES

12

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 167606.9	County: Franklin	Date: 07/24/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W021-PEM
Investigators: CM CG		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 118	Tract: 11973		
Landform (hillslope, terrace, etc.): Floodplain terrace		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None
Subregion (LRR): Middle Atlantic		Lat: 42.538667	Long: -72.784073	Datum: NAD83
Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe) </p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	10	YES	FACU
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex lurida</i>	5	NO	OBL
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Carex vulpinoidea</i>	5	NO	OBL
<i>Phalaris arundinacea</i>	80	YES	FACW
<i>Plantago major</i>	5	NO	FACU
<i>Juncus effusus</i>	5	NO	OBL
Total Cover: 110			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>15</u>	x 1 = <u>15</u>
FACW Species: <u>90</u>	x 2 = <u>180</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120 (A)</u>	<u>255 (B)</u>

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	5YR 3/2	85	7.5YR 4/6	15	C	M,PL	SILT LOAM	
12-18	7.5YR 3/1	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 167614.5	County: Franklin	Date: 07/24/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W021-UPL
Investigators: CM CG	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 119	Tract: 11973	

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.538769 Long: -72.784054 Datum: NAD83

Soil Map Unit Name: Pillsbury stony sandy loam, 0 to 5 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
--	--

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	---

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	25	YES	FACU
<i>Betula populifolia</i>	10	YES	FAC
Total Cover:	35		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rosa multiflora</i>	5	YES	FACU
Total Cover:		5	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Celastrus scandens</i>	5	NO	FACU
<i>Achillea millefolium</i>	10	NO	FACU
<i>Solidago canadensis</i>	5	NO	FACU
<i>Dactylis glomerata</i>	65	YES	FACU
<i>Ranunculus acris</i>	10	NO	FAC
<i>Onoclea sensibilis</i>	5	NO	FACW
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis riparia</i>	10	YES	FAC
Total Cover:		10	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>115</u>	x 4 = <u>460</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150 (A)</u>	<u>560 (B)</u>
Prevalence Index = B/A = <u>3.73</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 4/3	100					SILT LOAM	
6-10	7.5YR 3/4	100					SILT LOAM	Rock refusal at 10"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

10

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 21986.8	County: Franklin	Date: 07/27/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CN-M-W002-PFO
Investigators: CM MN		Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 6M	Logbook Pg.: 8	Tract: 26954		

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.549660 Long: -72.687876 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis complex, 15 to 25 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: VEG DISURBANCE DUE TO LOGGING OPERATION IN SURROUNDING FOREST

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input checked="" type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input checked="" type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharinum</i>	10	NO	FACW
<i>Betula alleghaniensis</i>	80	YES	FAC
<i>Tsuga canadensis</i>	10	NO	FACU
Total Cover:		100	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
<i>Betula alleghaniensis</i>	10	YES	FAC
<i>Ulmus americana</i>	20	YES	FACW
Total Cover:	40		

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	50	YES	FACW
<i>Dryopteris intermedia</i>	15	YES	FAC
Total Cover:	65		

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis riparia</i>	30	YES	FAC
Total Cover:	30		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>90</u>	x 2 = <u>180</u>
FAC Species: <u>135</u>	x 3 = <u>405</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>235 (A)</u>	<u>625 (B)</u>
Prevalence Index = B/A = <u>2.66</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	7.5YR 4/1	95	5YR 4/6	5	C	PL	FINE SANDY LOAM	
7-16	10YR 5/1	20	10YR 6/2 10YR 4/6	70 10	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 22067.3	County: Franklin	Date: 07/27/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: CN-M-W002-PEM2
Investigators: CM MN	Quad Name: Shelburne Falls	Township: Conway	
Logbook No.: 6M	Logbook Pg.: 9	Tract: 26954	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.550077 Long: -72.687788 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis complex, 25 to 60 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: VEG DISTURBANCE DUE TO POWER LINE MAINTENANCE

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>0 (A)</u>	<u>0 (B)</u>
Prevalence Index = B/A = <u>0</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/1	95	5YR 4/6	5	C	PL	FINE SANDY LOAM	
5-18	10YR 5/1	20	10YR 6/2 10YR 4/6	70 10	D C	M M	FINE SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown								
General Comments:								

PHOTOS

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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 22223.6	County: Franklin	Date: 07/27/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: CN-M-W002-PEM
Investigators: CM	Quad Name: Shelburne Falls	Township: Conway	
Logbook No.:	Logbook Pg.:	Tract: 26954	

Landform (hillslope, terrace, etc.): _____ Local Relief: Concave Convex None Slope%.: _____

Subregion (LRR): Middle Atlantic Lat: 42.550212 Long: -72.687236 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis complex, 25 to 60 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____	
Water Table Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____	
Saturation Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover: _____			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>0 (A)</u>	<u>0 (B)</u>
Prevalence Index = B/A = <u>0</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Error: Subreport could not be shown.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 22037.4	County: Franklin	Date: 07/27/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CN-M-W002-UPL
Investigators: CM		Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 6M	Logbook Pg.: 10	Tract: 26954		

Landform (hillslope, terrace, etc.): Hilltop Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.549900 Long: -72.687808 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis complex, 15 to 25 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	90	YES	FACU
Total Cover:		90	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	20	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>110</u>	x 4 = <u>440</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>110 (A)</u>	<u>440 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 6/4	100					LOAM	
5-12	10YR 6/4	70	10YR 4/6	30	C	M	LOAM	
12-16	10YR 6/6	60	10YR 6/4	40	C	M	LOAM	Rock refusal at 16"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown ROCK 16	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	---

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 23061.5	County: Franklin	Date: 07/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CN-M-W003-PSS
Investigators: CM		Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 6M	Logbook Pg.: 19	Tract: 26954		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.551054 Long: -72.684342 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis complex, 15 to 25 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks: Floodplain

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input checked="" type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Acer saccharum</i>	15	YES	FACU
Total Cover:	25		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Kalmia latifolia</i>	10	NO	FACU
<i>Salix interior</i>	15	YES	FACW
<i>Acer saccharum</i>	10	NO	FACU
<i>Tsuga canadensis</i>	15	YES	FACU
<i>Lonicera morrowii</i>	35	YES	FACU
Total Cover:		85	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Equisetum palustre</i>	15	NO	FACW
<i>Typha latifolia</i>	10	NO	OBL
<i>Impatiens capensis</i>	35	YES	FACW
<i>Onoclea sensibilis</i>	25	YES	FACW
Total Cover:		85	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>90</u>	x 2 = <u>180</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>195 (A)</u>	<u>570 (B)</u>
Prevalence Index = B/A = <u>2.92</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	7.5YR 4/1	100					FINE SANDY LOAM	
7-10	10YR 5/2	30	10YR 6/1	70	D	M	SANDY LOAM	
10-14	10YR 5/1	20	10YR 6/1 10YR 5/8	65 15	D C	M M	COARSE SANDY LOAM	Cobble at 14", refusal

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 23068.4	County: Franklin	Date: 07/28/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: CN-M-W003-PFO
Investigators: CM	Quad Name: Shelburne Falls	Township: Conway	
Logbook No.: 6M	Logbook Pg.: 18	Tract: 26954	
Landform (hillslope, terrace, etc.): Slope - toe	Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 2	
Subregion (LRR): Middle Atlantic	Lat: 42.550890	Long: -72.684221	Datum: NAD83
Soil Map Unit Name: Paxton fine sandy loam, 8 to 15 percent slopes, very stony	NWI Classification: Not mapped		

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: Stream fringe

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	30	YES	FACU
<i>Tsuga canadensis</i>	30	YES	FACU
<i>Picea glauca</i>	10	NO	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Ulmus americana</i>	30	YES	FACW
Total Cover:		110	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
<i>Ulmus americana</i>	10	YES	FACW
<i>Acer pensylvanicum</i>	5	YES	FACU
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	15	YES	FAC
<i>Polystichum acrostichoides</i>	5	YES	FACU
<i>Onoclea sensibilis</i>	5	YES	FACW
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 56 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>55</u>	x 2 = <u>110</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>80</u>	x 4 = <u>320</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>160 (A)</u>	<u>505 (B)</u>
Prevalence Index = B/A = <u>3.16</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/1	95	7.5YR 5/6	5	C	PL	SANDY LOAM	
5-12	7.5YR 4/1	30	7.5YR 6/1 7.5YR 5/6	65 5	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 23124.8	County: Franklin	Date: 07/28/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: CN-M-W003-UPL
Investigators: CM	Quad Name: Shelburne Falls	Township: Conway	
Logbook No.: 6M	Logbook Pg.: 20	Tract: 26954	

Landform (hillslope, terrace, etc.): Floodplain terrace Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.551085 Long: -72.684104 Datum: NAD83

Soil Map Unit Name: Paxton fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: Disturbed vegetation due to OHVPL maintenance

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	50	YES	FACU
Total Cover:		50	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	5	NO	FACU
<i>Acer saccharum</i>	10	NO	FACU
<i>Kalmia latifolia</i>	30	YES	FACU
<i>Lonicera morrowii</i>	25	YES	FACU
<i>Fagus grandifolia</i>	20	YES	FACU
Total Cover:		90	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parthenocissus quinquefolia</i>	5	YES	FACU
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145 (A)</u>	<u>580 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/3	100					LOAM	
5-15	7.5YR 3/3	60	7.5YR 5/4	40	C	M	SANDY LOAM	
15-18	7.5YR 5/4	70	7.5YR 6/6	30	C	M	COARSE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 23566.7	County: Franklin	Date: 07/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CN-M-W004-PFO
Investigators: CM		Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 6M	Logbook Pg.: 26	Tract: 26954		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.551556 Long: -72.682593 Datum: NAD83

Soil Map Unit Name: Woodbridge loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: PFO

Remarks: RECENT FORESTRY ACTIVITY BY LANDOWNER

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p>Secondary Indicators (2 or more required)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 3 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	20	YES	FACU
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
Total Cover:	30		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ulmus americana</i>	25	YES	FACW
<i>Lonicera morrowii</i>	10	YES	FACU
<i>Acer saccharum</i>	10	YES	FACU
Total Cover:	45		

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	NO	FACW
<i>Impatiens capensis</i>	40	YES	FACW
<i>Galium asprellum</i>	35	YES	OBL
Total Cover:	90		

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis riparia</i>	10	YES	FAC
Total Cover:	10		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>35</u>	x 1 = <u>35</u>
FACW Species: <u>90</u>	x 2 = <u>180</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>40</u>	x 4 = <u>160</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>405 (B)</u>
Prevalence Index = B/A = <u>2.31</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: RECENT LOGGING REFLECTED IN PLOTS

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 5/1	30	10YR 6/1 10YR 5/6	60 10	D C	M M	FINE SANDY LOAM	
8-12	10YR 6/1	70	10YR 4/1	30	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 23481.9	County: Franklin	Date: 07/28/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: CN-M-W004-UPL
Investigators: CM MN	Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 6M	Logbook Pg.: 27	Tract: 26954	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 6

Subregion (LRR): Middle Atlantic Lat: 42.551357 Long: -72.682822 Datum: NAD83

Soil Map Unit Name: Woodbridge loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p><u>Secondary Indicators (2 or more required)</u></p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ulmus americana</i>	10	YES	FACW
<i>Acer rubrum</i>	10	YES	FAC
<i>Acer saccharum</i>	10	YES	FACU
<i>Pinus strobus</i>	40	YES	FACU
<i>Betula lenta</i>	10	YES	FACU
Total Cover:		80	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
<i>Betula lenta</i>	10	YES	FACU
<i>Acer saccharum</i>	15	YES	FACU
<i>Carya ovata</i>	10	YES	FACU
<i>Ulmus rubra</i>	10	YES	FAC
<i>Fagus grandifolia</i>	10	YES	FACU
Total Cover:		65	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	10	YES	FACU
<i>Monotropa uniflora</i>	5	YES	FACU
Total Cover:		15	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis riparia</i>	15	YES	FAC
Total Cover:		15	

Dominance Test Worksheet:	Prevalence Index Worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: <u>5 (A)</u>	Total % Cover of: Multiply by:
Total Number of Dominant Species Across All Strata: <u>14 (B)</u>	OBL Species: <u>0</u> x 1 = <u>0</u>
Percent of Dominant Species That Are OBL, FACW, or FAC: <u>36 (A/B)</u>	FACW Species: <u>10</u> x 2 = <u>20</u>
	FAC Species: <u>45</u> x 3 = <u>135</u>
	FACU Species: <u>120</u> x 4 = <u>480</u>
	UPL Species: <u>0</u> x 5 = <u>0</u>
	Column Totals: <u>175 (A)</u> <u>635 (B)</u>
	Prevalence Index = B/A = <u>3.63</u>

Hydrophytic Vegetation Indicators:	Hydrophytic Vegetation Present?
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> 2 - Dominance Test is > 50%	
<input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0	
<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/2	100					SANDY LOAM	
8-12	10YR 4/3	80	10YR 5/3	20	C	M	LOAM	
12-18	10YR 5/3	70	10YR 4/3	30	C	M	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 86408.3	County: Franklin	Date: 07/31/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ER-M-W002-PFO
Investigators: CM MN		Quad Name: Millers Falls	Township: Erving	
Logbook No.: 6M	Logbook Pg.: 52	Tract: 8453		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 1	
Subregion (LRR): Middle Atlantic	Lat: 42.582003	Long: -72.477707	Datum: NAD83	
Soil Map Unit Name: Chatfield-Hollis complex, 15 to 25 percent slopes, rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	10	NO	FACU
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Acer rubrum</i>	80	YES	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	40	YES	FACU
<i>Vaccinium corymbosum</i>	5	NO	FACW
<i>Hamamelis virginiana</i>	10	NO	FACU
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	10	NO	FACU
<i>Osmunda claytoniana</i>	45	YES	FAC
Total Cover:		55	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>125</u>	x 3 = <u>375</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>210 (A)</u>	<u>685 (B)</u>
Prevalence Index = B/A = <u>3.26</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: HUMMOCKS WITH UPLAND SHRUBS; TREES WITH ADVANTAGEOUS ROOT SYSTEMS

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-14	10YR 4/1	20	10YR 5/1 10YR 6/1	20 60	D D	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:
 ER-AC3-VP001 LOCATED WITHIN PFO
 Wetland Quality: High Moderate Low
 Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 86408.3	County: Franklin	Date: 07/31/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ER-M-W002-PFO
Investigators: CM MN		Quad Name: Millers Falls	Township: Erving	
Logbook No.: 6M	Logbook Pg.: 52	Tract: 8453		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 1	
Subregion (LRR): Middle Atlantic	Lat: 42.582003	Long: -72.477707	Datum: NAD83	
Soil Map Unit Name: Chatfield-Hollis complex, 15 to 25 percent slopes, rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	10	NO	FACU
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Acer rubrum</i>	80	YES	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	40	YES	FACU
<i>Vaccinium corymbosum</i>	5	NO	FACW
<i>Hamamelis virginiana</i>	10	NO	FACU
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	10	NO	FACU
<i>Osmunda claytoniana</i>	45	YES	FAC
Total Cover:		55	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>125</u>	x 3 = <u>375</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>210 (A)</u>	<u>685 (B)</u>
Prevalence Index = B/A = <u>3.26</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: HUMMOCKS WITH UPLAND SHRUBS; TREES WITH ADVANTAGEOUS ROOT SYSTEMS

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-14	10YR 4/1	20	10YR 5/1 10YR 6/1	20 60	D D	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:
 ER-AC3-VP001 LOCATED WITHIN PFO
 Wetland Quality: High Moderate Low
 Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 113823.9	County: Franklin	Date: 08/11/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: NO-M-W003-PSS
Investigators: CM	Quad Name: Northfield	Township: Northfield	
Logbook No.: 6M	Logbook Pg.: 114	Tract: 21164	

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.636563 Long: -72.435147 Datum: NAD83

Soil Map Unit Name: Canton fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks: USE NO-M-W004-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	40	YES	FACW
<i>Acer rubrum</i>	15	NO	FAC
<i>Rhamnus cathartica</i>	30	YES	FAC
Total Cover:		85	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex lurida</i>	5	NO	OBL
<i>Onoclea sensibilis</i>	15	NO	FACW
<i>Solidago canadensis</i>	20	YES	FACU
<i>Solidago rugosa</i>	20	YES	FAC
<i>Osmunda claytoniana</i>	30	YES	FAC
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>5</u>	x 1 = <u>5</u>
FACW Species: <u>55</u>	x 2 = <u>110</u>
FAC Species: <u>95</u>	x 3 = <u>285</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>480 (B)</u>
Prevalence Index = B/A = <u>2.74</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 4/1	95	10YR 4/6	5	C	PL	SANDY LOAM	
7-14	10YR 3/2	30	10YR 5/1 10YR 4/6	60 10	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 114198.3	County: Franklin	Date: 08/11/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: NO-M-W004-PSS
Investigators: CM	Quad Name: Northfield	Township: Northfield	
Logbook No.: 6M	Logbook Pg.: 118	Tract: 21164	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.637596 Long: -72.435214 Datum: NAD83

Soil Map Unit Name: Canton fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:	30		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	10	YES	FACW
<i>Rhamnus cathartica</i>	15	YES	FAC
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Vaccinium corymbosum</i>	10	YES	FACW
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda claytoniana</i>	25	YES	FAC
<i>Fragaria virginiana</i>	10	YES	FACU
Total Cover:		35	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>30</u>	x 4 = <u>120</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120 (A)</u>	<u>370 (B)</u>
Prevalence Index = B/A = <u>3.08</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/1	95	10YR 4/6	5	C	PL	SANDY LOAM	
6-12	10YR 3/2	30	10YR 5/1 10YR 4/6	60	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 114025.1	County: Franklin	Date: 08/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-M-W004-UPL
Investigators: CM		Quad Name: Northfield		Township: Northfield
Logbook No.: 6M	Logbook Pg.: 115	Tract: 21164		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.637134 Long: -72.435377 Datum: NAD83

Soil Map Unit Name: Canton fine sandy loam, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: Vegetation disturbed due to powerline maintenance. Share with NO-M-W003-PSS

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	45	YES	FACU
<i>Quercus rubra</i>	20	YES	FACU
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Acer pensylvanicum</i>	10	YES	FACU
<i>Quercus rubra</i>	10	YES	FACU
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95 (A)</u>	<u>380 (B)</u>

Prevalence Index = B/A = 4.00

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 4/4	70	10YR 5/6	30	C	M	SILT LOAM	
9-18	10YR 6/8	70	10YR 5/6	30	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

DATA PLOT TAKEN ON CENTERLINE

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 121680.0	County: Franklin	Date: 08/08/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-M-W001-PEM
Investigators: CM	Quad Name: Northfield		Township: Northfield	
Logbook No.: 6M	Logbook Pg.: 99	Tract: 21118		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.656620 Long: -72.426477 Datum: NAD83

Soil Map Unit Name: Millsite-Woodstock complex, 25 to 60 percent slopes, very rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Soil Cracks (B6)</td> </tr> <tr> <td><input type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Moss Trim Lines (B16)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Crayfish Burrows (C8)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td> </tr> <tr> <td><input type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> Microtopographic Relief (D4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> </table>	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input checked="" type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? (includes capillary fringe) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	5	YES	FACU
<i>Tsuga canadensis</i>	5	YES	FACU
<i>Spiraea alba</i>	5	YES	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Scirpus cyperinus</i>	40	YES	OBL
<i>Scirpus microcarpus</i>	5	NO	OBL
<i>Juncus effusus</i>	5	NO	OBL
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>50</u>	x 1 = <u>50</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75 (A)</u>	<u>140 (B)</u>

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/1	75	10YR 3/3 10YR 4/6	15 10	C C	M PL	SILT LOAM	
4-8	GLE Y1 7/N	85	2.5Y 3/1 10YR 4/6	10 5	C C	M M	COARSE SANDY LOAM	
8-12	10YR 5/4	80	7.5YR 5/6	20	C	M	COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

ASSOCIATED WITH NO-M-VP001

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 121639.2	County: Franklin	Date: 08/08/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: NO-M-W001-PFO
Investigators: CM	Quad Name: Northfield	Township: Northfield	
Logbook No.: 6M	Logbook Pg.: 98	Tract: 21118	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.656466 Long: -72.426431 Datum: NAD83

Soil Map Unit Name: Millsite-Woodstock complex, 25 to 60 percent slopes, very rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? (includes capillary fringe) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	30	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Tsuga canadensis</i>	15	YES	FACU
Total Cover:	55		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ilex verticillata</i>	5	NO	FACW
<i>Acer rubrum</i>	5	NO	FAC
<i>Betula lenta</i>	20	YES	FACU
<i>Hamamelis virginiana</i>	40	YES	FACU
<i>Spiraea alba</i>	5	NO	FACW
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Acer spicatum</i>	10	NO	FACU
Total Cover:		95	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Woodwardia virginica</i>	50	YES	OBL
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>50</u>	x 1 = <u>50</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200 (A)</u>	<u>615 (B)</u>
Prevalence Index = B/A = <u>3.08</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					ORGANIC	
3-8	10YR 5/1	30	10YR 6/2 10YR 5/6	60 10	D C	M M	FINE SANDY LOAM	
8-14	10YR 6/2	80	10YR 5/6	20	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 121705.9	County: Franklin	Date: 08/08/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: NO-M-W001-UPL
Investigators: CM	Quad Name: Northfield	Township: Northfield	
Logbook No.: 6M	Logbook Pg.: 100	Tract: 21118	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.656661 Long: -72.426384 Datum: NAD83

Soil Map Unit Name: Millsite-Woodstock complex, 25 to 60 percent slopes, very rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p><u>Secondary Indicators (2 or more required)</u></p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
--	---

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus alba</i>	20	YES	FACU
<i>Tsuga canadensis</i>	35	YES	FACU
Total Cover:	55		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Quercus rubra</i>	10	YES	FACU
<i>Betula lenta</i>	20	YES	FACU
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95 (A)</u>	<u>380 (B)</u>

Prevalence Index = B/A = 4.00

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: Terrace on a steep cliff

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5YR 2.5/3	100					ORGANIC	Rock refusal at 6", bedrock

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
YES	
6	

Remarks:
 DUFF LAYER OVER BEDROCK OUTCROP

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:
 DATA PLOT TAKEN ON CENTERLINE AT CLIFF FACE

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 122445.6	County: Franklin	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-M-W002A-PEM
Investigators: CM		Quad Name: Northfield		Township: Northfield
Logbook No.: 6M	Logbook Pg.: 106	Tract: 21118		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.658341	Long: -72.424839	Datum: NAD83	
Soil Map Unit Name: Woodstock-Millsite-Rock outcrop complex, 8 to 15 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: ACCESS ROAD BISECTS WETLAND

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	10	YES	FAC
<i>Larix laricina</i>	2	NO	FACW
<i>Kalmia latifolia</i>	5	NO	FACU
<i>Acer rubrum</i>	2	NO	FAC
<i>Vaccinium corymbosum</i>	10	YES	FACW
Total Cover:		29	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Scirpus cyperinus</i>	5	YES	OBL
<i>Woodwardia virginica</i>	5	YES	OBL
<i>Carex lurida</i>	5	YES	OBL
Total Cover:		15	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>15</u>	x 1 = <u>15</u>
FACW Species: <u>12</u>	x 2 = <u>24</u>
FAC Species: <u>12</u>	x 3 = <u>36</u>
FACU Species: <u>5</u>	x 4 = <u>20</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>44 (A)</u>	<u>95 (B)</u>
Prevalence Index = B/A = <u>2.16</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/2	100					ORGANIC	
7-14	10YR 4/1	30	10YR 6/1 10R 5/8	60 10	D C	M M,PL	VERY FINE SAND	
14-16	2.5Y 4/2	40	2.5Y 5/2 2.5Y 5/6	50 10	D C	M PL	COARSE SANDY LOAM	Refusal at 16"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 16

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

ASSOCIATED WITH NO-AC3-VP001

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 122404.5	County: Franklin	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-M-W002A-UPL
Investigators: CM		Quad Name: Northfield		Township: Northfield
Logbook No.: 6M	Logbook Pg.: 107	Tract: 21118		
Landform (hillslope, terrace, etc.): Hilltop		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 10
Subregion (LRR): Middle Atlantic	Lat: 42.658256	Long: -72.424943	Datum: NAD83	
Soil Map Unit Name: Woodstock-Millsite-Rock outcrop complex, 8 to 15 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 14 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	10	NO	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Tsuga canadensis</i>	40	YES	FACU
Total Cover:	60		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Kalmia latifolia</i>	5	NO	FACU
<i>Viburnum lantanoides</i>	15	YES	FACU
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Hamamelis virginiana</i>	10	YES	FACU
<i>Betula lenta</i>	5	NO	FACU
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium angustifolium</i>	5	YES	FACU
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>100</u>	x 4 = <u>400</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>110 (A)</u>	<u>430 (B)</u>
Prevalence Index = B/A = <u>3.91</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	5YR 3/2	100					ORGANIC	Bedrock refusal at 3"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown YES 3	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:
 DUFF LAYER OVER EXPOSED BEDROCK SHELF

Description of Habitat Characteristics, Aquatic Diversity or General Comments:
 DATA PLOT TAKEN ON CENTERLINE
 Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 125891.5	County: Franklin	Date: 05/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-L-W006-PSS
Investigators: BH AK		Quad Name: Northfield		Township: Northfield
Logbook No.: 2	Logbook Pg.: 11118	Tract: 21115		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 5
Subregion (LRR): Middle Atlantic	Lat: 42.666422	Long: -72.418191	Datum: NAD83	
Soil Map Unit Name: Woodstock-Millsite-Rock outcrop complex, 8 to 15 percent slopes			NW1 Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Field Wetland Classification: PSS	
Remarks: USE NO-L-W007-UPL AS REPRESENTATIVE UPLAND PLOT	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Salix nigra</i>	40	YES	OBL
<i>Spiraea alba</i>	15	YES	FACW
<i>Rubus idaeus</i>	10	NO	FACU
Total Cover:	65		

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	5	NO	FACW
<i>Euthamia graminifolia</i>	5	NO	FAC
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Carex crinita</i>	5	NO	OBL
Total Cover:	30		

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis labrusca</i>	10	YES	FACU
Total Cover:	10		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>45</u>	x 1 = <u>45</u>
FACW Species: <u>35</u>	x 2 = <u>70</u>
FAC Species: <u>5</u>	x 3 = <u>15</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>210 (B)</u>

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/1	80	10YR 4/6 10YR 5/8	15 5	C C	M M	CLAY LOAM	
6-14	10YR 5/1	70	10YR 5/6 10YR 2/1	10 20	C C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown COBBL E 14	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 125970.5	County: Franklin	Date: 05/28/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: NO-L-W008-PSS
Investigators: BH AK	Quad Name: Northfield	Township: Northfield	
Logbook No.: 2	Logbook Pg.: 116	Tract: 21115	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.666670 Long: -72.418174 Datum: NAD83

Soil Map Unit Name: Millsite-Woodstock complex, 15 to 25 percent slopes, very rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks: USE NO-L-W007-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	5	NO	FACU
<i>Ulmus americana</i>	10	NO	FACW
<i>Rubus idaeus</i>	5	NO	FACU
<i>Quercus rubra</i>	5	NO	FACU
<i>Salix nigra</i>	30	YES	OBL
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	60	YES	OBL
<i>Onoclea sensibilis</i>	10	NO	FACW
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>90</u>	x 1 = <u>90</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>190 (B)</u>

Prevalence Index = B/A = 1.52

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/2	90	10YR 4/6	10	C	M	CLAY LOAM	
6-14	2.5Y 5/2	80	10YR 6/6 10YR 4/6	10 10	C C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 COBBL
 E
 14

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 146402.3	County: Franklin	Date: 08/04/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WK-M-W001-PFO
Investigators: CM MN		Quad Name: Northfield		Township: Warwick
Logbook No.: 6M	Logbook Pg.: 64	Tract: 21234		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.718494 Long: -72.405391 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	10	NO	FACU
<i>Acer rubrum</i>	55	YES	FAC
<i>Quercus michauxii</i>	20	YES	FACW
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Kalmia latifolia</i>	10	NO	FACU
<i>Hamamelis virginiana</i>	15	NO	FACU
<i>Ilex laevigata</i>	20	YES	OBL
<i>Vaccinium corymbosum</i>	35	YES	FACW
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	30	YES	FACW
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>20</u>	x 1 = <u>20</u>
FACW Species: <u>85</u>	x 2 = <u>170</u>
FAC Species: <u>55</u>	x 3 = <u>165</u>
FACU Species: <u>35</u>	x 4 = <u>140</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>195 (A)</u>	<u>495 (B)</u>
Prevalence Index = B/A = <u>2.54</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	80	10YR 4/1 10YR 5/6	15 5	D C	M PL	SILT LOAM	
12-18	10YR 4/1	30	10YR 6/1 10YR 4/6	60 10	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:
 WK-AC3-VP001 LOCATED IN WETLAND
 Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 146413.2	County: Franklin	Date: 08/04/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WK-M-W001-UPL
Investigators: CM MN		Quad Name: Northfield	Township: Warwick	
Logbook No.: 6M	Logbook Pg.: 65	Tract: 21234		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 5	
Subregion (LRR): Middle Atlantic	Lat: 42.718597	Long: -72.405703	Datum: NAD83	
Soil Map Unit Name: Chatfield-Hollis complex, 3 to 8 percent slopes, rocky			NWI Classification: PSS1E	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	30	YES	FACU
<i>Tsuga canadensis</i>	45	YES	FACU
<i>Quercus rubra</i>	15	NO	FACU
Total Cover:		90	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer pensylvanicum</i>	15	YES	FACU
<i>Betula lenta</i>	10	NO	FACU
<i>Fagus grandifolia</i>	25	YES	FACU
<i>Vaccinium angustifolium</i>	10	NO	FACU
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>150</u>	x 4 = <u>600</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150 (A)</u>	<u>600 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	2.5YR 2.5/3	100					ORGANIC	
2-6	2.5YR 5/8	60	5YR 4/6	40	C	M	SANDY LOAM	
6-17	2.5YR 6/8	50	5YR 6/6	50	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 353.8	County: Middlesex	Date: 06/09/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-J-W004-PEM
Investigators: TT JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 34	Tract: 5357		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.685865 Long: -71.264599 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: USE DR-J-W003-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Crayfish Burrows (C8)																																
<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)																																
<input type="checkbox"/> Stunted or Stressed Plants (D1)																																
<input checked="" type="checkbox"/> Geomorphic Position (D2)																																
<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 5</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lythrum salicaria</i>	2	NO	OBL
<i>Typha latifolia</i>	100	YES	OBL
Total Cover: 102			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>102</u>	x 1 = <u>102</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>102 (A)</u>	<u>102 (B)</u>

Prevalence Index = B/A = 1.00

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 2/1	100					ORGANIC	
9-14	10YR 4/2	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 402.0	County: Middlesex	Date: 06/09/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-J-W004-PSS
Investigators: TT JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 33	Tract: 5357		

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave Convex None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.685778 Long: -71.264464 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks: USE DR-J-W003-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	2	NO	FACW
<i>Frangula alnus</i>	30	YES	FAC
Total Cover:		32	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Anemone quinquefolia</i>	10	NO	FACU
<i>Rubus hispidus</i>	15	YES	FACW
<i>Frangula alnus</i>	5	NO	FAC
<i>Solidago rugosa</i>	30	YES	FAC
<i>Symplocarpus foetidus</i>	10	NO	OBL
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>17</u>	x 2 = <u>34</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>102 (A)</u>	<u>279 (B)</u>
Prevalence Index = B/A = <u>2.74</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 2/1	100					ORGANIC	WITH A LITTLE MINERAL COMPONENT
9-14	5YR 3/2	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 6315.1	County: Middlesex	Date: 06/05/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-J-W003-PFO
Investigators: TT JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 29	Tract: 5357		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.685516 Long: -71.264015 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	70	YES	FAC
<i>Quercus rubra</i>	25	YES	FACU
Total Cover:	95		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhamnus alnifolia</i>	20	YES	OBL
<i>Vaccinium corymbosum</i>	40	YES	FACW
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda regalis</i>	2	NO	OBL
<i>Osmundastrum cinnamomeum</i>	25	YES	FACW
Total Cover:		27	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>22</u>	x 1 = <u>22</u>
FACW Species: <u>65</u>	x 2 = <u>130</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>25</u>	x 4 = <u>100</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>182 (A)</u>	<u>462 (B)</u>
Prevalence Index = B/A = <u>2.54</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1	100					LOAM	
7-14	2.5Y 5/2	75	10YR 5/6	25	C	M	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:
 VERNAL POOL DR-AC3-VP003 LOCATED IN WETLAND
 Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 554.6	County: Middlesex	Date: 06/05/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-J-W003-UPL
Investigators: TT JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 30	Tract: 5357		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.685763 Long: -71.264189 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	25	YES	FAC
<i>Potentilla simplex</i>	30	YES	FACU
<i>Frangula alnus</i>	15	NO	FAC
<i>RUBUS OCCIDENTALIS</i>	3	NO	UPL
<i>Anthoxanthum odoratum</i>	15	NO	FACU
Total Cover: 88			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>3</u>	x 5 = <u>15</u>
Column Totals: <u>88 (A)</u>	<u>315 (B)</u>
Prevalence Index = B/A = <u>3.58</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	100					FINE SANDY LOAM	
6-14	10YR 4/6	100					SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low Isolated Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown								
General Comments:								

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 23110.3	County: Essex	Date: 07/29/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W002-PFO
Investigators: PF JW		Quad Name: Lawrence		Township: Andover
Logbook No.: 2015-1	Logbook Pg.: 104	Tract: 3922		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 2
Subregion (LRR): Middle Atlantic	Lat: 42.644262	Long: -71.226834	Datum: NAD83	
Soil Map Unit Name: Pipestone loamy sand, 0 to 3 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
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<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input checked="" type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
<i>Acer rubrum</i>	60	YES	FAC
<i>Pinus strobus</i>	10	NO	FACU
Total Cover:		90	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	5	YES	FAC
<i>Ilex verticillata</i>	20	YES	FACW
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda spectabilis</i>	20	YES	OBL
<i>Osmundastrum cinnamomeum</i>	10	NO	FACW
<i>Symplocarpus foetidus</i>	15	YES	OBL
<i>Toxicodendron radicans</i>	30	YES	FAC
Total Cover:		75	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>35</u>	x 1 = <u>35</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>95</u>	x 3 = <u>285</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>190 (A)</u>	<u>460 (B)</u>
Prevalence Index = B/A = <u>2.42</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100					ORGANIC	
12-18	2.5Y 4/2	80	10YR 3/4	20	C	M	FINE SANDY LOAM	STONE REFUSAL AT 18 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input checked="" type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 23133.8	County: Essex	Date: 07/29/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W002-UPL
Investigators: PF JW		Quad Name: Lawrence		Township: Andover
Logbook No.: 2015-1	Logbook Pg.: 105	Tract: 3922		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input type="checkbox"/> Convex <input checked="" type="checkbox"/> None		Slope%.: 10
Subregion (LRR): Middle Atlantic	Lat: 42.644340	Long: -71.226613	Datum: NAD83	
Soil Map Unit Name: Udorthents, smoothed			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	NO	FAC
<i>Fraxinus pennsylvanica</i>	5	NO	FACW
<i>Pinus strobus</i>	60	YES	FACU
<i>Acer saccharum</i>	30	YES	FACU
Total Cover:		100	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
<i>Frangula alnus</i>	10	YES	FAC
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	10	NO	FAC
<i>Maianthemum racemosum</i>	20	YES	FACU
<i>Rubus flagellaris</i>	20	YES	FACU
<i>Maianthemum canadense</i>	30	YES	FACU
Total Cover:		80	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 29 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>160</u>	x 4 = <u>640</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200 (A)</u>	<u>745 (B)</u>
Prevalence Index = B/A = <u>3.73</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/3	100					SILT LOAM	ROCK REFUSAL AT 8 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 23701.7	County: Essex	Date: 07/29/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W003-PFO
Investigators: CG JW		Quad Name: Lawrence	Township: Andover	
Logbook No.: 2015-1	Logbook Pg.: 46	Tract: 3922		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.643160 Long: -71.225222 Datum: NAD83

Soil Map Unit Name: Ridgebury and Leicester fine sandy loams, 0 to 3 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: Stunted vegetation - buttressed tree roots

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	25	YES	FAC
<i>Pinus strobus</i>	40	YES	FACU
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	10	YES	FAC
<i>Vaccinium corymbosum</i>	15	YES	FACW
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Toxicodendron radicans</i>	30	YES	FAC
<i>Impatiens capensis</i>	55	YES	FACW
<i>Solanum dulcamara</i>	15	NO	FAC
<i>Parthenocissus quinquefolia</i>	20	NO	FACU
Total Cover:		120	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>80</u>	x 3 = <u>240</u>
FACU Species: <u>60</u>	x 4 = <u>240</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>210 (A)</u>	<u>620 (B)</u>
Prevalence Index = B/A = <u>2.95</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 3/1	90	7.5YR 5/6	10	C	M	SILT LOAM	ROCK REFUSAL AT 6 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 23647.1	County: Essex	Date: 07/29/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W003-UPL
Investigators: PF JW		Quad Name: Lawrence		Township: Andover
Logbook No.: 2015-1	Logbook Pg.: 106	Tract: 3922		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.643190 Long: -71.225463 Datum: NAD83

Soil Map Unit Name: Ridgebury and Leicester fine sandy loams, 0 to 3 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Marl Deposits (B15) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? Yes No Depth (inches):
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	25	YES	FAC
<i>Pinus strobus</i>	60	YES	FACU
<i>Acer saccharum</i>	10	NO	FACU
Total Cover:	95		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	60	YES	FAC
<i>Rhamnus cathartica</i>	20	YES	FAC
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Toxicodendron radicans</i>	60	YES	FAC
<i>Maianthemum canadense</i>	10	NO	FACU
<i>Trientalis borealis</i>	25	YES	FAC
<i>Parthenocissus quinquefolia</i>	5	NO	FACU
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>190</u>	x 3 = <u>570</u>
FACU Species: <u>85</u>	x 4 = <u>340</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>275 (A)</u>	<u>910 (B)</u>
Prevalence Index = B/A = <u>3.31</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/3	100					SILT LOAM	
6-10	10YR 5/6	100					SILT LOAM	ROCK REFUSAL AT 10 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 24568.4	County: Essex	Date: 07/30/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: TK-K-W002-PFO
Investigators: CG JW	Quad Name: Lawrence	Township: Andover	
Logbook No.: 2015-1	Logbook Pg.: 59	Tract: 4314	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.641509 Long: -71.223464 Datum: NAD83

Soil Map Unit Name: Scarboro mucky fine sandy loam, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	60	YES	FAC
<i>Pinus strobus</i>	20	YES	FACU
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Ulmus americana</i>	15	YES	FACW
<i>Ilex verticillata</i>	20	YES	FACW
<i>Viburnum dentatum</i>	30	YES	FAC
Total Cover:		65	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	30	YES	FACW
<i>Osmunda regalis</i>	40	YES	OBL
<i>Onoclea sensibilis</i>	15	NO	FACW
Total Cover:		85	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>40</u>	x 1 = <u>40</u>
FACW Species: <u>80</u>	x 2 = <u>160</u>
FAC Species: <u>90</u>	x 3 = <u>270</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>230 (A)</u>	<u>550 (B)</u>
Prevalence Index = B/A = <u>2.39</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	7.5YR 3/2	100					ORGANIC	
2-14	10YR 2/1	100					SILT LOAM	
14-18+	2.5Y 6/1	85	10YR 5/8	15	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 24505.3	County: Essex	Date: 07/30/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: TK-K-W002-UPL
Investigators: CG JW		Quad Name: Lawrence		Township: Andover
Logbook No.: 2015-1	Logbook Pg.: 60	Tract: 4314		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 4

Subregion (LRR): Middle Atlantic Lat: 42.641553 Long: -71.223553 Datum: NAD83

Soil Map Unit Name: Scarboro mucky fine sandy loam, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus americana</i>	10	NO	FACU
<i>Acer rubrum</i>	30	YES	FAC
<i>Pinus strobus</i>	30	YES	FACU
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	30	YES	FAC
<i>Ilex verticillata</i>	10	YES	FACW
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dennstaedtia punctilobula</i>	15	NO	UPL
<i>Parthenocissus quinquefolia</i>	40	YES	FACU
<i>Euonymus alatus</i>	10	NO	UPL
<i>Maianthemum canadense</i>	40	YES	FACU
Total Cover:		105	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>60</u>	x 3 = <u>180</u>
FACU Species: <u>120</u>	x 4 = <u>480</u>
UPL Species: <u>25</u>	x 5 = <u>125</u>
Column Totals: <u>215 (A)</u>	<u>805 (B)</u>
Prevalence Index = B/A = <u>3.74</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	7.5YR 3/2	100					ORGANIC	
2-8	10YR 3/2	100					SILT LOAM	
8-12	10YR 4/3	100					SILT LOAM	ROCK REFUSAL AT 10 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 30508.1	County: Middlesex	Date: 08/06/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: TK-K-W001-PFO
Investigators: CG JW		Quad Name: Lawrence		Township: Tewksbury
Logbook No.: 2015-1	Logbook Pg.: 65	Tract: 7845		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.632998	Long: -71.206016	Datum: NAD83	
Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes			NWI Classification: PFO1E	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus alba</i>	5	NO	FACU
<i>Acer rubrum</i>	80	YES	FAC
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rosa multiflora</i>	25	YES	FACU
<i>Viburnum dentatum</i>	10	YES	FAC
Total Cover:		35	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Symplocarpus foetidus</i>	30	YES	OBL
<i>Osmundastrum cinnamomeum</i>	40	YES	FACW
<i>Impatiens capensis</i>	40	YES	FACW
Total Cover:		110	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>30</u>	x 1 = <u>30</u>
FACW Species: <u>80</u>	x 2 = <u>160</u>
FAC Species: <u>90</u>	x 3 = <u>270</u>
FACU Species: <u>30</u>	x 4 = <u>120</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>230 (A)</u>	<u>580 (B)</u>
Prevalence Index = B/A = <u>2.52</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	7.5YR 2.5/1	100					ORGANIC	
16-24	10YR 5/2	100					SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input checked="" type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 30565.3	County: Middlesex	Date: 08/06/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: TK-K-W001-UPL
Investigators: CG JW		Quad Name: Lawrence		Township: Tewksbury
Logbook No.: 2015-1	Logbook Pg.: 67	Tract: 7845		
Landform (hillslope, terrace, etc.): Hilltop		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.632909	Long: -71.205842	Datum: NAD83	
Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes			NWI Classification: PFO1E	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	NO	FAC
<i>Quercus rubra</i>	15	NO	FACU
<i>Quercus alba</i>	30	YES	FACU
<i>Pinus strobus</i>	30	YES	FACU
Total Cover:		85	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	50	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:		60	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus alba</i>	10	NO	FACU
<i>Osmunda regalis</i>	20	YES	OBL
<i>Osmundastrum cinnamomeum</i>	40	YES	FACW
<i>Lycopodium obscurum</i>	10	NO	FACU
Total Cover:		80	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>20</u>	x 1 = <u>20</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>225 (A)</u>	<u>740 (B)</u>

Prevalence Index = B/A = 3.29

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	7.5YR 3/3	100					ORGANIC	
2-12	7.5YR 2.5/2	100					SILT LOAM	
12-16	7.5YR 4/6	100					FINE SANDY LOAM	
16-18	10YR 5/3	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 38549.0	County: Essex	Date: 08/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W006-PFO
Investigators: PF JW		Quad Name: Wilmington	Township: Andover	
Logbook No.: 2015-1	Logbook Pg.: 113	Tract: 4624		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.621906 Long: -71.182212 Datum: NAD83

Soil Map Unit Name: Hinckley loamy sand, 8 to 15 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	80	YES	FAC
<i>Pinus strobus</i>	10	NO	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	NO	FACU
<i>Rubus allegheniensis</i>	30	YES	FACU
<i>Acer rubrum</i>	20	YES	FAC
<i>Pinus strobus</i>	5	NO	FACU
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	30	YES	FACW
<i>Symplocarpus foetidus</i>	30	YES	OBL
<i>Dryopteris marginalis</i>	10	NO	FACU
<i>Toxicodendron radicans</i>	10	NO	FAC
Total Cover:		80	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Celastrus orbiculatus</i>	15	YES	FACU
<i>Vitis sp</i>	10	NA	NA
Total Cover:		25	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>30</u>	x 1 = <u>30</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>110</u>	x 3 = <u>330</u>
FACU Species: <u>75</u>	x 4 = <u>300</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>245 (A)</u>	<u>720 (B)</u>
Prevalence Index = B/A = <u>2.94</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-8	10YR 4/2	80	7.5YR 4/6	20	C	M	SAND	
8-20	10YR 2/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 38594.9	County: Essex	Date: 08/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W006-UPL
Investigators: PF JW		Quad Name: Wilmington		Township: Andover
Logbook No.: 2015-1	Logbook Pg.: 114	Tract: 4624		

Landform (hillslope, terrace, etc.): Hilltop Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.621783 Long: -71.182174 Datum: NAD83

Soil Map Unit Name: Hinckley loamy sand, 8 to 15 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	40	YES	FACU
<i>Acer rubrum</i>	40	YES	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	10	NO	FACU
<i>Frangula alnus</i>	80	YES	FAC
Total Cover:		90	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris marginalis</i>	70	YES	FACU
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2 (A)</u>
Total Number of Dominant Species Across All Strata:	<u>4 (B)</u>
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50 (A/B)</u>

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>120</u>	x 3 = <u>360</u>
FACU Species: <u>120</u>	x 4 = <u>480</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>240 (A)</u>	<u>840 (B)</u>
Prevalence Index = B/A = <u>3.50</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/3	100					ORGANIC	DUFF
4-20	2.5Y 6/4	100					FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST



WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 39642.7	County: Middlesex	Date: 08/04/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: TK-K-W004-PFO
Investigators: CG JW	Quad Name: Wilmington	Township: Tewksbury	
Logbook No.: 2015-1	Logbook Pg.: 82	Tract: 7428	
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.619408	Long: -71.180139	Datum: NAD83
Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes		NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Field Wetland Classification: PFO		
Remarks:		

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Microtopographic Relief (D4)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	15	NO	FACU
<i>Quercus alba</i>	5	NO	FACU
<i>Acer rubrum</i>	65	YES	FAC
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	20	YES	FAC
<i>Quercus bicolor</i>	10	YES	FACW
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	25	YES	FACW
<i>Symplocarpus foetidus</i>	20	NO	OBL
<i>Boehmeria cylindrica</i>	5	NO	OBL
<i>Glyceria striata</i>	10	NO	OBL
<i>Impatiens capensis</i>	60	YES	FACW
Total Cover:		120	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>35</u>	x 1 = <u>35</u>
FACW Species: <u>95</u>	x 2 = <u>190</u>
FAC Species: <u>85</u>	x 3 = <u>255</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>235 (A)</u>	<u>560 (B)</u>
Prevalence Index = B/A = <u>2.38</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24+	10YR 2/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 39672.6	County: Middlesex	Date: 08/04/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: TK-K-W004-UPL
Investigators: CG JW	Quad Name: Wilmington	Township: Tewksbury	
Logbook No.: 2015-1	Logbook Pg.: 119	Tract: 7428	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.619334 Long: -71.180088 Datum: NAD83

Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	40	YES	FACU
<i>Acer rubrum</i>	30	YES	FAC
<i>Pinus strobus</i>	10	NO	FACU
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	5	NO	FACW
<i>Quercus rubra</i>	20	YES	FACU
<i>Pinus strobus</i>	10	YES	FACU
<i>Frangula alnus</i>	5	NO	FAC
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Gaultheria procumbens</i>	15	YES	FACU
<i>Trientalis borealis</i>	20	YES	FAC
<i>Lycopodium obscurum</i>	10	NO	FACU
<i>Osmundastrum cinnamomeum</i>	20	YES	FACW
<i>Maianthemum canadense</i>	10	NO	FACU
Total Cover:		75	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>25</u>	x 2 = <u>50</u>
FAC Species: <u>55</u>	x 3 = <u>165</u>
FACU Species: <u>115</u>	x 4 = <u>460</u>
UPL Species: <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>205 (A)</u>	<u>725 (B)</u>
Prevalence Index = B/A = <u>3.54</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					SANDY LOAM	
8-20	10YR 3/4	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 40646.2	County: Middlesex	Date: 08/05/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: TK-K-W005-PFO
Investigators: PF JW		Quad Name: Wilmington		Township: Tewksbury
Logbook No.: 2015-1	Logbook Pg.: 125	Tract: 7799		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.617729 Long: -71.177733 Datum: NAD83

Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	60	YES	FAC
Total Cover:		60	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	15	YES	FAC
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Phragmites australis</i>	10	NO	FACW
<i>Eupatorium perfoliatum</i>	20	YES	FACW
<i>Glyceria striata</i>	10	NO	OBL
<i>Solidago rugosa</i>	20	YES	FAC
<i>Impatiens capensis</i>	40	YES	FACW
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>105</u>	x 3 = <u>315</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185 (A)</u>	<u>465 (B)</u>
Prevalence Index = B/A = <u>2.51</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-20	2.5Y 4/2	95	7.5YR 4/4	5	C	M	SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 40839.4	County: Middlesex	Date: 08/05/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: TK-K-W005-PEM
Investigators: CG JW	Quad Name: Wilmington	Township: Tewksbury	
Logbook No.: 2015-1	Logbook Pg.: 95	Tract: 7792	

Landform (hillslope, terrace, etc.): Stream fringe Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.617502 Long: -71.177082 Datum: NAD83

Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p><u>Secondary Indicators (2 or more required)</u></p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Eupatorium perfoliatum</i>	5	NO	FACW
<i>Glyceria striata</i>	10	NO	OBL
<i>Phragmites australis</i>	5	NO	FACW
<i>Persicaria sagittata</i>	50	YES	OBL
<i>Cicuta maculata</i>	10	NO	OBL
<i>Impatiens capensis</i>	30	YES	FACW
<i>Carex lurida</i>	20	NO	OBL
Total Cover:		130	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>90</u>	x 1 = <u>90</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>170 (B)</u>
Prevalence Index = B/A = <u>1.31</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24	10YR 2/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input checked="" type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 40590.9	County: Middlesex	Date: 08/05/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: TK-K-W005-UPL
Investigators: CG JW	Quad Name: Wilmington	Township: Tewksbury	
Logbook No.: 2015-1	Logbook Pg.: 94	Tract: 7799	

Landform (hillslope, terrace, etc.): Hilltop Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.617828 Long: -71.177902 Datum: NAD83

Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	80	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	10	YES	FACU
<i>Frangula alnus</i>	25	YES	FAC
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		45	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>60</u>	x 3 = <u>180</u>
FACU Species: <u>90</u>	x 4 = <u>360</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150 (A)</u>	<u>540 (B)</u>
Prevalence Index = B/A = <u>3.60</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	7.5YR 3/3	100					ORGANIC	
1-7	10YR 6/4	90	10YR 4/6	10	C	M	FINE SAND	
7-12	10YR 6/2	100					FINE SAND	ROCK REFUSAL AT 12 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 46024.1	County: Essex	Date: 08/07/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AN-K-W008-PFO
Investigators: CG JW	Quad Name: Wilmington	Township: Andover	
Logbook No.: 2015-1	Logbook Pg.: 103	Tract: 9051	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.604929 Long: -71.171447 Datum: NAD83

Soil Map Unit Name: Windsor loamy sand, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	80	YES	FAC
Total Cover:		80	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
<i>Frangula alnus</i>	25	YES	FAC
Total Cover:		40	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	10	YES	FAC
<i>Symplocarpus foetidus</i>	10	YES	OBL
Total Cover:		20	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>130</u>	x 3 = <u>390</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>400 (B)</u>
Prevalence Index = B/A = <u>2.86</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	5YR 4/2	100					ORGANIC	
2-18	7.5YR 3/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 46127.5	County: Essex	Date: 08/07/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W008-UPL
Investigators: CG JW		Quad Name: Wilmington	Township: Andover	
Logbook No.: 2015-1	Logbook Pg.: 105	Tract: 9051		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 5	
Subregion (LRR): Middle Atlantic	Lat: 42.604645	Long: -71.171397	Datum: NAD83	
Soil Map Unit Name: Windsor loamy sand, 3 to 8 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	40	YES	FAC
<i>Quercus alba</i>	10	NO	FACU
<i>Pinus strobus</i>	40	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Gaylussacia baccata</i>	15	YES	FACU
<i>Acer rubrum</i>	35	YES	FAC
Total Cover:		50	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pteridium aquilinum</i>	5	NO	FACU
<i>Maianthemum canadense</i>	15	YES	FACU
<i>Gaylussacia baccata</i>	40	YES	FACU
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>75</u>	x 3 = <u>225</u>
FACU Species: <u>125</u>	x 4 = <u>500</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200 (A)</u>	<u>725 (B)</u>
Prevalence Index = B/A = <u>3.63</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	5YR 4/3	100					ORGANIC	
2-8	10YR 5/6	100					SILT LOAM	
8-18+	2.5Y 6/4	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 48142.8	County: Essex	Date: 08/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-M-W001-PEM
Investigators: CM CG JW		Quad Name: Wilmington		Township: Andover
Logbook No.: 6M	Logbook Pg.: 124	Tract: 4143		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.600326	Long: -71.167402	Datum: NAD83	
Soil Map Unit Name: Sudbury fine sandy loam, 0 to 3 percent slopes			NWI Classification: PSS1C	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 18</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Typha latifolia</i>	10	NO	OBL
<i>Cicuta maculata</i>	10	NO	OBL
<i>Persicaria sagittata</i>	45	YES	OBL
<i>Glyceria striata</i>	15	NO	OBL
<i>Carex lurida</i>	15	NO	OBL
<i>Impatiens capensis</i>	30	YES	FACW
Total Cover:		125	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>95</u>	x 1 = <u>95</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>155 (B)</u>

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24+	10YR 2/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 48182.7	County: Essex	Date: 08/12/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AN-M-W001-UPL
Investigators: CM CG JW	Quad Name: Wilmington	Township: Andover	
Logbook No.: 6M	Logbook Pg.: 125	Tract: 4143	

Landform (hillslope, terrace, etc.): Flat, hilltop Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.600091 Long: -71.167511 Datum: NAD83

Soil Map Unit Name: Sudbury fine sandy loam, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (2 or more required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	45	YES	FACU
<i>Quercus rubra</i>	10	NO	FACU
<i>Acer rubrum</i>	20	YES	FAC
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhamnus cathartica</i>	30	YES	FAC
<i>Frangula alnus</i>	20	YES	FAC
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	25	YES	FACU
<i>Dendrolycopodium obscurum</i>	15	YES	FACU
<i>Quercus rubra</i>	10	YES	FACU
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>105</u>	x 4 = <u>420</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>630 (B)</u>
Prevalence Index = B/A = <u>3.60</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	5YR 3/3	100					ORGANIC	
2-10	10YR 3/1	100					SILT LOAM	
10-18	7.5YR 4/6	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 48852.2	County: Essex	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W011-PEM
Investigators: CG JW		Quad Name: Wilmington		Township: Andover
Logbook No.: 2015-1	Logbook Pg.: 123	Tract: 4143		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.598726 Long: -71.165715 Datum: NAD83

Soil Map Unit Name: Sudbury fine sandy loam, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? (includes capillary fringe) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
Total Cover:		15	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus incana</i>	10	YES	FACW
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Persicaria sagittata</i>	20	YES	OBL
<i>Impatiens capensis</i>	30	YES	FACW
<i>Glyceria striata</i>	10	NO	OBL
<i>Symplocarpus foetidus</i>	15	NO	OBL
<i>Typha latifolia</i>	25	YES	OBL
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis sp</i>	5	NA	NA
Total Cover:		5	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>70</u>	x 1 = <u>70</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>195 (B)</u>
Prevalence Index = B/A = <u>1.56</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24+	7.5YR 2.5/1	100					ORGANIC	MUCK

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 48891.5	County: Middlesex	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-K-W011-PFO
Investigators: CG JW		Quad Name: Wilmington		Township: Tewksbury
Logbook No.: 2015-1	Logbook Pg.: 124	Tract: 28573		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.598525	Long: -71.165706	Datum: NAD83	
Soil Map Unit Name:			NW1 Classification: PFO1E	

Are climatic / hydrologic conditions on the site typical for this time of year?:
 Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	NO	FACU
<i>Acer rubrum</i>	70	YES	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	15	YES	FACW
<i>Lindera benzoin</i>	10	YES	FACW
<i>Frangula alnus</i>	15	YES	FAC
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Symplocarpus foetidus</i>	25	YES	OBL
<i>Carex lurida</i>	15	NO	OBL
<i>Impatiens capensis</i>	25	YES	FACW
<i>Viburnum dentatum</i>	10	NO	FAC
<i>Solidago rugosa</i>	30	YES	FAC
Total Cover:		105	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>40</u>	x 1 = <u>40</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>125</u>	x 3 = <u>375</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>225 (A)</u>	<u>555 (B)</u>
Prevalence Index = B/A = <u>2.47</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24	7.5YR 2.5/1	100					ORGANIC	MUCK

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	---

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 48852.0	County: Essex	Date: 08/10/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AN-K-W011-UPL
Investigators: CG JW	Quad Name: Wilmington	Township: Andover	
Logbook No.: 2015-1	Logbook Pg.: 125	Tract: 4143	

Landform (hillslope, terrace, etc.): Hilltop Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.598969 Long: -71.165524 Datum: NAD83

Soil Map Unit Name: Sudbury fine sandy loam, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Juglans nigra</i>	60	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Malus sylvestris</i>	20	YES	UPL
<i>Frangula alnus</i>	15	NO	FAC
<i>Cornus amomum</i>	60	YES	FACW
Total Cover:		95	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	15	NO	FACU
<i>Cornus amomum</i>	25	NO	FACW
<i>Alliaria petiolata</i>	10	NO	FACU
<i>Geum canadense</i>	40	YES	FAC
<i>Lonicera morrowii</i>	45	YES	FACU
Total Cover:		135	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis sp</i>	50	NA	NA
Total Cover:		50	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>85</u>	x 2 = <u>170</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>130</u>	x 4 = <u>520</u>
UPL Species: <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>300 (A)</u>	<u>985 (B)</u>
Prevalence Index = B/A = <u>3.28</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 4/4	100					SILT LOAM	
10-18	10YR 6/6	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 49794.8	County: Middlesex	Date: 04/23/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-G-W002-PSS
Investigators: NF CM		Quad Name: Wilmington		Township: Wilmington
Logbook No.: 2015-1	Logbook Pg.: 123	Tract: 28570		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.597242	Long: -71.162959	Datum: NAD83	
Soil Map Unit Name: Urban land		NWI Classification: PEM1E		

Are climatic / hydrologic conditions on the site typical for this time of year?:
 Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	15	YES	FAC
<i>Cornus alba</i>	15	YES	FACW
<i>Alnus incana</i>	25	YES	FACW
Total Cover:		55	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Juncus effusus</i>	5	YES	OBL
<i>Typha latifolia</i>	20	YES	OBL
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>25</u>	x 1 = <u>25</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>80 (A)</u>	<u>150 (B)</u>
Prevalence Index = B/A = <u>1.88</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	7.5YR 2/1	100					ORGANIC	
2-18	GL7/10Y	90	10YR 6/8	10	D	M	SILTY CLAY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 50031.8	County: Middlesex	Date: 04/23/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AN-G-W002-UPL
Investigators: NF CM		Quad Name: Wilmington		Township: Wilmington
Logbook No.: 2015-1	Logbook Pg.: 125	Tract: 28631		
Landform (hillslope, terrace, etc.): Side slope		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 3
Subregion (LRR): Middle Atlantic		Lat: 42.596773	Long: -71.162350	Datum: NAD83
Soil Map Unit Name: Urban land		NWI Classification: Not mapped		

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>TURF GRASS SPECIES</i>	95	YES	FACU
Total Cover: 95			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95 (A)</u>	<u>380 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: Altered vegetation - mowed grass area (lawn)

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/3	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 51132.4	County: Middlesex	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WL-K-W002-PEM
Investigators: CG JW		Quad Name: Wilmington	Township: Wilmington	
Logbook No.: 2015-1	Logbook Pg.: 130	Tract: 8654		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.595177	Long: -71.159146	Datum: NAD83	
Soil Map Unit Name: Udorthents, wet substratum		NWI Classification: PEM1Ex		

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	5	NO	FACW
<i>Phragmites australis</i>	100	YES	FACW
Total Cover: 105			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>105</u>	x 2 = <u>210</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>210 (B)</u>
Prevalence Index = B/A = <u>2.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR 3/4	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input checked="" type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:
 SOIL IS ORGANIC MATTER CONSISTING OF DECOMPOSING COMMON REED, BELOW THAT SOIL DISTURBED DUE TO MAN MADE STORM WATER DRAINAGE AREA

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:
 MAN MADE STORM WATER RETENTION AREA

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 51178.1	County: Middlesex	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WL-K-W002-UPL
Investigators: CG JW		Quad Name: Wilmington	Township: Wilmington	
Logbook No.: 2015-1	Logbook Pg.: 131	Tract: 8654		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 5	
Subregion (LRR): Middle Atlantic	Lat: 42.595202	Long: -71.158979	Datum: NAD83	
Soil Map Unit Name: Udorthents, wet substratum			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Rosa multiflora</i>	15	YES	FACU
<i>Frangula alnus</i>	20	YES	FAC
<i>Sambucus nigra</i>	10	YES	FACW
Total Cover:		45	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Celastrus orbiculatus</i>	50	YES	UPL
<i>Toxicodendron radicans</i>	15	NO	FAC
<i>Solidago canadensis</i>	40	YES	FACU
Total Cover:		105	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>35</u>	x 3 = <u>105</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>50</u>	x 5 = <u>250</u>
Column Totals: <u>150 (A)</u>	<u>595 (B)</u>
Prevalence Index = B/A = <u>3.97</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR 3/2	100					SILT LOAM	ROCK REFUSAL AT 12 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:
 SOIL DISTURBED DUE TO MAN MADE STORM WATER DRAINAGE AREA

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:
 MAN MADE STORM WATER RETENTION AREA

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 78978.4	County: Middlesex	Date: 08/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: RD-K-W001-PFO
Investigators: CG JW		Quad Name: Reading	Township: Reading	
Logbook No.: 2015-1	Logbook Pg.: 140	Tract: 2820		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.555698 Long: -71.075953 Datum: NAD83

Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes NWI Classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	NO	FACU
<i>Acer rubrum</i>	80	YES	FAC
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	60	YES	FAC
<i>Vaccinium corymbosum</i>	10	NO	FACW
<i>Lindera benzoin</i>	5	NO	FACW
Total Cover:	75		

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda regalis</i>	15	NO	OBL
<i>Osmundastrum cinnamomeum</i>	10	NO	FACW
<i>Vaccinium corymbosum</i>	10	NO	FACW
<i>Frangula alnus</i>	25	YES	FAC
<i>Symplocarpus foetidus</i>	20	YES	OBL
Total Cover:	80		

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>35</u>	x 1 = <u>35</u>
FACW Species: <u>35</u>	x 2 = <u>70</u>
FAC Species: <u>165</u>	x 3 = <u>495</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>245 (A)</u>	<u>640 (B)</u>
Prevalence Index = B/A = <u>2.61</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24+	5YR 2.5/2	100					ORGANIC	MUCK

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 79154.2	County: Middlesex	Date: 08/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: RD-K-W001-PSS
Investigators: CG JW		Quad Name: Reading	Township: Reading	
Logbook No.: 2015-1	Logbook Pg.: 139	Tract: 2820		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.555649 Long: -71.075236 Datum: NAD83

Soil Map Unit Name: Freetown muck, 0 to 1 percent slopes NWI Classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes
 No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes
 No
 Hydric Soil Present? Yes
 No
 Wetland Hydrology Present? Yes
 No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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Field Observations:

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 <small>(includes capillary fringe)</small>	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	YES	FAC
Total Cover:		5	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	15	NO	FACW
<i>Clethra alnifolia</i>	5	NO	FAC
<i>Frangula alnus</i>	75	YES	FAC
Total Cover:		95	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Symplocarpus foetidus</i>	25	YES	OBL
<i>Osmunda regalis</i>	15	NO	OBL
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Leersia oryzoides</i>	15	NO	OBL
<i>Phragmites australis</i>	40	YES	FACW
Total Cover:		105	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

<p>Dominance Test Worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>4 (A)</u></p> <p>Total Number of Dominant Species Across All Strata: <u>4 (B)</u></p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100 (A/B)</u></p>	<p>Prevalence Index Worksheet:</p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species: <u>55</u> x 1 = <u>55</u></p> <p>FACW Species: <u>65</u> x 2 = <u>130</u></p> <p>FAC Species: <u>85</u> x 3 = <u>255</u></p> <p>FACU Species: <u>0</u> x 4 = <u>0</u></p> <p>UPL Species: <u>0</u> x 5 = <u>0</u></p> <p>Column Totals: <u>205 (A)</u> <u>440 (B)</u></p> <p style="text-align: center;">Prevalence Index = B/A = <u>2.15</u></p>
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<p>Hydrophytic Vegetation Indicators:</p> <p><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> 2 - Dominance Test is > 50%</p> <p><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0</p> <p><input type="checkbox"/> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p><small>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</small></p>	<p>Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24+	5YR 2.5/2	100					ORGANIC	MUCK

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 371.7	County: Essex	Date: 08/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-D-W001-PEM
Investigators: PB	Quad Name: Reading		Township: Lynnfield	
Logbook No.: 6	Logbook Pg.: 38	Tract: 2544		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.552757 Long: -71.065390 Datum: NAD83

Soil Map Unit Name: Deerfield loamy fine sand, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago gigantea</i>	5	NO	FACW
<i>Microstegium vimineum</i>	15	YES	FAC
<i>Euthamia carliniana</i>	30	YES	FAC
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Lythrum salicaria</i>	5	NO	OBL
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>5</u>	x 1 = <u>5</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>65 (A)</u>	<u>170 (B)</u>
Prevalence Index = B/A = <u>2.62</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR 3/1	90	5YR 4/6	10	C	M	SILT	
13-18	10YR 5/1	85	5YR 4/6	15	C	M	SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 310.2	County: Essex	Date: 08/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-D-W001-UPL
Investigators: PB	Quad Name: Reading		Township: Lynnfield	
Logbook No.: 6	Logbook Pg.: 32	Tract: 2544		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.552787 Long: -71.065161 Datum: NAD83

Soil Map Unit Name: Deerfield loamy fine sand, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	5	NO	FACW
<i>Acer rubrum</i>	5	NO	FAC
<i>Quercus rubra</i>	50	YES	FACU
Total Cover:	60		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lindera benzoin</i>	15	YES	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris noveboracensis</i>	40	YES	FAC
<i>Taraxacum officinale</i>	3	NO	FACU
<i>Parthenocissus quinquefolia</i>	5	NO	FACU
Total Cover:		48	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>58</u>	x 4 = <u>232</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>123 (A)</u>	<u>407 (B)</u>
Prevalence Index = B/A = <u>3.31</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	7.5YR 3/3	100					SILT	
8-18	7.5YR 4/4	100					SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 650.3	County: Essex	Date: 12/13/2014
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: LY-P-W001-PFO
Investigators: AF CV	Quad Name: Reading	Township: Lynnfield	
Logbook No.: 2014P3	Logbook Pg.: 98	Tract: 8457	

Landform (hillslope, terrace, etc.): DEPRESSION Local Relief: Concave
 Convex
 None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.552791 Long: -71.066968 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: PFO1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes
 No

Hydric Soil Present? Yes
 No

Wetland Hydrology Present? Yes
 No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		Secondary Indicators (2 or more required) <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
<input type="checkbox"/> Moss Trim Lines (B16)																																
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<input type="checkbox"/> Geomorphic Position (D2)																																
<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

Field Observations: Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1-8 Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	20	YES	FACU
<i>Acer rubrum</i>	20	YES	FAC
<i>Chamaecyparis thyoides</i>	25	YES	OBL
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ilex verticillata</i>	20	YES	FACW
<i>Quercus ilicifolia</i>	20	YES	UPL
<i>Berberis thunbergii</i>	10	NO	FACU
<i>Frangula alnus</i>	20	YES	FAC
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Scirpus cyperinus</i>	10	NO	OBL
<i>Spaghnum sp</i>	20	NA	NONE
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>35</u>	x 1 = <u>35</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>30</u>	x 4 = <u>120</u>
UPL Species: <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>145 (A)</u>	<u>415 (B)</u>
Prevalence Index = B/A = <u>2.86</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 2/1	100					ORGANIC	ORGANIC LOAM
14-24	10YR 3/1	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 706.9	County: Essex	Date: 12/13/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-P-W001-PSS
Investigators: AF CV		Quad Name: Reading	Township: Lynnfield	
Logbook No.: 2014P3	Logbook Pg.: 97	Tract: 8457		

Landform (hillslope, terrace, etc.): DEPRESSION Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.552876 Long: -71.067165 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1-8</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	10	YES	FACU
<i>Chamaecyparis thyoides</i>	15	YES	OBL
<i>Quercus palustris</i>	10	YES	FACW
Total Cover:	35		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus ilicifolia</i>	20	YES	UPL
<i>Frangula alnus</i>	20	YES	FAC
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spagnum sp</i>	20	NA	NONE
<i>Scirpus cyperinus</i>	25	YES	OBL
<i>Symplocarpus foetidus</i>	20	YES	OBL
<i>Typha angustifolia</i>	25	YES	OBL
<i>Carex comosa</i>	10	NO	OBL
<i>Phragmites australis</i>	20	YES	FACW
Total Cover:		120	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 78 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>95</u>	x 1 = <u>95</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>175 (A)</u>	<u>355 (B)</u>
Prevalence Index = B/A = <u>2.03</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 2/1	100					ORGANIC	ORGANIC LOAM
18-24	10YR 2/2	100					CLAY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 699.0	County: Essex	Date: 12/13/2014
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: LY-P-W001-UPL
Investigators: AF CV	Quad Name: Reading	Township: Lynnfield	
Logbook No.: 2014P3	Logbook Pg.: 99	Tract: 8457	

Landform (hillslope, terrace, etc.): HILLSIDE Local Relief: Concave Convex None Slope%.: 20

Subregion (LRR): Middle Atlantic Lat: 42.552973 Long: -71.066941 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe) </p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carpinus caroliniana</i>	20	YES	FAC
<i>Quercus alba</i>	10	NO	FACU
<i>Chamaecyparis thyoides</i>	20	YES	OBL
<i>Pinus strobus</i>	20	YES	FACU
<i>Quercus rubra</i>	15	NO	FACU
Total Cover:		85	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>20</u>	x 1 = <u>20</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>85 (A)</u>	<u>260 (B)</u>
Prevalence Index = B/A = <u>3.06</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/3	100					ORGANIC	ORGANIC LOAM
2-16	10YR 4/4	100					SANDY LOAM	
16-20	10YR 5/2	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 1416.0	County: Essex	Date: 08/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-D-W002-PFO
Investigators: PB	Quad Name: Reading		Township: Lynnfield	
Logbook No.: 6	Logbook Pg.: 35	Tract: 8457		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.555132 Long: -71.066939 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)</p>
--	---

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	25	YES	FAC
<i>Ulmus americana</i>	5	NO	FACW
<i>Betula alleghaniensis</i>	40	YES	FAC
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	2	NO	FACU
<i>Lindera benzoin</i>	30	YES	FACW
<i>Acer rubrum</i>	5	NO	FAC
Total Cover:		37	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Parthenocissus quinquefolia</i>	3	NO	FACU
<i>Arisaema triphyllum</i>	10	NO	FAC
<i>Symplocarpus foetidus</i>	8	NO	OBL
<i>Parathelypteris noveboracensis</i>	10	YES	FAC
<i>Onoclea sensibilis</i>	5	NO	FACW
Total Cover:		36	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>8</u>	x 1 = <u>8</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>90</u>	x 3 = <u>270</u>
FACU Species: <u>5</u>	x 4 = <u>20</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>143 (A)</u>	<u>378 (B)</u>
Prevalence Index = B/A = <u>2.64</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR 3/1	90	5YR 4/6	10	C	M,PL	SILT	
13-18	10YR 5/1	85	5YR 4/6	15	C	M	SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 1464.7	County: Essex	Date: 08/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-D-W002-PEM
Investigators: PB	Quad Name: Reading		Township: Lynnfield	
Logbook No.: 6	Logbook Pg.: 37	Tract: 8457		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.555273 Long: -71.066796 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: Soil, vegetation and hydrology disturbed by gas line

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Morella pennsylvanica</i>	25	YES	FAC
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago gigantea</i>	5	NO	FACW
<i>Equisetum arvense</i>	10	YES	FAC
<i>Impatiens capensis</i>	3	NO	FACW
<i>Euthamia caroliniana</i>	30	YES	FAC
<i>Carex vulpinoidea</i>	5	NO	OBL
<i>Juncus effusus</i>	5	NO	OBL
<i>Persicaria sagittata</i>	5	NO	OBL
<i>Fragaria virginiana</i>	3	NO	FACU
<i>Osmundastrum cinnamomeum</i>	5	NO	FACW
<i>Oncolea sensibilis</i>	3	NO	FACW
Total Cover:		74	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>15</u>	x 1 = <u>15</u>
FACW Species: <u>16</u>	x 2 = <u>32</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>3</u>	x 4 = <u>12</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>99 (A)</u>	<u>254 (B)</u>
Prevalence Index = B/A = <u>2.57</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/1	100					SILT	
4-18	7.5YR 5/1	90	5YR 4/6	10	C	M	SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 81982.9	County: Essex	Date: 08/12/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: LY-D-W002-UPL
Investigators: PB	Quad Name: Reading	Township: Lynnfield	
Logbook No.: 6	Logbook Pg.: 36	Tract: 8457	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.555084 Long: -71.067088 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
<i>Ulmus americana</i>	15	YES	FACW
<i>Acer pensylvanicum</i>	5	NO	FACU
<i>Pinus strobus</i>	40	YES	FACU
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	YES	FACU
<i>Quercus rubra</i>	5	YES	FACU
Total Cover:		10	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	3	NO	FACU
<i>Osmundastrum cinnamomeum</i>	5	YES	FACW
<i>Trientalis borealis</i>	5	YES	FAC
<i>Parthenocissus quinquefolia</i>	3	NO	FACU
Total Cover:		16	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>61</u>	x 4 = <u>244</u>
UPL Species: <u>3</u>	x 5 = <u>15</u>
Column Totals: <u>104 (A)</u>	<u>359 (B)</u>
Prevalence Index = B/A = <u>3.45</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR 4/3	100					SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

12

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 2492.5	County: Essex	Date: 08/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-D-W003-PFO
Investigators: PB	Quad Name: Reading		Township: Lynnfield	
Logbook No.: 6	Logbook Pg.: 43	Tract: 8457		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.557990 Long: -71.066571 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	5	NO	FACW
<i>Acer rubrum</i>	60	YES	FAC
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	NO	FAC
<i>Lindera benzoin</i>	40	YES	FACW
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Symplocarpus foetidus</i>	3	NO	OBL
<i>Osmunda spectabilis</i>	3	NO	OBL
<i>Microstegium vimineum</i>	40	YES	FAC
<i>Parthenocissus quinquefolia</i>	5	NO	FACU
<i>Arisaema triphyllum</i>	2	NO	FAC
<i>Osmundastrum cinnamomeum</i>	10	NO	FACW
<i>Osmunda claytoniana</i>	5	NO	FAC
<i>Impatiens capensis</i>	2	NO	FACW
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>6</u>	x 1 = <u>6</u>
FACW Species: <u>57</u>	x 2 = <u>114</u>
FAC Species: <u>112</u>	x 3 = <u>336</u>
FACU Species: <u>5</u>	x 4 = <u>20</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180 (A)</u>	<u>476 (B)</u>
Prevalence Index = B/A = <u>2.64</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/1	92	5YR 4/6	8	C	M	SILT	
12-18	7.5YR 4/1	75	5YR 4/6	25	C	M	SAND	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains.						² Location: PL=Pore Lining, M=Matrix		
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)			<input checked="" type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low				Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown				
General Comments:								

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 2454.8	County: Essex	Date: 08/13/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-D-W003-UPL
Investigators: PB		Quad Name: Reading	Township: Lynnfield	
Logbook No.: 6	Logbook Pg.: 44	Tract: 8457		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.557772	Long: -71.066477	Datum: NAD83	
Soil Map Unit Name: Windsor loamy sand, 3 to 8 percent slopes		NWI Classification: Not mapped		

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	40	YES	FACU
<i>Quercus rubra</i>	10	NO	FACU
<i>Acer rubrum</i>	30	YES	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
<i>Quercus alba</i>	2	NO	FACU
<i>Pinus strobus</i>	30	YES	FACU
<i>Amelanchier arborea</i>	5	NO	FACU
Total Cover:		47	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Trientalis borealis</i>	10	YES	FAC
<i>Maianthemum canadense</i>	15	YES	FACU
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>102</u>	x 4 = <u>408</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>152 (A)</u>	<u>558 (B)</u>
Prevalence Index = B/A = <u>3.67</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	7.5YR 4/4	100					SILT	
8-18	7.5YR 5/6	100					SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 8967.3	County: Essex	Date: 08/14/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: LY-M-W002-PFO
Investigators: CG JW	Quad Name: Reading	Township: Lynnfield	
Logbook No.: 2015-1	Logbook Pg.: 143	Tract: 26253	

Landform (hillslope, terrace, etc.): Floodplain terrace Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.566122 Long: -71.049918 Datum: NAD83

Soil Map Unit Name: Poquonock loamy sand, 8 to 15 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	45	YES	FAC
<i>Quercus alba</i>	5	NO	FACU
<i>Quercus bicolor</i>	10	NO	FACW
<i>Pinus strobus</i>	20	YES	FACU
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	YES	FACU
<i>Frangula alnus</i>	30	YES	FAC
<i>Vaccinium corymbosum</i>	10	YES	FACW
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda spectabilis</i>	20	YES	OBL
<i>Maianthemum canadense</i>	10	NO	FACU
<i>Osmundastrum cinnamomeum</i>	65	YES	FACW
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>20</u>	x 1 = <u>20</u>
FACW Species: <u>85</u>	x 2 = <u>170</u>
FAC Species: <u>75</u>	x 3 = <u>225</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>225 (A)</u>	<u>595 (B)</u>
Prevalence Index = B/A = <u>2.64</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	5YR 3/2	100					ORGANIC	
3-9	10YR 2/1	100					SILT LOAM	
9-15	10YR 6/1	100					FINE SANDY LOAM	
15-18	10YR 6/1	90	7.5YR 4/6	10	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 9050.0	County: Essex	Date: 08/14/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LY-M-W002-UPL
Investigators: CG JW		Quad Name: Reading	Township: Lynnfield	
Logbook No.: 2015-1	Logbook Pg.: 145	Tract: 26253		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 2	
Subregion (LRR): Middle Atlantic	Lat: 42.566144	Long: -71.049611	Datum: NAD83	
Soil Map Unit Name: Poquonock loamy sand, 8 to 15 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	NO	FAC
<i>Betula papyrifera</i>	10	NO	FACU
<i>Pinus strobus</i>	60	YES	FACU
<i>Quercus alba</i>	15	NO	FACU
Total Cover:		95	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	10	NO	FAC
<i>Quercus alba</i>	15	YES	FACU
<i>Pinus strobus</i>	40	YES	FACU
Total Cover:		65	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	20	NO	FACU
<i>Osmundastrum cinnamomeum</i>	40	YES	FACW
<i>Gaultheria procumbens</i>	10	NO	FACU
<i>Vaccinium angustifolium</i>	40	YES	FACU
Total Cover:		110	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>210</u>	x 4 = <u>840</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>270 (A)</u>	<u>980 (B)</u>
Prevalence Index = B/A = <u>3.63</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	5YR 3/3	100					ORGANIC	
3-14	10YR 2/2	100					SILT LOAM	
14-18	10YR 4/2	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 16787.3	County: Essex	Date: 07/07/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: ME-P-W004-PEM
Investigators: PF JW	Quad Name: Lawrence	Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 48	Tract: 6864	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.718710 Long: -71.229681 Datum: NAD83

Soil Map Unit Name: Canton fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Agrostis gigantea</i>	30	YES	FACW
<i>Onoclea sensibilis</i>	40	YES	FACW
<i>Lysimachia terrestris</i>	15	NO	OBL
<i>Glyceria striata</i>	20	NO	OBL
Total Cover: 105			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>35</u>	x 1 = <u>35</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>175 (B)</u>
Prevalence Index = B/A = <u>1.67</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/2	100					ORGANIC	
8-14	10YR 2/2	90	5Y 5/2	10	D	M	SANDY LOAM	ROCK REFUSAL AT 14 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 16776.6	County: Essex	Date: 07/07/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: ME-P-W004-PFO
Investigators: PF JW	Quad Name: Lawrence	Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 49	Tract: 6864	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.718844 Long: -71.229796 Datum: NAD83

Soil Map Unit Name: Rock outcrop-Charlton-Hollis complex, 3 to 15 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	60	YES	FACU
<i>Fraxinus pennsylvanica</i>	40	YES	FACW
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	30	YES	FACW
<i>Rhamnus alnifolia</i>	70	YES	OBL
Total Cover:		100	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Symplocarpus foetidus</i>	80	YES	OBL
<i>Toxicodendron radicans</i>	10	NO	FAC
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>150</u>	x 1 = <u>150</u>
FACW Species: <u>80</u>	x 2 = <u>160</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>60</u>	x 4 = <u>240</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>300 (A)</u>	<u>580 (B)</u>
Prevalence Index = B/A = <u>1.93</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100					ORGANIC	
12-16	10YR 3/1	100					FINE SANDY LOAM	ROCK REFUSAL AT 16 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 20965.1	County: Essex	Date: 07/08/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-P-W005-PEM
Investigators: PF JW		Quad Name: Lawrence		Township: Methuen
Logbook No.: 2015-1	Logbook Pg.: 58	Tract: 6440		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.729915 Long: -71.226248 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	5	YES	FAC
Total Cover:		5	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Populus deltoides</i>	5	YES	FAC
<i>Salix discolor</i>	10	YES	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Symplocarpus foetidus</i>	20	YES	OBL
<i>Carex crinita</i>	20	YES	OBL
<i>Onoclea sensibilis</i>	60	YES	FACW
<i>Lythrum salicaria</i>	15	NO	OBL
<i>Typha latifolia</i>	10	NO	OBL
Total Cover:		125	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>65</u>	x 1 = <u>65</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145 (A)</u>	<u>235 (B)</u>
Prevalence Index = B/A = <u>1.62</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					SANDY LOAM	
8-12	10YR 2/2	100					SAND	
12-20	10YR 2/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 20533.6	County: Essex	Date: 07/08/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: ME-P-W005-PSS
Investigators: PF JW	Quad Name: Lawrence	Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 64	Tract: 6440	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.728751 Long: -71.226539 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p><u>Secondary Indicators (2 or more required)</u></p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Salix discolor</i>	60	YES	FACW
<i>Rubus allegheniensis</i>	20	YES	FACU
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	60	YES	FACW
<i>Onoclea sensibilis</i>	40	YES	FACW
<i>Typha latifolia</i>	5	NO	OBL
<i>Eutrochium maculatum</i>	20	YES	OBL
<i>Euthamia graminifolia</i>	10	NO	FAC
Total Cover:		135	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>25</u>	x 1 = <u>25</u>
FACW Species: <u>160</u>	x 2 = <u>320</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>215 (A)</u>	<u>455 (B)</u>

Prevalence Index = B/A = 2.12

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 2/1	100					ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 21171.0	County: Essex	Date: 07/08/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-P-W005-PFO
Investigators: PF JW		Quad Name: Lawrence		Township: Methuen
Logbook No.: 2015-1	Logbook Pg.: 63	Tract: 6440		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.730525 Long: -71.226430 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus bicolor</i>	20	YES	FACW
<i>Acer rubrum</i>	70	YES	FAC
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhamnus alnifolia</i>	70	YES	OBL
<i>Corylus americana</i>	15	NO	FACU
Total Cover:		85	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	30	YES	FACW
<i>Symplocarpus foetidus</i>	40	YES	OBL
<i>Toxicodendron radicans</i>	10	NO	FAC
<i>Dryopteris marginalis</i>	30	YES	FACU
Total Cover:		110	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>110</u>	x 1 = <u>110</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>80</u>	x 3 = <u>240</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>285 (A)</u>	<u>630 (B)</u>
Prevalence Index = B/A = <u>2.21</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 2/1	100					ORGANIC	
18-20	10YR 3/2	90	2.5Y 4/2	10	D	M	FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 20969.9	County: Essex	Date: 07/08/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: ME-P-W005-UPL
Investigators: PF JW	Quad Name: Lawrence	Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 59	Tract: 6440	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.729958 Long: -71.226423 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Geomorphic Position (D2)																																
<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Populus tremuloides</i>	80	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Ulmus americana</i>	20	NO	FACW
Total Cover:		110	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	NO	FACU
<i>Acer rubrum</i>	20	YES	FAC
<i>Cornus florida</i>	30	YES	FACU
<i>Rhamnus alnifolia</i>	30	YES	OBL
Total Cover:		90	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	10	YES	FAC
<i>Quercus rubra</i>	10	YES	FACU
<i>Toxicodendron radicans</i>	20	YES	FAC
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>30</u>	x 1 = <u>30</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>60</u>	x 3 = <u>180</u>
FACU Species: <u>130</u>	x 4 = <u>520</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>240 (A)</u>	<u>770 (B)</u>

Prevalence Index = B/A = 3.21

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	100					SANDY LOAM	
12-20	10YR 4/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 24924.0	County: Essex	Date: 12/03/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-P-W001-PEM
Investigators: AF CV		Quad Name: Lawrence		Township: Methuen
Logbook No.: 2014P3	Logbook Pg.: 16	Tract: 6841		

Landform (hillslope, terrace, etc.): DEPRESSION Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.740066 Long: -71.222272 Datum: NAD83

Soil Map Unit Name: Pipestone loamy sand, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: SOILS WERE DISTURBED DUE TO GAS LINE. DUE TO SNOW MELT FLOOD LEVELS AND BANK FULL CONDITIONS PRESENT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1-6</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lythrum salicaria</i>	10	NO	OBL
<i>Juncus effusus</i>	20	YES	OBL
<i>Typha angustifolia</i>	20	YES	OBL
<i>Onoclea sensibilis</i>	30	YES	FACW
Total Cover: 80			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>50</u>	x 1 = <u>50</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>80 (A)</u>	<u>110 (B)</u>
Prevalence Index = B/A = <u>1.38</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					SILT LOAM	
4-18	10YR 7/1	80	10YR 2/1	20	D	M	FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 24981.2	County: Essex	Date: 12/03/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-P-W001-PFO
Investigators: AF CV		Quad Name: Lawrence		Township: Methuen
Logbook No.: 2014P3	Logbook Pg.: 15	Tract: 6818		

Landform (hillslope, terrace, etc.): DEPRESSION Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.740214 Long: -71.222117 Datum: NAD83

Soil Map Unit Name: Deerfield loamy fine sand, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: FLOOD LEVELS AND BANK FULL DUE TO SNOW MELT CONDITIONS

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1-6</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula papyrifera</i>	10	NO	FACU
<i>Quercus palustris</i>	20	YES	FACW
<i>Carpinus caroliniana</i>	5	NO	FAC
<i>Acer rubrum</i>	20	YES	FAC
Total Cover:	55		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus incana</i>	30	YES	FACW
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	25	YES	FACW
<i>Lythrum salicaria</i>	10	YES	OBL
Total Cover:		35	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>75</u>	x 2 = <u>150</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120 (A)</u>	<u>275 (B)</u>

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	N2.5	90	10YR 7/1 2.5YR 3/6	5 5	C C	M M	FINE SAND	
16-18	10YR 7/6	80	10YR 6/8	20	C	M	FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 24865.0	County: Essex	Date: 12/03/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-P-W001-UPL
Investigators: AF CV		Quad Name: Lawrence		Township: Methuen
Logbook No.: 2014P3	Logbook Pg.: 17	Tract: 6841		

Landform (hillslope, terrace, etc.): UPLAND FOREST Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.740097 Long: -71.222520 Datum: NAD83

Soil Map Unit Name: Pipestone loamy sand, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No

Hydric Soil Present? Yes No

Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks: SNOW MELT CAUSED FLOODING AND BANK FULL CONDITIONS

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	20	YES	FACU
<i>Quercus velutina</i>	10	YES	UPL
<i>Pinus strobus</i>	15	YES	FACU
Total Cover:	45		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus incana</i>	10	YES	FACW
Total Cover:		10	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Lycopodium clavatum</i>	15	YES	FAC
<i>Fragaria virginiana</i>	20	YES	FACU
Total Cover:		35	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>90 (A)</u>	<u>335 (B)</u>
Prevalence Index = B/A = <u>3.72</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR2/1	100					ORGANIC	
2-4	10YR4/6	100					SANDY LOAM	
4-18	10YR7/6	100					SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 26807.4	County: Essex	Date: 07/09/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-E-W001-PEM
Investigators: SE JW		Quad Name: Lawrence	Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 76	Tract: 6419		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.741749 Long: -71.215648 Datum: NAD83

Soil Map Unit Name: Deerfield loamy fine sand, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? (includes capillary fringe) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	35	YES	OBL
<i>Boehmeria cylindrica</i>	15	NO	OBL
<i>Impatiens capensis</i>	10	NO	FACW
<i>Onoclea sensibilis</i>	60	YES	FACW
Total Cover: 120			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>50</u>	x 1 = <u>50</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120 (A)</u>	<u>190 (B)</u>
Prevalence Index = B/A = <u>1.58</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/1	100					FINE SANDY LOAM	
2-4	2.5Y 6/3	97	2.5Y 6/6	3	C	M	LOAMY SAND	
4-7	10YR 2/1	100					ORGANIC	
7-20	2.5Y 5/3	90	10YR 5/4 2.5Y 6/2 7.5YR 5/8	6 2 2	C D C	M M PL	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 26748.7	County: Essex	Date: 07/09/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: ME-E-W001-UPL
Investigators: SE JW	Quad Name: Lawrence	Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 76	Tract: 6419	

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.741616 Long: -71.215809 Datum: NAD83

Soil Map Unit Name: Deerfield loamy fine sand, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	45	YES	FACU
<i>Acer rubrum</i>	12	NO	FAC
<i>Quercus rubra</i>	8	NO	FACU
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium angustifolium</i>	20	YES	FACU
<i>Frangula alnus</i>	6	NO	FAC
<i>Pinus strobus</i>	10	YES	FACU
Total Cover:		36	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>LYCOPodium OBSCURUM</i>	3	YES	FACU
<i>Trientalis borealis</i>	3	YES	FAC
Total Cover:		6	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>21</u>	x 3 = <u>63</u>
FACU Species: <u>86</u>	x 4 = <u>344</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>107 (A)</u>	<u>407 (B)</u>
Prevalence Index = B/A = <u>3.80</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	5YR 3/2	100					ORGANIC	WITH ROOTS
2-6	7.5YR 4/4	100					FINE SANDY LOAM	
6-16	10YR 4/3	100					FINE SANDY LOAM	
16-20	10YR 6/6	100					LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 28327.0	County: Essex	Date: 07/15/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-P-W007-PSS
Investigators: PF JW		Quad Name: Lawrence		Township: Methuen
Logbook No.: 2015-1	Logbook Pg.: 74	Tract: 9176		

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.743332 Long: -71.210455 Datum: NAD83

Soil Map Unit Name: Limerick and Rumney soils, 0 to 3 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
Total Cover:		20	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carpinus caroliniana</i>	20	YES	FAC
<i>Rhamnus alnifolia</i>	80	YES	OBL
Total Cover:		100	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Toxicodendron radicans</i>	10	NO	FAC
<i>Rhamnus alnifolia</i>	60	YES	OBL
<i>Solidago rugosa</i>	20	YES	FAC
<i>Onoclea sensibilis</i>	20	YES	FACW
Total Cover:		110	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>140</u>	x 1 = <u>140</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>230 (A)</u>	<u>390 (B)</u>
Prevalence Index = B/A = <u>1.70</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/2	100					SANDY LOAM	
10-20	10YR 3/1	80	10YR 4/3 7.5Y 3/6	18 2	D C	M PL	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 28353.0	County: Essex	Date: 07/15/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-P-W007-UPL
Investigators: PF JW		Quad Name: Lawrence	Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 75	Tract: 9176		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 20	
Subregion (LRR): Middle Atlantic	Lat: 42.743364	Long: -71.210368	Datum: NAD83	
Soil Map Unit Name: Udorthents, smoothed		NWI Classification: Not mapped		

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Populus deltoides</i>	10	NO	FAC
<i>Fraxinus americana</i>	30	YES	FACU
<i>Quercus rubra</i>	30	YES	FACU
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
<i>Quercus rubra</i>	20	YES	FACU
<i>Pyrus communis</i>	5	NO	UPL
<i>Juniperus virginiana</i>	5	NO	FACU
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	15	NO	FAC
<i>Toxicodendron radicans</i>	90	YES	FAC
Total Cover:		105	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>130</u>	x 3 = <u>390</u>
FACU Species: <u>85</u>	x 4 = <u>340</u>
UPL Species: <u>5</u>	x 5 = <u>25</u>
Column Totals: <u>220 (A)</u>	<u>755 (B)</u>
Prevalence Index = B/A = <u>3.43</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	100					COARSE SAND	
6-18	10YR 5/3	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 40053.2	County: Essex	Date: 07/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-E-W004-PFO
Investigators: SE JW	Quad Name: Salem Depot		Township: Methuen	
Logbook No.: 2015-1	Logbook Pg.: 80	Tract: 20365		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.764825 Long: -71.180722 Datum: NAD83

Soil Map Unit Name: Whitman loam, 0 to 3 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations:

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	80	YES	FAC
Total Cover:		80	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ilex verticillata</i>	5	YES	FACW
<i>Acer rubrum</i>	15	YES	FAC
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	65	YES	FACW
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>95</u>	x 3 = <u>285</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>165 (A)</u>	<u>425 (B)</u>
Prevalence Index = B/A = <u>2.58</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	100					ORGANIC	
10-14	10YR 5/1	94	10YR 4/5	6	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 40179.2	County: Essex	Date: 07/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: ME-E-W004-UPL
Investigators: SE JW		Quad Name: Salem Depot		Township: Methuen
Logbook No.: 2015-1	Logbook Pg.: 82	Tract: 20365		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.765100 Long: -71.180330 Datum: NAD83

Soil Map Unit Name: Whitman loam, 0 to 3 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **Is the Sampled Area within a Wetland?** Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe) </p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	45	YES	FAC
<i>Pinus strobus</i>	20	YES	FACU
Total Cover:	65		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	60	YES	FAC
<i>Prunus serotina</i>	10	NO	FACU
Total Cover:		70	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>CAREX PENNSYLVANICUM</i>	15	YES	FACU
<i>Maianthemum canadense</i>	25	YES	FACU
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>105</u>	x 3 = <u>315</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>595 (B)</u>
Prevalence Index = B/A = <u>3.40</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/2	100					FINE SANDY LOAM	
10-16	10YR 3/3	100					FINE SANDY LOAM	
16-20	10YR 5/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 74352.0	County: Worcester	Date: 09/02/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LU-D-W001-PEM1
Investigators: CG JW		Quad Name: Fitchburg	Township: Lunenburg	
Logbook No.: 2015-2	Logbook Pg.: 118	Tract: 8455		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.586065 Long: -71.761017 Datum: NAD83

Soil Map Unit Name: Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: Area significantly altered by ATV traffic

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
<input type="checkbox"/> Moss Trim Lines (B16)																																
<input type="checkbox"/> Dry-Season Water Table (C2)																																
<input type="checkbox"/> Crayfish Burrows (C8)																																
<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)																																
<input type="checkbox"/> Stunted or Stressed Plants (D1)																																
<input checked="" type="checkbox"/> Geomorphic Position (D2)																																
<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

HYDROLOGY DISTURBANCE DUE TO ACTIVE ROW ACCESS ROAD

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Bidens frondosa</i>	60	YES	FACW
<i>Glyceria striata</i>	15	NO	OBL
<i>Lythrum salicaria</i>	25	YES	OBL
<i>Persicaria sagittata</i>	10	NO	OBL
<i>Carex crinita</i>	10	NO	OBL
Total Cover: 120			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>60</u>	x 1 = <u>60</u>
FACW Species: <u>60</u>	x 2 = <u>120</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>210 (B)</u>

Prevalence Index = B/A = 1.62

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: VEGETATION DISTURBANCE DUE TO ACTIVE ROW ACCESS ROAD

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 4/1	85	7.5YR 5/8	15	C	M	SILT LOAM	
10-16	10YR 4/1	90	10YR 5/2	10	D	M	SANDY LOAM	ROCK REFUSAL AT 16 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:
 SOIL DISTURBANCE DUE TO TO ACTIVE ROW ACCESS ROAD

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Worcester	Date: 09/02/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LU-D-W001-PEM2
Investigators: CG JW		Quad Name: Fitchburg	Township: Lunenburg	
Logbook No.: 2015-2	Logbook Pg.: 119	Tract: 8455		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.583215 Long: -71.760475 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis-Rock outcrop complex, 3 to 15 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: Agricultural land

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Panicum sagittata</i>	10	NO	OBL
<i>Phalaris arundinacea</i>	80	YES	FACW
<i>Onoclea sensibilis</i>	5	NO	FACW
Total Cover: 95			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>85</u>	x 2 = <u>170</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95 (A)</u>	<u>180 (B)</u>

Prevalence Index = B/A = 1.89

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/1	85	7.5YR 5/6	15	C	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 73294.7	County: Worcester	Date: 07/27/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LU-D-W001-PFO
Investigators: PF JW		Quad Name: Fitchburg	Township: Lunenburg	
Logbook No.: 2015-1	Logbook Pg.: 92	Tract: 8455		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 2	
Subregion (LRR): Middle Atlantic	Lat: 42.587347	Long: -71.756809	Datum: NAD83	
Soil Map Unit Name: Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Shallow Aquitard (D3)																																
<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	40	YES	FAC
<i>Tsuga canadensis</i>	40	YES	FACU
<i>Pinus strobus</i>	10	NO	FACU
Total Cover:		90	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rosa multiflora</i>	20	YES	FACU
<i>Ostrya virginiana</i>	20	YES	FACU
<i>Acer rubrum</i>	5	NO	FAC
<i>Tsuga canadensis</i>	5	NO	FACU
<i>Hamamelis virginiana</i>	40	YES	FACU
Total Cover:		90	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	5	NO	FAC
<i>Osmundastrum cinnamomeum</i>	80	YES	FACW
Total Cover:		85	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>80</u>	x 2 = <u>160</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>135</u>	x 4 = <u>540</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>265 (A)</u>	<u>850 (B)</u>
Prevalence Index = B/A = <u>3.21</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: *Tsuga canadensis* and *Rosa multiflora* are both problematic species with can be dominant in wetlands

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 2.5/1	100					ORGANIC	
4-8	10YR 2/1	100					FINE SANDY LOAM	
8-18	10YR 3/2	90	10YR 4/4	10	C	M	COARSE SANDY LOAM	WITH GRAVEL, ROCK REFUSAL AT 18 INCHES

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 72541.0	County: Worcester	Date: 05/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: LU-D-W001-UPL
Investigators: PB		Quad Name: Fitchburg	Township: Lunenburg	
Logbook No.: 2D	Logbook Pg.: 121	Tract: 8455		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 4

Subregion (LRR): Middle Atlantic Lat: 42.589238 Long: -71.755668 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis-Rock outcrop complex, 15 to 25 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: Located within existing utility corridor

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhus glabra</i>	30	YES	UPL
<i>Lonicera morrowii</i>	3	NO	FACU
Total Cover:		33	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Potentilla simplex</i>	10	YES	FACU
<i>Solidago canadensis</i>	5	YES	FACU
<i>Trifolium pratense</i>	10	YES	FACU
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis labrusca</i>	50	YES	FACU
Total Cover:		50	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>78</u>	x 4 = <u>312</u>
UPL Species: <u>30</u>	x 5 = <u>150</u>
Column Totals: <u>108 (A)</u>	<u>462 (B)</u>
Prevalence Index = B/A = <u>4.28</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR 6/6	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown ROCK 12	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 90817.3	County: Berkshire	Date: 08/07/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W023-PEM
Investigators: CM MN	Quad Name: Peru		Township: Windsor	
Logbook No.: 6M	Logbook Pg.: 90	Tract: 9318		
Landform (hillslope, terrace, etc.): Slope - toe		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None
Subregion (LRR): Middle Atlantic		Lat: 42.479032	Long: -73.043992	Datum: NAD83
Soil Map Unit Name: Tunbridge-Lyman association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus virginiana</i>	5	NO	FACU
<i>Spiraea alba</i>	10	NO	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Woodwardia virginica</i>	20	YES	OBL
<i>Rubus idaeus</i>	15	NO	FACU
<i>Onoclea sensibilis</i>	5	NO	FACW
<i>Euthamia graminifolia</i>	20	YES	FAC
<i>Phleum pratense</i>	5	NO	FACU
<i>Solidago rugosa</i>	30	YES	FAC
<i>Solidago gigantea</i>	10	NO	FACW
<i>Galium palustre</i>	30	YES	OBL
Total Cover:		135	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>50</u>	x 1 = <u>50</u>
FACW Species: <u>25</u>	x 2 = <u>50</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>25</u>	x 4 = <u>100</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150 (A)</u>	<u>350 (B)</u>

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 5/4	20	10YR 5/1 5YR 4/6	75 5	D C	M PL	SILT LOAM	
7-18	10YR 4/4	20	10YR 6/1 10YR 4/6	65 15	D C	M M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 90749.7	County: Berkshire	Date: 08/07/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W023-UPL
Investigators: CM MN		Quad Name: Peru	Township: Windsor	
Logbook No.: 6M	Logbook Pg.: 91	Tract: 12003		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.479027	Long: -73.044203	Datum: NAD83	
Soil Map Unit Name: Tunbridge-Lyman association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Duchesnea indica</i>	25	YES	FACU
<i>Poa sp & other upland grasses</i>	20	NA	NONE
<i>Plantago lanceolata</i>	10	NO	FACU
<i>Achillea millefolium</i>	20	YES	FACU
<i>Antennaria plantaginifolia</i>	10	NO	FACU
<i>Phleum pratense</i>	25	YES	FACU
Total Cover: 110			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>90</u>	x 4 = <u>360</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>90 (A)</u>	<u>360 (B)</u>

Prevalence Index = B/A = 4.00

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 5/4	100					SILT LOAM	
8-16	10YR 4/4	100					SILT LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
ROCK 16								
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low Isolated Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown								
General Comments:								

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Franklin	Date: 05/20/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-L-W002-PFO
Investigators: BH AK	Quad Name: Northfield		Township: Northfield	
Logbook No.: 2	Logbook Pg.: 56	Tract: 21115		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 2
Subregion (LRR): Middle Atlantic	Lat: 42.665399	Long: -72.421083	Datum: NAD83	
Soil Map Unit Name: Millsite-Woodstock complex, 25 to 60 percent slopes, very rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Tsuga canadensis</i>	50	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	10	YES	FAC
<i>Salix nigra</i>	2	NO	OBL
Unidentified shrub	2	NA	NA
Total Cover:		14	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Viola cucullata</i>	5	NO	OBL
<i>Juncus effusus</i>	10	NO	OBL
<i>Carex crinita</i>	15	YES	OBL
<i>Carex stricta</i>	5	NO	OBL
<i>Carex scabrata</i>	15	YES	OBL
<i>Glyceria striata</i>	15	YES	OBL
Total Cover:		65	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>67</u>	x 1 = <u>67</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>50</u>	x 4 = <u>200</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>147 (A)</u>	<u>347 (B)</u>
Prevalence Index = B/A = <u>2.36</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	95	10YR 4/6	5	C	M	SILT LOAM	
10-16	10YR 2/1	80	10YR 4/2	20	D	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown COBBL E 16	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 125180.7	County: Franklin	Date: 05/20/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-L-W002-UPL
Investigators: BH AK		Quad Name: Northfield		Township: Northfield
Logbook No.: 2	Logbook Pg.: 68	Tract: 21115		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input type="checkbox"/> Convex <input checked="" type="checkbox"/> None		Slope%.: 20
Subregion (LRR): Middle Atlantic		Lat: 42.665339	Long: -72.420827	Datum: NAD83
Soil Map Unit Name: Millsite-Woodstock complex, 3 to 8 percent slopes, very rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	5	NO	FACU
<i>Tsuga canadensis</i>	50	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Acer saccharum</i>	10	NO	FACU
Total Cover:		75	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	2	NO	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
Total Cover:		12	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>77</u>	x 4 = <u>308</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>87 (A)</u>	<u>338 (B)</u>
Prevalence Index = B/A = <u>3.89</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	100					SILT LOAM	
3-8	10YR 4/3	100					SILT LOAM	
8-12	2.5Y 5/4	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 12

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 125094.8	County: Franklin	Date: 05/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-L-W016-PFO
Investigators: BH AK	Quad Name: Northfield		Township: Northfield	
Logbook No.: 2	Logbook Pg.: 126	Tract: 21116		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 2
Subregion (LRR): Middle Atlantic	Lat: 42.663977	Long: -72.418476	Datum: NAD83	
Soil Map Unit Name: Metacomet fine sandy loam, 3 to 8 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Tsuga canadensis</i>	50	YES	FACU
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda claytoniana</i>	5	YES	FAC
<i>Arisaema triphyllum</i>	5	YES	FAC
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>60</u>	x 4 = <u>240</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100 (A)</u>	<u>360 (B)</u>
Prevalence Index = B/A = <u>3.60</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: SHALLOW HEMLOCK ROOTS

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					ORGANIC	
8-14	2.5Y 5/1	80	10YR 6/6 10YR 5/6	10 10	C C	M M	SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input checked="" type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown COBBL E 14	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 125159.4	County: Franklin	Date: 05/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-L-W016-UPL
Investigators: BH AK	Quad Name: Northfield		Township: Northfield	
Logbook No.: 2	Logbook Pg.: 123	Tract: 21116		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.664006 Long: -72.418087 Datum: NAD83

Soil Map Unit Name: Millsite-Woodstock complex, 25 to 60 percent slopes, very rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	30	YES	FACU
<i>Acer saccharum</i>	25	YES	FACU
<i>Fagus grandifolia</i>	10	NO	FACU
<i>Quercus rubra</i>	10	NO	FACU
Total Cover:		75	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer pensylvanicum</i>	5	YES	FACU
<i>Acer saccharum</i>	5	YES	FACU
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>85</u>	x 4 = <u>340</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>85 (A)</u>	<u>340 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: USE AS REPRESENTATIVE UPLAND PLOT FOR NO-L-W017-PFO

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100					SILT LOAM	
4-18	2.5Y 5/4	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 125713.4	County: Franklin	Date: 05/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-L-W007-PEM
Investigators: BH AK		Quad Name: Northfield		Township: Northfield
Logbook No.: 2	Logbook Pg.: 110	Tract: 21115		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 2
Subregion (LRR): Middle Atlantic		Lat: 42.665669	Long: -72.417807	Datum: NAD83
Soil Map Unit Name: Millsite-Woodstock complex, 15 to 25 percent slopes, very rocky			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Scirpus atrovirens</i>	5	NO	OBL
<i>Carex scoparia</i>	10	NO	FACW
<i>Eleocharis obtusa</i>	15	YES	OBL
<i>Lolium perenne</i>	10	NO	FACU
<i>Impatiens capensis</i>	5	NO	FACW
<i>Carex crinita</i>	10	NO	OBL
<i>Juncus effusus</i>	25	YES	OBL
Total Cover:		80	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>55</u>	x 1 = <u>55</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>80 (A)</u>	<u>125 (B)</u>
Prevalence Index = B/A = <u>1.56</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/1	95	10YR 4/6	5	C	M	CLAY LOAM	
4-16	2.5Y 5/1	80	10YR 6/6 10YR 4/6	10 10	C C	M PL	COARSE SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains.						² Location: PL=Pore Lining, M=Matrix		
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown				
General Comments:								

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 125909.4	County: Franklin	Date: 05/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-L-W007-UPL
Investigators: BH AK	Quad Name: Northfield		Township: Northfield	
Logbook No.: 2	Logbook Pg.: 112	Tract: 21115		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.666238 Long: -72.417666 Datum: NAD83

Soil Map Unit Name: Millsite-Woodstock complex, 15 to 25 percent slopes, very rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: ALSO REPRESENTATIVE UPLAND PLOT FOR NO-L-W006-PSS, NO-L-W008-PEM, AND NO-L-W008-PSS

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	20	YES	FACU
Total Cover:		20	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	5	YES	FACU
<i>Comptonia peregrina</i>	5	YES	FACU
<i>Rhus typhina</i>	5	YES	UPL
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Taraxacum officinale</i>	5	NO	FACU
<i>Trifolium repens</i>	10	NO	FACU
<i>Plantago major</i>	5	NO	FACU
<i>Trifolium pratense</i>	10	NO	FACU
<i>Poa annua</i>	60	YES	FACU
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>120</u>	x 4 = <u>480</u>
UPL Species: <u>5</u>	x 5 = <u>25</u>
Column Totals: <u>125 (A)</u>	<u>505 (B)</u>
Prevalence Index = B/A = <u>4.04</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 4/4	100					SILT LOAM	
2-18	2.5Y 5/4	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS

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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 5289.2	County: Middlesex	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W009-PFO
Investigators: PL JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 36	Tract: 21267		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.695600 Long: -71.271713 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	75	YES	FAC
<i>Pinus strobus</i>	25	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	30	YES	FAC
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	30	YES	FACW
<i>Osmunda claytoniana</i>	40	YES	FAC
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>145</u>	x 3 = <u>435</u>
FACU Species: <u>25</u>	x 4 = <u>100</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>200 (A)</u>	<u>595 (B)</u>
Prevalence Index = B/A = <u>2.98</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	97	10YR 3/3	3	C	M	FINE SANDY LOAM	ROOT CHANNELS
8-12	10YR 4/2	95	10YR 4/4	5	C	M	SANDY LOAM	E HORIZON
12-16	7.5YR 3/3	92	7.5YR 4/4	8	C	M	SANDY LOAM	SPODIC HORIZON

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 5320.0	County: Middlesex	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W009-UPL
Investigators: PL JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 37	Tract: 21267		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.695548 Long: -71.271615 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	45	YES	FACU
<i>Acer rubrum</i>	55	YES	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	15	YES	FACU
<i>Vaccinium corymbosum</i>	8	YES	FACW
Total Cover:		23	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	50	YES	FACW
<i>Maianthemum canadense</i>	8	NO	FACU
<i>Dennstaedtia punctilobula</i>	10	NO	UPL
<i>Osmunda claytoniana</i>	15	NO	FAC
Total Cover:		83	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>58</u>	x 2 = <u>116</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>68</u>	x 4 = <u>272</u>
UPL Species: <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>206 (A)</u>	<u>648 (B)</u>

Prevalence Index = B/A = 3.15

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					FINE SANDY LOAM	UNCOATED SAND GRAINS OF OLD E HORIZON
8-14	10YR 3/3	100					SANDY LOAM	
14-20	7.5YR 2.5/3	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 5390.0	County: Middlesex	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W010-PFO
Investigators: PL JW	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 28	Tract: 21267		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.694666 Long: -71.272903 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	20	NO	FACU
<i>Acer rubrum</i>	60	YES	FAC
<i>Ulmus rubra</i>	10	NO	FAC
<i>Quercus rubra</i>	15	NO	FACU
Total Cover:		105	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus americana</i>	8	NO	FACU
<i>Vaccinium corymbosum</i>	40	YES	FACW
Total Cover:		48	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Viburnum dentatum</i>	5	NO	FAC
<i>Fragaria vesca</i>	8	YES	UPL
<i>Vaccinium corymbosum</i>	25	YES	FACW
<i>Unknown plant</i>	15	NA	NONE
Total Cover:		53	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>65</u>	x 2 = <u>130</u>
FAC Species: <u>75</u>	x 3 = <u>225</u>
FACU Species: <u>43</u>	x 4 = <u>172</u>
UPL Species: <u>8</u>	x 5 = <u>40</u>
Column Totals: <u>191 (A)</u>	<u>567 (B)</u>
Prevalence Index = B/A = <u>2.97</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					FINE SANDY LOAM	
8-16+	2.5Y 4/2	92	2.5Y 5/4	8	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 5359.1	County: Middlesex	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W010-UPL
Investigators: PL JW	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 29	Tract: 21267		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.694794 Long: -71.272852 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	NO	FAC
<i>Pinus strobus</i>	50	YES	FACU
<i>Quercus rubra</i>	30	YES	FACU
Total Cover:	95		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	3	NO	FACU
<i>Pinus strobus</i>	5	YES	FACU
Total Cover:		8	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	30	YES	FACW
<i>Osmunda claytoniana</i>	18	YES	FAC
<i>Maianthemum canadense</i>	5	NO	FACU
Total Cover:		53	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>33</u>	x 3 = <u>99</u>
FACU Species: <u>93</u>	x 4 = <u>372</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>156 (A)</u>	<u>531 (B)</u>
Prevalence Index = B/A = <u>3.40</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					FINE SANDY LOAM	
8-16	10YR 3/3	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 5965.4	County: Middlesex	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W003-PFO
Investigators: PL JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 42	Tract: 21268		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.694003 Long: -71.270428 Datum: NAD83

Soil Map Unit Name: Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
<i>Nyssa sylvatica</i>	40	YES	FAC
Total Cover:	60		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	5	NO	FACU
<i>Vaccinium corymbosum</i>	45	YES	FACW
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

<p>Dominance Test Worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>3 (A)</u></p> <p>Total Number of Dominant Species Across All Strata: <u>3 (B)</u></p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100 (A/B)</u></p>	<p>Prevalence Index Worksheet:</p> <p>Total % Cover of: Multiply by:</p> <p>OBL Species: <u>0</u> x 1 = <u>0</u></p> <p>FACW Species: <u>45</u> x 2 = <u>90</u></p> <p>FAC Species: <u>60</u> x 3 = <u>180</u></p> <p>FACU Species: <u>5</u> x 4 = <u>20</u></p> <p>UPL Species: <u>0</u> x 5 = <u>0</u></p> <p>Column Totals: <u>110 (A)</u> <u>290 (B)</u></p> <p style="text-align: center;">Prevalence Index = B/A = <u>2.64</u></p>
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<p>Hydrophytic Vegetation Indicators:</p> <p><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> 2 - Dominance Test is > 50%</p> <p><input checked="" type="checkbox"/> 3 - Prevalence Index is ≤ 3.0</p> <p><input type="checkbox"/> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>	<p>Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks: VERY SPARSE GROUND COVER

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					FINE SANDY LOAM	
4-14+	10YR 4/2	95	10YR 5/2	5	D	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

WETLAND CONTAINS VERNAL POOL

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 6444.9	County: Middlesex	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W004-PFO
Investigators: PL JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 44	Tract: 21267		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.692257 Long: -71.270732 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes NWI Classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus bicolor</i>	15	NO	FACW
<i>Acer rubrum</i>	75	YES	FAC
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	15	YES	FACW
<i>Frangula alnus</i>	25	YES	FAC
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	25	YES	FACW
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>55</u>	x 2 = <u>110</u>
FAC Species: <u>100</u>	x 3 = <u>300</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155 (A)</u>	<u>410 (B)</u>
Prevalence Index = B/A = <u>2.65</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: SPARSE GROUND COVER

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/2	100					ORGANIC	HEMIC
8-14	10YR 4/2	100					SANDY LOAM	
14-20+	10YR 4/2	100					SANDY LOAM	STAINING

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

WETLAND CONTAINS POTENTIAL VERNAL POOL

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 6477.2	County: Middlesex	Date: 06/18/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W004-UPL
Investigators: PL JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 45	Tract: 21267		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.692235 Long: -71.270563 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes NWI Classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	35	YES	FAC
<i>Pinus strobus</i>	20	YES	FACU
<i>Quercus rubra</i>	20	YES	FACU
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	40	YES	FACU
<i>Vaccinium corymbosum</i>	10	NO	FACW
<i>Frangula alnus</i>	15	YES	FAC
Total Cover:		65	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	5	NO	FACU
<i>Dendrolycopodium obscurum</i>	5	NO	FACU
<i>Osmundastrum cinnamomeum</i>	20	YES	FACW
<i>Osmunda claytoniana</i>	10	YES	FAC
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>60</u>	x 3 = <u>180</u>
FACU Species: <u>90</u>	x 4 = <u>360</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180 (A)</u>	<u>600 (B)</u>

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100					FINE SANDY LOAM	
12-18	10YR 3/3	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Middlesex	Date: 06/29/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W005-PFO
Investigators: PL JW	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 53	Tract: 21268		
Landform (hillslope, terrace, etc.): Stream fringe		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.692303	Long: -71.268369	Datum: NAD83	
Soil Map Unit Name: Urban land	NW1 Classification: Not mapped			

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Ulmus rubra</i>	15	NO	FAC
<i>Acer rubrum</i>	70	YES	FAC
Total Cover:	85		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Viburnum dentatum</i>	5	YES	FAC
<i>Frangula alnus</i>	10	YES	FAC
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Impatiens capensis</i>	30	YES	FACW
<i>Carex lurida</i>	5	NO	OBL
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Glyceria striata</i>	20	YES	OBL
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis sp</i>	5	NA	NA
Total Cover:		5	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>25</u>	x 1 = <u>25</u>
FACW Species: <u>45</u>	x 2 = <u>90</u>
FAC Species: <u>100</u>	x 3 = <u>300</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>170 (A)</u>	<u>415 (B)</u>
Prevalence Index = B/A = <u>2.44</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100					ORGANIC	
2-6	10YR 3/2	93	10YR 3/4	7	C	M	LOAM	
6-16	10YR 4/2	92	10YR 3/4	8	C	M	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 6705.7	County: Middlesex	Date: 06/29/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-N-W005-UPL
Investigators: PL JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 54	Tract: 21267		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.692411 Long: -71.268708 Datum: NAD83

Soil Map Unit Name: Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	25	YES	FAC
<i>Pinus strobus</i>	35	YES	FACU
<i>Quercus rubra</i>	30	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus americana</i>	5	YES	FACU
<i>Acer rubrum</i>	10	YES	FAC
<i>Ulmus rubra</i>	5	YES	FAC
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex pensylvanica</i>	25	YES	UPL
<i>Maianthemum canadense</i>	10	YES	FACU
Total Cover:		35	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 38 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>80</u>	x 4 = <u>320</u>
UPL Species: <u>25</u>	x 5 = <u>125</u>
Column Totals: <u>145 (A)</u>	<u>565 (B)</u>
Prevalence Index = B/A = <u>3.90</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					FINE SANDY LOAM	
2-10	10YR 3/3	100					FINE SANDY LOAM	
10-16	10YR 5/4	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 90875.0	County: Berkshire	Date: 06/12/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: WR-M-W011-PEM
Investigators: CM	Quad Name: Peru	Township: Windsor	
Logbook No.: 3	Logbook Pg.: 90	Tract: 1315	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.480296 Long: -73.044274 Datum: NAD83

Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Eleocharis acicularis</i>	40	YES	OBL
<i>Onoclea sensibilis</i>	25	YES	FACW
<i>Iris versicolor</i>	10	NO	OBL
<i>Carex alopecoidea</i>	10	NO	FACW
Total Cover: 85			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>50</u>	x 1 = <u>50</u>
FACW Species: <u>35</u>	x 2 = <u>70</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>85 (A)</u>	<u>120 (B)</u>
Prevalence Index = B/A = <u>1.41</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	2.5YR 2.5/1	100					ORGANIC	
5-12	2.5Y 5/1	40	N6 N8	30 30	D D	M M	FINE SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown								
General Comments:								

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 90766.9	County: Berkshire	Date: 06/12/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W011-UPL
Investigators: CM		Quad Name: Peru	Township: Windsor	
Logbook No.: 3	Logbook Pg.: 92	Tract: 1315		
Landform (hillslope, terrace, etc.): Flat		Local Relief:	<input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 2
Subregion (LRR): Middle Atlantic	Lat: 42.479977	Long: -73.044555	Datum: NAD83	
Soil Map Unit Name: Tunbridge-Lyman association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Populus grandidentata</i>	30	YES	FACU
<i>PYRUS MALUS</i>	40	YES	FAC
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus incana</i>	15	NO	FACW
<i>Acer pensylvanicum</i>	5	NO	FACU
<i>Fraxinus pennsylvanica</i>	10	NO	FACW
<i>Prunus serotina</i>	20	YES	FACU
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Equisetum pratense</i>	5	NO	FACW
<i>Dryopteris intermedia</i>	5	NO	FAC
<i>Onoclea sensibilis</i>	15	NO	FACW
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>45</u>	x 2 = <u>90</u>
FAC Species: <u>55</u>	x 3 = <u>165</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155 (A)</u>	<u>475 (B)</u>
Prevalence Index = B/A = <u>3.06</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/3	100					LOAM	
2-8	7.5YR 4/6	100					SANDY LOAM	
8-16	7.5YR 5/4	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS

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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0.0	County: Middlesex	Date: 04/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-G-W003-PFO
Investigators: NF CM	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 99	Tract: 4907		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.680364 Long: -71.282642 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
<i>Acer rubrum</i>	30	YES	FAC
Total Cover:	50		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	5	YES	FACW
<i>Fraxinus pennsylvanica</i>	5	YES	FACW
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Vaccinium corymbosum</i>	10	YES	FACW
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>55</u>	x 2 = <u>110</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>85 (A)</u>	<u>200 (B)</u>
Prevalence Index = B/A = <u>2.35</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	95	7.5YR 4/6	5	D	M	SILT LOAM	
3-10	7.5YR 4/2	95	7.5YR 4/6	5	D	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown FRAGI PAN 10	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 14899.4	County: Middlesex	Date: 04/22/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: DR-G-W003-UPL
Investigators: NF CM	Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 112	Tract: 4907	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.680597 Long: -71.283473 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	20	YES	FACU
<i>Pinus strobus</i>	30	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:	60		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	15	YES	FACU
<i>Quercus rubra</i>	15	YES	FACU
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>80</u>	x 4 = <u>320</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>90 (A)</u>	<u>350 (B)</u>
Prevalence Index = B/A = <u>3.89</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/3	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Middlesex	Date: 05/30/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W002-PFO
Investigators: PB	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2D	Logbook Pg.: 131	Tract: 5501		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.683376 Long: -71.281567 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (2 or more required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus palustris</i>	30	YES	FACW
<i>Acer rubrum</i>	40	YES	FAC
<i>Pinus strobus</i>	5	NO	FACU
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus glutinosa</i>	5	YES	FACW
Total Cover:		5	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	5	NO	FACW
<i>Eriophorum virginicum</i>	40	YES	OBL
<i>Solidago gigantea</i>	10	NO	FACW
Total Cover:		55	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>4 (A)</u>
Total Number of Dominant Species Across All Strata:	<u>4 (B)</u>
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100 (A/B)</u>

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>40</u>	x 1 = <u>40</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>5</u>	x 4 = <u>20</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135 (A)</u>	<u>280 (B)</u>
Prevalence Index = B/A = <u>2.07</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is > 50%
- 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	2.5Y 2.5/1	90	5YR 4/6	10	D	M,PL	SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Middlesex	Date: 05/30/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W002-UPL
Investigators: PB	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2D	Logbook Pg.: 132	Tract: 5501		
Landform (hillslope, terrace, etc.): Hilltop		Local Relief:	<input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3
Subregion (LRR): Middle Atlantic	Lat: 42.683295	Long: -71.281749	Datum: NAD83	
Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	20	YES	FACU
<i>Pinus strobus</i>	30	YES	FACU
<i>Quercus palustris</i>	5	NO	FACW
Total Cover:	55		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	35	YES	FACU
<i>Acer rubrum</i>	10	NO	FAC
Total Cover:		45	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris simulata</i>	5	YES	FACW
<i>Erythronium albidum</i>	5	YES	FACU
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>90</u>	x 4 = <u>360</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>110 (A)</u>	<u>410 (B)</u>
Prevalence Index = B/A = <u>3.73</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/4	100					SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown ROCK 8	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Middlesex	Date: 05/30/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W003-PFO
Investigators: PB		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2D	Logbook Pg.: 134	Tract: 5329		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.683076 Long: -71.280747 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus palustris</i>	20	YES	FACW
<i>Acer rubrum</i>	60	YES	FAC
Total Cover:	80		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	3	NO	FACU
<i>Vaccinium corymbosum</i>	25	YES	FACW
<i>Quercus bicolor</i>	10	YES	FACW
<i>Acer rubrum</i>	5	NO	FAC
Total Cover:		43	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>55</u>	x 2 = <u>110</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>3</u>	x 4 = <u>12</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>123 (A)</u>	<u>317 (B)</u>
Prevalence Index = B/A = <u>2.58</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	2.5Y 2.5/1	100					SILT	
10-18	10YR 4/1	90	5YR 4/6	10	D	M	SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Middlesex	Date: 05/30/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W003-UPL
Investigators: PB	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2D	Logbook Pg.: 135	Tract: 5501		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 4

Subregion (LRR): Middle Atlantic Lat: 42.682978 Long: -71.280882 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus palustris</i>	10	NO	FACW
<i>Acer saccharum</i>	10	NO	FACU
<i>Quercus alba</i>	30	YES	FACU
<i>Pinus strobus</i>	5	NO	FACU
Total Cover:	55		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus alba</i>	5	NO	FACU
<i>Pinus strobus</i>	25	YES	FACU
<i>Acer saccharum</i>	5	NO	FACU
<i>Acer rubrum</i>	5	NO	FAC
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parathelypteris simulata</i>	3	NO	FACW
<i>Erythronium albidum</i>	3	NO	FACU
Total Cover:		6	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>13</u>	x 2 = <u>26</u>
FAC Species: <u>5</u>	x 3 = <u>15</u>
FACU Species: <u>83</u>	x 4 = <u>332</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>101 (A)</u>	<u>373 (B)</u>
Prevalence Index = B/A = <u>3.69</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 4/4	100					SILT	
4-13	7.5YR 5/8	100					SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

13

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Middlesex	Date: 05/30/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W004-PFO
Investigators: PB	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2D	Logbook Pg.: 137	Tract: 5501		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.682649 Long: -71.281070 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
<i>Acer rubrum</i>	40	YES	FAC
<i>Acer saccharum</i>	3	NO	FACU
<i>Quercus palustris</i>	15	NO	FACW
Total Cover:	78		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus glutinosa</i>	5	NO	FACW
<i>Fraxinus pennsylvanica</i>	5	NO	FACW
<i>Quercus bicolor</i>	15	YES	FACW
<i>Pinus strobus</i>	5	NO	FACU
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Maianthemum canadense</i>	1	NO	FACU
<i>Parthenocissus quinquefolia</i>	3	NO	FACU
<i>Thelypteris palustris</i>	10	YES	FACW
Total Cover:		14	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>12</u>	x 4 = <u>48</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>122 (A)</u>	<u>308 (B)</u>
Prevalence Index = B/A = <u>2.52</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	2.5Y 2.5/1	90	5YR 4/6	10	D	M,PL	SILT	
12-18	10YR 4/1	90	5YR 4/6	10	D	M	SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 0	County: Middlesex	Date: 05/30/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: DR-D-W004-UPL
Investigators: PB	Quad Name: Lowell	Township: Dracut	
Logbook No.: 2D	Logbook Pg.: 138	Tract: 5501	
Landform (hillslope, terrace, etc.): Hilltop		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3
Subregion (LRR): Middle Atlantic	Lat: 42.682538	Long: -71.280898	Datum: NAD83
Soil Map Unit Name: Canton fine sandy loam, 8 to 15 percent slopes, extremely stony		NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	5	NO	FACU
<i>Fraxinus pennsylvanica</i>	5	NO	FACW
<i>Pinus strobus</i>	20	YES	FACU
<i>Acer rubrum</i>	5	NO	FAC
<i>Quercus rubra</i>	15	YES	FACU
Total Cover:		50	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer spicatum</i>	5	YES	FACU
<i>Carya ovata</i>	10	YES	FACU
<i>Pinus strobus</i>	10	YES	FACU
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Gaultheria procumbens</i>	3	NO	FACU
<i>Erythronium albidum</i>	3	NO	FACU
<i>Maianthemum canadense</i>	3	NO	FACU
<i>Parathelypteris simulata</i>	15	YES	FACW
Total Cover:		24	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>5</u>	x 3 = <u>15</u>
FACU Species: <u>74</u>	x 4 = <u>296</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>99 (A)</u>	<u>351 (B)</u>
Prevalence Index = B/A = <u>3.55</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 4/4	100					SILT	
6-12	7.5YR 5/8	100					SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

12

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 0	County: Middlesex	Date: 05/30/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W005-PFO
Investigators: PB	Quad Name: Lowell		Township: Dracut	
Logbook No.: 2D	Logbook Pg.: 140	Tract: 5501		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.682675 Long: -71.280688 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus bicolor</i>	20	YES	FACW
<i>Acer rubrum</i>	40	YES	FAC
<i>Fraxinus pennsylvanica</i>	15	YES	FACW
Total Cover:		75	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	NO	FAC
<i>Pinus strobus</i>	3	YES	FACU
<i>Vaccinium corymbosum</i>	10	YES	FACW
Total Cover:		28	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	20	YES	FACW
<i>Osmunda regalis</i>	15	YES	OBL
<i>Parthenocissus quinquefolia</i>	3	NO	FACU
Total Cover:		38	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>15</u>	x 1 = <u>15</u>
FACW Species: <u>65</u>	x 2 = <u>130</u>
FAC Species: <u>55</u>	x 3 = <u>165</u>
FACU Species: <u>6</u>	x 4 = <u>24</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>141 (A)</u>	<u>334 (B)</u>
Prevalence Index = B/A = <u>2.37</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 2/2	90	5YR 4/6	10	D	M	SILT	
14-18	10YR 3/2	90	5YR 4/6	10	D	M	SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 0	County: Middlesex	Date: 04/21/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: DR-G-W001-PFO
Investigators: NF CM	Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 86	Tract: 4907	

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.681289 Long: -71.282682 Datum: NAD83

Soil Map Unit Name: Canton fine sandy loam, 8 to 15 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: USE DR-G-W005-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p><u>Secondary Indicators (2 or more required)</u></p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 3</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	15	YES	FACW
<i>Ulmus americana</i>	25	YES	FACW
<i>Betula populifolia</i>	10	NO	FAC
<i>Acer rubrum</i>	10	NO	FAC
<i>Pinus strobus</i>	10	NO	FACU
Total Cover:		70	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	15	YES	FACW
<i>Ulmus americana</i>	15	YES	FACW
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	10	YES	FACU
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
<i>Onoclea sensibilis</i>	20	YES	FACW
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>100</u>	x 2 = <u>200</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>20</u>	x 4 = <u>80</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>340 (B)</u>
Prevalence Index = B/A = <u>2.43</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	2.5Y 4/2	85	2.5Y 6/6	15	CS	M	FINE SANDY LOAM	
12-18	2.5Y 5/2	85	2.5Y 6/6	15	CS	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input checked="" type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

WETLAND DISTURBED BY ADJACENT DEBRIS PILES

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 518.6	County: Middlesex	Date: 11/17/2014
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: DR-A-W002-PFO
Investigators: RSE	Quad Name: Lowell	Township: Dracut	

Logbook No.: TEAM BOOK 1 Logbook Pg.: 48 Tract: 5331

Landform (hillslope, terrace, etc.): DEPRESSION Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.678697 Long: -71.284250 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus bicolor</i>	10	YES	FACW
<i>Betula populifolia</i>	12	YES	FAC
<i>Quercus rubra</i>	15	YES	FACU
Total Cover:	37		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	35	YES	FACW
Total Cover:		35	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex stricta</i>	25	YES	OBL
Total Cover:		25	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>4 (A)</u>
Total Number of Dominant Species Across All Strata:	<u>5 (B)</u>
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>80 (A/B)</u>

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>25</u>	x 1 = <u>25</u>
FACW Species: <u>45</u>	x 2 = <u>90</u>
FAC Species: <u>12</u>	x 3 = <u>36</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>97 (A)</u>	<u>211 (B)</u>
Prevalence Index = B/A = <u>2.18</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is > 50%
- 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-8	10YR 5/2	96	10YR 4/6	4	C	M	FINE SANDY LOAM	
8-14	10YR 6/2	92	10YR 6/4	8	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 468.9	County: Middlesex	Date: 11/17/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-A-W002-UPL
Investigators: RSE		Quad Name: Lowell	Township: Dracut	
Logbook No.: TEAM BOOK 1	Logbook Pg.: 48	Tract: 5331		
Landform (hillslope, terrace, etc.): HILLSIDE		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 20
Subregion (LRR): Middle Atlantic	Lat: 42.678759	Long: -71.284080	Datum: NAD83	
Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Field Wetland Classification: UPLAND PLOT	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present?
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	30	YES	FACU
<i>Quercus alba</i>	40	YES	FACU
<i>Quercus rubra</i>	25	YES	FACU
Total Cover:	95		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	15	YES	FAC
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>25</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>15</u>	x 3 = <u>45</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135 (A)</u>	<u>425 (B)</u>
Prevalence Index = B/A = <u>3.15</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100					FINE SANDY LOAM	
2-4	10YR 4/6	100					FINE SANDY LOAM	
4-14	10YR 5/8	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 174.2	County: Middlesex	Date: 11/14/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-A-W001-PFO
Investigators: PML		Quad Name: Lowell	Township: Dracut	
Logbook No.: BOOK 1	Logbook Pg.:	Tract: 5331		

Landform (hillslope, terrace, etc.): DRAINAGEWAY Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.681189 Long: -71.285136 Datum: NAD83

Soil Map Unit Name: Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 10</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	30	YES	FACU
<i>Ulmus rubra</i>	15	NO	FAC
<i>Acer rubrum</i>	55	YES	FAC
<i>Quercus alba</i>	10	NO	FACU
Total Cover:		110	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Berberis thunbergii</i>	5	NO	FACU
<i>Frangula alnus</i>	20	YES	FAC
<i>Euonymus alatus</i>	5	NO	UPL
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmundastrum cinnamomeum</i>	40	YES	FACW
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>90</u>	x 3 = <u>270</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>5</u>	x 5 = <u>25</u>
Column Totals: <u>180 (A)</u>	<u>555 (B)</u>
Prevalence Index = B/A = <u>3.08</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1	100					FINE SANDY LOAM	HISTRIC EPIPEDON
6-14	10YR 2/1	100					FINE SANDY LOAM	SAPRIC
14-20	2.5Y 4/1	100					LOAMY SAND	6" OF ALLUVIAL MATERIAL UNDER ORGANIC SOIL

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

MATCHES MAPPED HABITAT

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 174.2	County: Middlesex	Date: 11/14/2014
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: DR-A-W001-UPL
Investigators: PML	Quad Name: Lowell	Township: Dracut	
Logbook No.: BOOK 1 2014	Logbook Pg.: 25	Tract: 5331	

Landform (hillslope, terrace, etc.): DRAINAGEWAY Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.681144 Long: -71.285037 Datum: NAD83

Soil Map Unit Name: Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 12 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus alba</i>	10	NO	FACU
<i>Pinus strobus</i>	30	YES	FACU
<i>Quercus rubra</i>	20	YES	FACU
<i>Acer rubrum</i>	40	YES	FAC
Total Cover:		100	

Sapling/Shrub Stratum			
Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Euonymus alatus</i>	20	YES	UPL
<i>Pinus strobus</i>	5	YES	FACU
Total Cover:		25	

Herb Stratum			
Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	10	YES	FAC
<i>Dendrolycopodium obscurum</i>	3	NO	FACU
Total Cover:		13	

Woody Vine Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>68</u>	x 4 = <u>272</u>
UPL Species: <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>138 (A)</u>	<u>522 (B)</u>
Prevalence Index = B/A = <u>3.78</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100					FINE SANDY LOAM	
8-12	10YR 3/4	100					FINE SANDY LOAM	
12-20	10YR 4/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 14322.0	County: Middlesex	Date: 04/21/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-G-W002-PFO
Investigators: NF CM		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 92	Tract: 4907		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.679520 Long: -71.281958 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: USE DR-A-W001-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	50	YES	FAC
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Frangula alnus</i>	15	YES	FAC
<i>Vaccinium corymbosum</i>	5	NO	FACW
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Symplocarpus foetidus</i>	5	YES	OBL
<i>Onoclea sensibilis</i>	15	YES	FACW
Total Cover:		20	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>5</u>	x 1 = <u>5</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>65</u>	x 3 = <u>195</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120 (A)</u>	<u>300 (B)</u>
Prevalence Index = B/A = <u>2.50</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	95	5YR 4/6	5	C	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown FRAGI PAN 10	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 365.9	County: Middlesex	Date: 04/21/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-G-W002-PSS
Investigators: NF CM		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 90	Tract: 4907		

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.678700 Long: -71.282349 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks: USE DR-A-W001-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhamnus alnifolia</i>	40	YES	OBL
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Solidago gigantea</i>	35	YES	FACW
<i>Symplocarpus foetidus</i>	5	NO	OBL
<i>Spiraea tomentosa</i>	15	YES	FACW
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>45</u>	x 1 = <u>45</u>
FACW Species: <u>65</u>	x 2 = <u>130</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>110 (A)</u>	<u>175 (B)</u>
Prevalence Index = B/A = <u>1.59</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	2.5Y 3/1	90	10YR 4/6	10	C	M	SILT LOAM	
8-18	10YR 4/1	95	10YR 4/6	5	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 1298.8	County: Middlesex	Date: 06/04/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W001-PSS
Investigators: TT JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 22	Tract: 4902		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.679336 Long: -71.278992 Datum: NAD83

Soil Map Unit Name: Canton fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

PLOT LOCATION IN OPEN MEADOW SCRUB SHRUB WETLAND UNDER POWERLINE EASEMENT. ALL DOMINANT VEG ARE HYDRIC.

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus incana</i>	30	YES	FACW
<i>Vaccinium corymbosum</i>	10	NO	FACW
<i>Rhamnus alnifolia</i>	30	YES	OBL
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	80	YES	FAC
<i>Comptonia peregrina</i>	20	NO	UPL
<i>Spiraea alba</i>	2	NO	FACW
Total Cover:		102	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>30</u>	x 1 = <u>30</u>
FACW Species: <u>42</u>	x 2 = <u>84</u>
FAC Species: <u>80</u>	x 3 = <u>240</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>172 (A)</u>	<u>454 (B)</u>
Prevalence Index = B/A = <u>2.64</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 1374.7	County: Middlesex	Date: 06/04/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: DR-D-W001-PFO
Investigators: TT JW	Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 24	Tract: 5358	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 4

Subregion (LRR): Middle Atlantic Lat: 42.680697 Long: -71.279232 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	70	YES	FAC
<i>Pinus strobus</i>	15	NO	FACU
<i>Quercus velutina</i>	10	NO	UPL
Total Cover:	95		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	5	NO	FACW
<i>Pinus strobus</i>	7	NO	FACU
<i>Vaccinium corymbosum</i>	20	YES	FACW
<i>Rhamnus alnifolia</i>	20	YES	OBL
Total Cover:		52	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dendrolycopodium obscurum</i>	3	NO	FACU
<i>Maianthemum canadense</i>	4	NO	FACU
<i>Osmundastrum cinnamomeum</i>	40	YES	FACW
Total Cover:		47	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>20</u>	x 1 = <u>20</u>
FACW Species: <u>65</u>	x 2 = <u>130</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>29</u>	x 4 = <u>116</u>
UPL Species: <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>194 (A)</u>	<u>526 (B)</u>
Prevalence Index = B/A = <u>2.71</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1	100					VERY FINE SANDY LOAM	
6-14	10YR 4/2	95	10YR 4/6	5	C	M	VERY FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:
 VERY WEAK MODELING

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SOUTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 1535.4	County: Middlesex	Date: 06/04/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W001-UPL
Investigators: TT JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 25	Tract: 5358		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.680976 Long: -71.278749 Datum: NAD83

Soil Map Unit Name: Swansea muck, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (2 or more required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	NO	FACU
<i>Quercus velutina</i>	20	YES	UPL
<i>Acer rubrum</i>	60	YES	FAC
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhamnus alnifolia</i>	5	YES	OBL
Total Cover:		5	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dennstaedtia punctilobula</i>	30	YES	UPL
<i>Vaccinium corymbosum</i>	15	YES	FACW
<i>Vaccinium angustifolium</i>	5	NO	FACU
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>5</u>	x 1 = <u>5</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>60</u>	x 3 = <u>180</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>50</u>	x 5 = <u>250</u>
Column Totals: <u>145 (A)</u>	<u>525 (B)</u>
Prevalence Index = B/A = <u>3.62</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/1	100					FINE SANDY LOAM	
5-16	2.5Y 5/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 1857.2	County: Middlesex	Date: 06/04/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W006-PFO
Investigators: TT JW		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 26	Tract: 5358		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 4

Subregion (LRR): Middle Atlantic Lat: 42.681586 Long: -71.277867 Datum: NAD83

Soil Map Unit Name: Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 12</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p style="text-align: center;">Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus velutina</i>	20	YES	UPL
<i>Acer rubrum</i>	80	YES	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	10	YES	FACW
<i>Pinus strobus</i>	4	NO	FACU
Total Cover:		14	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Dennstaedtia punctilobula</i>	25	YES	FACW
<i>Osmundastrum cinnamomeum</i>	50	YES	FACW
Total Cover:		75	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>85</u>	x 2 = <u>170</u>
FAC Species: <u>80</u>	x 3 = <u>240</u>
FACU Species: <u>4</u>	x 4 = <u>16</u>
UPL Species: <u>20</u>	x 5 = <u>100</u>
Column Totals: <u>189 (A)</u>	<u>526 (B)</u>

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1	100					FINE SANDY LOAM	
6-14	5YR 3/2	90	7.5YR 4/6	10	C	M	LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 13687.4	County: Middlesex	Date: 04/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-G-W005-PFO
Investigators: NF CM		Quad Name: Lowell		Township: Dracut
Logbook No.: 2015-1	Logbook Pg.: 105	Tract: 4907		

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.681179 Long: -71.281005 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	YES	FACU
<i>Acer rubrum</i>	35	YES	FAC
Total Cover:	45		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	15	YES	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	5	YES	FACW
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>35</u>	x 3 = <u>105</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>65 (A)</u>	<u>185 (B)</u>
Prevalence Index = B/A = <u>2.85</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/1	95	7.5YR 4/6	5	C	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 13736.3	County: Middlesex	Date: 04/22/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: DR-G-W005-UPL
Investigators: NF CM	Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 106	Tract: 4907	

Landform (hillslope, terrace, etc.): Hilltop Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.681204 Long: -71.281339 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (2 or more required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	25	YES	FACU
<i>Acer rubrum</i>	25	YES	FAC
Total Cover:	50		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	15	YES	FACU
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lycopodium lagopus</i>	10	YES	FACU
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>50</u>	x 4 = <u>200</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75 (A)</u>	<u>275 (B)</u>
Prevalence Index = B/A = <u>3.67</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/1	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NORTH

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 14004.8	County: Middlesex	Date: 04/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-G-W006-PFO
Investigators: NF CM		Quad Name: Lowell		Township: Dracut
Logbook No.: 2015-1	Logbook Pg.: 109	Tract: 4907		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.680431 Long: -71.281614 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: USE DR-G-W005-UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 3	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	20	YES	FAC
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
Total Cover:	30		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	10	YES	FACW
<i>Pinus strobus</i>	10	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Carex stricta</i>	5	NO	OBL
<i>Vaccinium corymbosum</i>	10	YES	FACW
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>5</u>	x 1 = <u>5</u>
FACW Species: <u>45</u>	x 2 = <u>90</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>80 (A)</u>	<u>195 (B)</u>
Prevalence Index = B/A = <u>2.44</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	7.5YR 3/2	95	10YR 4/6	5	C	M	SILT LOAM	
10-18	7.5YR 6/1	95	10YR 4/6	5	C	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WEST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 14041.4	County: Middlesex	Date: 04/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-G-W004-PFO
Investigators: NF CM		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 101	Tract: 4907		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.679914 Long: -71.280960 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 3</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
--	---

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	25	YES	FAC
<i>Pinus strobus</i>	25	YES	FACU
Total Cover:	50		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	15	YES	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium corymbosum</i>	15	YES	FACW
Total Cover:		15	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>25</u>	x 4 = <u>100</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>80 (A)</u>	<u>235 (B)</u>
Prevalence Index = B/A = <u>2.94</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 4/1	95	10YR 4/6	5	C	M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown FRAGI PAN 10	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 14089.1	County: Middlesex	Date: 04/22/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-G-W004-UPL
Investigators: NF CM		Quad Name: Lowell	Township: Dracut	
Logbook No.: 2015-1	Logbook Pg.: 102	Tract: 4907		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.680037 Long: -71.281449 Datum: NAD83

Soil Map Unit Name: Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	25	YES	FACU
<i>Pinus strobus</i>	25	YES	FACU
Total Cover:	50		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	10	YES	FACU
<i>Carya ovata</i>	10	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>70 (A)</u>	<u>280 (B)</u>

Prevalence Index = B/A = 4.00

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 6/2	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

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 PAN
 10

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



EAST

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 71855.7	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W002-PFO
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 2	Logbook Pg.: 139	Tract: 20963		
Landform (hillslope, terrace, etc.): Stream fringe		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.473107	Long: -73.109208	Datum: NAD83	
Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony			NWI Classification: PEM1E	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Drainage Patterns (B10)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	40	YES	FAC
<i>Tsuga canadensis</i>	20	YES	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
Total Cover:	70		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Betula alleghaniensis</i>	10	YES	FAC
<i>Abies balsamea</i>	10	YES	FAC
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	5	YES	OBL
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>5</u>	x 1 = <u>5</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>30</u>	x 4 = <u>120</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>335 (B)</u>
Prevalence Index = B/A = <u>3.19</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					ORGANIC	
4-14	GLE Y2 5/10G	70	GLE Y1 2.5N	30	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS

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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 72135.3	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W002-PEM
Investigators: CM		Quad Name: Peru	Township: Hinsdale	
Logbook No.: 2	Logbook Pg.: 137	Tract: 20963		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 0	
Subregion (LRR): Middle Atlantic	Lat: 42.472444	Long: -73.108547	Datum: NAD83	
Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Larix laricina</i>	10	YES	FACW
<i>Spiraea alba</i>	10	YES	FACW
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Eleocharis spp</i>	70	NA	NONE
<i>Osmundastrum cinnamomeum</i>	20	YES	FACW
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>70</u>	x 1 = <u>70</u>
FACW Species: <u>40</u>	x 2 = <u>80</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120 (A)</u>	<u>180 (B)</u>
Prevalence Index = B/A = <u>1.50</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-36	10YR 2/1	100					ORGANIC	MUCKY PEAT HISTOSOL

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown AUGER HANDL E AUGER LENGTH	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 72223.7	County: Berkshire	Date: 06/03/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W002-UPL
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 2/3	Logbook Pg.: 136	Tract: 20963	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave
 Convex
 None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.472298 Long: -73.108284 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhododendron roseum</i>	10	YES	FAC
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	40	YES	FACU
<i>Dennstaedtia punctilobula</i>	30	YES	UPL
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>30</u>	x 2 = <u>60</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>40</u>	x 4 = <u>160</u>
UPL Species: <u>30</u>	x 5 = <u>150</u>
Column Totals: <u>110 (A)</u>	<u>400 (B)</u>
Prevalence Index = B/A = <u>3.64</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	90	10YR 6/1	10	C	M	SANDY LOAM	
4-8	7.5YR 4/5	100					SANDY LOAM	
8-15	7.5YR 4/5	90	7.5YR 5/6	10	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown ROCK 15	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 73509.9	County: Berkshire	Date: 06/04/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W004-PSS
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 30	Tract: 20963		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.470371 Long: -73.104466 Datum: NAD83

Soil Map Unit Name: Lyman-Tunbridge association, steep, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lindera benzoin</i>	30	YES	FACW
<i>Spiraea alba</i>	30	YES	FACW
Total Cover:		60	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	10	NO	FACW
<i>Carex crinita</i>	10	NO	OBL
<i>Solidago rugosa</i>	40	YES	FAC
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>300 (B)</u>
Prevalence Index = B/A = <u>2.31</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/2	90	10 YR 4/1	10	C	PL	SILT LOAM	
7-16	10YR 5/2	30	10 YR 6/1 10YR 5/6	60 10	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 73400.7	County: Berkshire	Date: 06/04/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: HN-M-W004-UPL
Investigators: CM	Quad Name: Peru	Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 31	Tract: 20963	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 15

Subregion (LRR): Middle Atlantic Lat: 42.470556 Long: -73.104609 Datum: NAD83

Soil Map Unit Name: Lyman-Tunbridge association, steep, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: VEG DISTURBED POSSIBLE MANAGEMENT PLAN IN EFFECT

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus allegheniensis</i>	40	YES	FACU
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	20	YES	FAC
<i>Carex sp</i>	15	NA	NONE
<i>Phalaris arundinacea</i>	15	YES	FACW
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>40</u>	x 4 = <u>160</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>75 (A)</u>	<u>250 (B)</u>
Prevalence Index = B/A = <u>3.33</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	5YR 3/3	100					ORGANIC	
3-7	5YR 4/4	90	5YR 5/6	10	C	M	SANDY LOAM	
7-16	7.5YR 5/6	100					LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 82572.9	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W010-PSS
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 78	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.472969 Long: -73.073417 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus pennsylvanica</i>	20	YES	FACW
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:	30		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	15	YES	FAC
<i>Alnus incana</i>	20	YES	FACW
<i>Lindera benzoin</i>	25	YES	FACW
Total Cover:	60		

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	80	YES	OBL
<i>Osmunda claytoniana</i>	5	NO	FAC
<i>Galium asprellum</i>	10	NO	OBL
<i>Onoclea sensibilis</i>	5	NO	FACW
Total Cover:	100		

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>90</u>	x 1 = <u>90</u>
FACW Species: <u>70</u>	x 2 = <u>140</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>190 (A)</u>	<u>330 (B)</u>

Prevalence Index = B/A = 1.74

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/1	100					SANDY LOAM	
4-12	2.5Y 3/1	50	2.5Y 6/1 10YR 4/6	45 5	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 82557.2	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W010-UPL
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 79	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 10

Subregion (LRR): Middle Atlantic Lat: 42.473264 Long: -73.073609 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	20	YES	FAC
<i>Acer saccharum</i>	30	YES	FACU
<i>Fagus grandifolia</i>	50	YES	FACU
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Acer pensylvanicum</i>	15	YES	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Picea rubens</i>	10	YES	FACU
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Polygonatum biflorum</i>	15	YES	FACU
<i>Polystichum acrostichoides</i>	5	NO	FACU
<i>Parathelypteris novborachensis</i>	10	YES	FAC
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 22 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>30</u>	x 3 = <u>90</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>175 (A)</u>	<u>670 (B)</u>
Prevalence Index = B/A = <u>3.83</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	5YR 2.5/1	100					ORGANIC	
1-10	5YR 5/8	100					LOAM	
10-18	5YR 4/6	80	7.5YR 3/4	20	C	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

18

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 82513.3	County: Berkshire	Date: 06/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: HN-M-W011-PFO
Investigators: CM	Quad Name: Peru		Township: Hinsdale	
Logbook No.: 3	Logbook Pg.: 82	Tract: 20984		

Landform (hillslope, terrace, etc.): Slope - toe Local Relief: Concave
 Convex
 None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.473253 Long: -73.073775 Datum: NAD83

Soil Map Unit Name: Peru-Marlow association, rolling, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes
 No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes
 No
 Hydric Soil Present? Yes
 No
 Wetland Hydrology Present? Yes
 No

Is the Sampled Area within a Wetland?
 Yes
 No

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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Field Observations:

Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 8	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2 <small>(includes capillary fringe)</small>	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	45	YES	FAC
<i>Acer saccharum</i>	30	YES	FACU
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	10	YES	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Thlypteris novaboracensis</i>	20	YES	FAC
<i>Dryopteris intermedia</i>	5	NO	FAC
<i>Impatiens capensis</i>	5	NO	FACW
<i>Veratrum viride</i>	15	YES	FACW
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>35</u>	x 2 = <u>70</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>50</u>	x 4 = <u>200</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155 (A)</u>	<u>480 (B)</u>
Prevalence Index = B/A = <u>3.10</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 3/1	100					FINE SANDY LOAM	
6-14	2.5Y 4/1	40	2.5Y 6/1	60	D	M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 93211.5	County: Berkshire	Date: 06/05/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W002-PEM
Investigators: CM	Quad Name: Peru		Township: Windsor	
Logbook No.: 2	Logbook Pg.: 112	Tract: 1316		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.481521 Long: -73.035702 Datum: NAD83

Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 5</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	10	YES	FACW
Total Cover:		10	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	15	NO	FACW
<i>Phalaris arundinacea</i>	50	YES	FACW
<i>Solidago rugosa</i>	5	NO	FAC
<i>Veratrum viride</i>	5	NO	FACW
<i>Carex crinita</i>	20	YES	OBL
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>20</u>	x 1 = <u>20</u>
FACW Species: <u>80</u>	x 2 = <u>160</u>
FAC Species: <u>5</u>	x 3 = <u>15</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105 (A)</u>	<u>195 (B)</u>
Prevalence Index = B/A = <u>1.86</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 2/1	95	10YR 3/6	5	C	PL	FINE SANDY LOAM	
14-20	2.5Y 3/1	30	2.5Y 6/1 7.5 YR 5/6	60 10	D C	M M	SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 93056.7	County: Berkshire	Date: 06/05/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WR-M-W002-UPL
Investigators: CM		Quad Name: Peru	Township: Windsor	
Logbook No.: 2	Logbook Pg.: 114	Tract: 1316		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 3
Subregion (LRR): Middle Atlantic	Lat: 42.481378	Long: -73.036243	Datum: NAD83	
Soil Map Unit Name: Pillsbury loam, 0 to 8 percent slopes, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer saccharum</i>	15	YES	FACU
Total Cover:		15	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	NO	FACU
<i>Rubus allegheniensis</i>	35	YES	FACU
Total Cover:		40	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Osmunda claytoniana</i>	20	YES	FAC
<i>Onoclea sensibilis</i>	15	YES	FACW
<i>Solidago rugosa</i>	25	YES	FAC
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>20</u>	x 1 = <u>20</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>135 (A)</u>	<u>405 (B)</u>
Prevalence Index = B/A = <u>3.00</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5Y 2.5/1	90	2.5Y 6/1 7.5YR 5/8	5 5	D C	M M	SILT LOAM	
3-10	2.5Y 4/2	95	7.5YR 4/6	5	C	M	SILT LOAM	
10-22	10YR 3/2	100					SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 116524.4	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W004-PFO
Investigators: SE		Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.:	Tract: 930		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.509324	Long: -72.965180	Datum: NAD83	
Soil Map Unit Name: Lyman-Tunbridge association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input checked="" type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fraxinus americana</i>	10	NO	FACU
<i>Acer rubrum</i>	15	NO	FAC
<i>Tsuga canadensis</i>	60	YES	FACU
<i>Betula alleghaniensis</i>	35	YES	FAC
Total Cover:		120	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris carthusiana</i>	8	YES	FACW
Total Cover: 8			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>8</u>	x 2 = <u>16</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>128 (A)</u>	<u>446 (B)</u>
Prevalence Index = B/A = <u>3.48</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 2/1	100					ORGANIC	MUCK
10-18	10YR 6/1	97	10YR 5/3	3	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)	
<input checked="" type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)	
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 116532.9	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W004-PEM
Investigators: SE	Quad Name: Plainfield		Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 50	Tract: 930		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 1	
Subregion (LRR): Middle Atlantic	Lat: 42.509002	Long: -72.964993	Datum: NAD83	
Soil Map Unit Name: Lyman-Tunbridge association, rolling, extremely stony			NWI Classification: PEM1E	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <1	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	10	YES	FACW
<i>Spiraea tomentosa</i>	20	YES	FACW
Total Cover:		30	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Typha latifolia</i>	8	YES	OBL
<i>Sphagnum sp</i>	15	NA	NONE
<i>Scirpus cyperinus</i>	35	YES	OBL
<i>Carex sp</i>	25	NA	NONE
Total Cover:		83	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus hispidus</i>	20	YES	FACW
Total Cover:		20	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>43</u>	x 1 = <u>43</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>93 (A)</u>	<u>143 (B)</u>
Prevalence Index = B/A = <u>1.54</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-36							ORGANIC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 116550.2	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-M-W004-UPL
Investigators: SE	Quad Name: Plainfield		Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 50	Tract: 930		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input type="checkbox"/> Convex <input checked="" type="checkbox"/> None		Slope%.: 3
Subregion (LRR): Middle Atlantic	Lat: 42.509458	Long: -72.965142	Datum: NAD83	
Soil Map Unit Name: Lyman-Tunbridge association, rolling, extremely stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	65	YES	FACU
<i>Fagus grandifolia</i>	25	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Viburnum lantanoides</i>	8	YES	FACU
Total Cover:		28	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>118</u>	x 4 = <u>472</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>118 (A)</u>	<u>472 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	100					ORGANIC	
3-6	5YR 5/2	100					FINE SANDY LOAM	
6-16	7.5YR 4/4	100					FINE SANDY LOAM	
16-20	10YR 4/4	100					FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 116631.5	County: Hampshire	Date: 06/25/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: PL-E-W001-PFO
Investigators: SE	Quad Name: Plainfield	Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 52	Tract: 930	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.:

Subregion (LRR): Middle Atlantic Lat: 42.509336 Long: -72.964764 Datum: NAD83

Soil Map Unit Name: Tunbridge-Lyman association, steep, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks: USE PL-M-W004_UPL AS REPRESENTATIVE UPLAND PLOT

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators (2 or more required)</u> <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 18 Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	8	NO	FACU
<i>Fagus grandifolia</i>	35	YES	FACU
<i>Tsuga canadensis</i>	10	NO	FACU
<i>Betula alleghaniensis</i>	25	YES	FAC
Total Cover:	78		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>53</u>	x 4 = <u>212</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>78 (A)</u>	<u>287 (B)</u>
Prevalence Index = B/A = <u>3.68</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks: VEGETATION IS GROWING IN UPLAND ADJACENT TO A VERY SMALL POOL

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/1	100					ORGANIC	
6-14	10YR 5/1	94	10YR 5/6	6	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 135198.6	County: Hampshire	Date: 06/26/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-E-W002-PEM
Investigators: SE	Quad Name: Plainfield		Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 56	Tract: 919		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.524084	Long: -72.902412	Datum: NAD83	
Soil Map Unit Name: Pillsbury-Peacham-Wonsqueak association, undulating, extremely stony			NWI Classification: PEM1E	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p> Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <1 Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe) </p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex lurida</i>	10	NO	OBL
<i>Carex scoparia</i>	12	NO	FACW
<i>Carex crinita</i>	60	YES	OBL
<i>Euthamia graminifolia</i>	6	NO	FAC
<i>Glyceria striata</i>	35	YES	OBL
<i>Onoclea sensibilis</i>	8	NO	FACW
Total Cover:		131	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>105</u>	x 1 = <u>105</u>
FACW Species: <u>20</u>	x 2 = <u>40</u>
FAC Species: <u>6</u>	x 3 = <u>18</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>131 (A)</u>	<u>163 (B)</u>

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-22	10YR 2/1	100					ORGANIC	
22-26	10YR 4/1	97	10YR 4/3	3	C	M	LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 135228.3	County: Hampshire	Date: 06/26/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-E-W002-PFO
Investigators: SE	Quad Name: Plainfield		Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 58	Tract: 919		
Landform (hillslope, terrace, etc.): Stream fringe		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None
Subregion (LRR): Middle Atlantic		Lat: 42.524535	Long: -72.902413	Datum: NAD83
Soil Map Unit Name: Pillsbury-Peacham-Wonsqueak association, undulating, extremely stony			NW1 Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	65	YES	FAC
<i>Acer rubrum</i>	20	NO	FAC
<i>Tsuga canadensis</i>	55	YES	FACU
Total Cover:		140	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>85</u>	x 3 = <u>255</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>475 (B)</u>
Prevalence Index = B/A = <u>3.39</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks: SURFACE ROOT SYSTEMS

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					ORGANIC	
2-8	10YR 4/2	98	10YR 4/4	2	C	M	SILT LOAM	
8-14	10YR 5/1	94	10YR 4/4 7.5YR 3/3	3 3	C C	M M	SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 14

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 135327.2	County: Hampshire	Date: 06/26/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: PL-E-W002-UPL
Investigators: SE	Quad Name: Plainfield		Township: Plainfield	
Logbook No.: 1E	Logbook Pg.: 56	Tract: 919		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 2

Subregion (LRR): Middle Atlantic Lat: 42.524557 Long: -72.902045 Datum: NAD83

Soil Map Unit Name: Pillsbury-Peacham-Wonsqueak association, undulating, extremely stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (2 or more required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	80	YES	FACU
<i>Betula alleghaniensis</i>	6	NO	FAC
<i>Populus grandidentata</i>	25	YES	FACU
<i>Picea glauca</i>	12	NO	FACU
Total Cover:	123		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>6</u>	x 3 = <u>18</u>
FACU Species: <u>117</u>	x 4 = <u>468</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>123 (A)</u>	<u>486 (B)</u>
Prevalence Index = B/A = <u>3.95</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 3/2	100					ORGANIC	
4-8	10YR 2/1	100					VERY FINE SANDY LOAM	
8-12	10YR 4/4	100					FINE SANDY LOAM	
12-18	2.5Y 4/4	97	2.5Y 5/6	3	C	M	FINE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 144493.4	County: Franklin	Date: 07/07/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W002-PSS
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 86	Tract: 11968		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.528626 Long: -72.868481 Datum: NAD83

Soil Map Unit Name: Peru fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Spiraea alba</i>	40	YES	FACW
<i>Salix interior</i>	10	NO	FACW
<i>Viburnum dentatum</i>	10	NO	FAC
<i>Prunus serotina</i>	10	NO	FACU
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	20	YES	FAC
<i>Carex intumescens</i>	15	YES	FACW
<i>Lysimachia terrestris</i>	10	NO	OBL
<i>Euthamia caroliniana</i>	15	YES	FAC
<i>Onoclea sensibilis</i>	10	NO	FACW
Total Cover:		70	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>75</u>	x 2 = <u>150</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>10</u>	x 4 = <u>40</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140 (A)</u>	<u>335 (B)</u>
Prevalence Index = B/A = <u>2.39</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-12	10YR 4/1	35	10YR 6/1 10YR 5/6	60 5	D C	M M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 144573.6	County: Franklin	Date: 07/08/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W002-UPL
Investigators: CM	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 4M	Logbook Pg.: 87	Tract: 11968	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.528686 Long: -72.868194 Datum: NAD83

Soil Map Unit Name: Peru fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Viburnum dentatum</i>	5	YES	FAC
<i>Spiraea alba</i>	5	YES	FACW
<i>Populus grandidentata</i>	5	YES	FACU
Total Cover:		15	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fragaria virginiana</i>	20	YES	FACU
<i>Pteridium aquilinum</i>	80	YES	FACU
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>5</u>	x 3 = <u>15</u>
FACU Species: <u>105</u>	x 4 = <u>420</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>115 (A)</u>	<u>445 (B)</u>
Prevalence Index = B/A = <u>3.87</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					LOAMY COARSE SAND	
3-8	10YR 4/6	100					LOAMY COARSE SAND	
8-16	7.5YR 5/4	100					LOAMY FINE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 144978.6	County: Franklin	Date: 07/08/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W003-PSS
Investigators: CM		Quad Name: Ashfield		Township: Ashfield
Logbook No.: 4M	Logbook Pg.: 92	Tract: 11968		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.528947 Long: -72.866731 Datum: NAD83

Soil Map Unit Name: Peru fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	NO	FACU
<i>Spiraea alba</i>	25	YES	FACW
<i>Viburnum dentatum</i>	20	YES	FAC
Total Cover:		50	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Thelypteris noveboracensis</i>	40	YES	FAC
<i>Fragaria virginiana</i>	10	NO	FACU
<i>Euthamia caroliniana</i>	20	YES	FAC
<i>Solidago gigantea</i>	15	NO	FACW
<i>Onoclea sensibilis</i>	10	NO	FACW
Total Cover:		95	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>50</u>	x 2 = <u>100</u>
FAC Species: <u>80</u>	x 3 = <u>240</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145 (A)</u>	<u>400 (B)</u>
Prevalence Index = B/A = <u>2.76</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-12	10YR 4/1	35	10YR 6/1 10YR 5/6	60 5	D C	M M	LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)			Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input checked="" type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 145018.0	County: Franklin	Date: 07/08/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W003-UPL
Investigators: CM		Quad Name: Ashfield		Township: Ashfield
Logbook No.: 4M	Logbook Pg.: 93	Tract: 11968		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.529013 Long: -72.866599 Datum: NAD83

Soil Map Unit Name: Peru fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	10	YES	FACU
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	10	YES	FACU
<i>Spiraea alba</i>	10	YES	FACW
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		30	

Herb Stratum

Plot Size: 5			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	15	NO	FAC
<i>Rubus allegheniensis</i>	15	NO	FACU
<i>Dennstaedtia punctilobula</i>	60	YES	UPL
Total Cover:		90	

Woody Vine Stratum

Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>10</u>	x 2 = <u>20</u>
FAC Species: <u>25</u>	x 3 = <u>75</u>
FACU Species: <u>35</u>	x 4 = <u>140</u>
UPL Species: <u>60</u>	x 5 = <u>300</u>
Column Totals: <u>130 (A)</u>	<u>535 (B)</u>

Prevalence Index = B/A = 4.12

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					LOAMY COARSE SAND	
3-10	10YR 3/4	80	10YR 3/1	20	C	M	LOAMY COARSE SAND	
10-18	10YR 4/4	100					LOAMY COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED	Milepost: 156046.1	County: Franklin	Date: 07/16/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: AS-M-W014-PEM
Investigators: CM SB	Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 33	Tract: 358	

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.534837 Long: -72.826455 Datum: NAD83

Soil Map Unit Name: Wonsqueak woody peat, 0 to 1 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: BEAVER DAM DOWNSTREAM HAS INUNDATED THE PEM WETLAND UPSTREAM

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
Total Cover:		10	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Prunus serotina</i>	5	YES	FACU
<i>Acer rubrum</i>	10	YES	FAC
<i>Spiraea alba</i>	5	YES	FACW
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex lurida</i>	5	NO	OBL
<i>Carex comosa</i>	35	YES	OBL
<i>Scirpus cyperinus</i>	35	YES	OBL
<i>Euthamia caroliniana</i>	10	NO	FAC
<i>Typha latifolia</i>	15	NO	OBL
Total Cover:		100	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>90</u>	x 1 = <u>90</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>20</u>	x 3 = <u>60</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>130 (A)</u>	<u>220 (B)</u>
Prevalence Index = B/A = <u>1.69</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5YR 2.5/2	100					ORGANIC	
4-8	7.5YR 3/3	95	7.5YR 4/4	5	C	PL	SILT LOAM	
8-12	7.5YR 5/2	70	7.5YR 3/1	30	C	M	COARSE SANDY LOAM	
12-16	10YR 5/3	30	10YR 6/1	70	D	M	LOAMY COARSE SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

BEAVER DAM

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 156197.6	County: Franklin	Date: 07/16/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W014-PSS
Investigators: CM SB	Quad Name: Ashfield		Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 35	Tract: 358		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.534607	Long: -72.825817	Datum: NAD83	
Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks: SURFACE HYDROLOGIC CONNECTION TO SMITH BROOK

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 4</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	5	YES	FACU
<i>Betula populifolia</i>	5	YES	FAC
Total Cover:	10		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex crinita</i>	5	NO	OBL
<i>Spiraea alba</i>	45	YES	FACW
<i>Acer rubrum</i>	10	NO	FAC
<i>Salix interior</i>	35	YES	FACW
Total Cover:		95	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Solidago rugosa</i>	25	YES	FAC
<i>Sium suave</i>	5	NO	OBL
<i>Rubus pubescens</i>	15	YES	FACW
Total Cover:		45	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>95</u>	x 2 = <u>190</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>5</u>	x 4 = <u>20</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>150 (A)</u>	<u>340 (B)</u>

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					ORGANIC	
1-9	2.5YR 6/1	60	10YR 5/8 10YR 4/4	10 30	C D	M M	FINE SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains.						² Location: PL=Pore Lining, M=Matrix		
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)					<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)					<input type="checkbox"/> Red Parent Material (F21)			
<input type="checkbox"/> Stripped Matrix (S6)					<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)					<input type="checkbox"/> Other (Explain in Remarks)			
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown					Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low					Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown			
General Comments:								

PHOTOS



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WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 156174.8	County: Franklin	Date: 07/16/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W014-PFO
Investigators: CM SB		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 32	Tract: 358		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.535002 Long: -72.826003 Datum: NAD83

Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)																															
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<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)																															
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input checked="" type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

RED MAPLE-CONIFER PEAT BOG

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer pensylvanicum</i>	15	NO	FACU
<i>Betula alleghaniensis</i>	30	YES	FAC
<i>Acer rubrum</i>	40	YES	FAC
<i>Tsuga canadensis</i>	20	YES	FACU
Total Cover:	105		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	15	YES	FAC
<i>Acer rubrum</i>	10	NO	FAC
<i>Ilex verticillata</i>	20	YES	FACW
<i>Fraxinus pennsylvanica</i>	15	YES	FACW
<i>Picea glauca</i>	10	NO	FACU
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris intermedia</i>	10	YES	FAC
Total Cover:		10	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>35</u>	x 2 = <u>70</u>
FAC Species: <u>105</u>	x 3 = <u>315</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185 (A)</u>	<u>565 (B)</u>
Prevalence Index = B/A = <u>3.05</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	5YR 3/2	90	10YR 4/6	10	C	PL	ORGANIC	
12-16	7.5YR 5/2	40	7.5YR 7/1	60	D	M	FINE SANDY LOAM	
16-18	10YR 7/3	40	10YR 6/1	60	D	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:
 PEAT BOG

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 156126.3	County: Franklin	Date: 07/16/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W014-UPL
Investigators: CM SB	Quad Name: Ashfield		Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 34	Tract: 358		
Landform (hillslope, terrace, etc.): Hilltop		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 30
Subregion (LRR): Middle Atlantic	Lat: 42.534924	Long: -72.826166	Datum: NAD83	
Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: TOP OF NARROW RIDGE LINE

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	30	YES	FACU
<i>Betula populifolia</i>	70	YES	FAC
Total Cover:	100		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer pensylvanicum</i>	10	YES	FACU
<i>Tsuga canadensis</i>	15	YES	FACU
Total Cover:		25	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>70</u>	x 3 = <u>210</u>
FACU Species: <u>55</u>	x 4 = <u>220</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>125 (A)</u>	<u>430 (B)</u>
Prevalence Index = B/A = <u>3.44</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	2.5YR 3/2	100					ORGANIC	
5-6	7.5YR 6/2	100					LOAM	
6-8	2.5YR 4/6	80	5YR 5/6	20	C	M	LOAM	
8-10	10YR 5/6	60	7.5YR 5/8	40	C	M	SANDY LOAM	Restrictive rock layer at 10"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histic Sol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

YES

10

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 156992.0	County: Franklin	Date: 07/20/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W015-PFO
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 74	Tract: 358		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 3

Subregion (LRR): Middle Atlantic Lat: 42.535318 Long: -72.822998 Datum: NAD83

Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Soil Cracks (B6)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td> </tr> <tr> <td><input type="checkbox"/> Moss Trim Lines (B16)</td> </tr> <tr> <td><input type="checkbox"/> Dry-Season Water Table (C2)</td> </tr> <tr> <td><input type="checkbox"/> Crayfish Burrows (C8)</td> </tr> <tr> <td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td> </tr> <tr> <td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td> </tr> <tr> <td><input type="checkbox"/> Geomorphic Position (D2)</td> </tr> <tr> <td><input type="checkbox"/> Shallow Aquitard (D3)</td> </tr> <tr> <td><input type="checkbox"/> Microtopographic Relief (D4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td> </tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	60	YES	FAC
<i>Tsuga canadensis</i>	30	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Abies balsamea</i>	10	YES	FAC
<i>Quercus rubra</i>	10	YES	FACU
<i>Fagus grandifolia</i>	10	YES	FACU
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Betula alleghaniensis</i>	30	YES	FAC
Total Cover:		70	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rubus idaeus</i>	10	YES	FACU
<i>Parathelypteris noveboracensis</i>	30	YES	FAC
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 44 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>5</u>	x 2 = <u>10</u>
FAC Species: <u>130</u>	x 3 = <u>390</u>
FACU Species: <u>70</u>	x 4 = <u>280</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>205 (A)</u>	<u>680 (B)</u>
Prevalence Index = B/A = <u>3.32</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5Y 2.5/1	100					ORGANIC	
3-8	2.5Y 4/1	70	2.5Y 6/1 2.5Y 4/4	25 5	D C	M PL	LOAM	
8-16	2.5Y 5/1	20	2.5Y 6/2 2.5Y 4/4	70 10	D C	M M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

AC4-VP009 LOCATED IN PFO

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 157076.9	County: Franklin	Date: 07/20/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: AS-M-W015-UPL
Investigators: CM		Quad Name: Ashfield	Township: Ashfield	
Logbook No.: 5M	Logbook Pg.: 76	Tract: 358		
Landform (hillslope, terrace, etc.): Slope - mid		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 3	
Subregion (LRR): Middle Atlantic	Lat: 42.535363	Long: -72.822689	Datum: NAD83	
Soil Map Unit Name: Ashfield fine sandy loam, 3 to 8 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	15	NO	FAC
<i>Prunus serotina</i>	15	NO	FACU
<i>Acer rubrum</i>	30	YES	FAC
<i>Tsuga canadensis</i>	30	YES	FACU
Total Cover:	90		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Fagus grandifolia</i>	20	YES	FACU
<i>Fraxinus americana</i>	10	NO	FACU
<i>Quercus rubra</i>	10	NO	FACU
<i>Acer pensylvanicum</i>	25	YES	FACU
<i>Tsuga canadensis</i>	15	NO	FACU
Total Cover:		80	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Dryopteris campyloptera</i>	5	YES	FACU
<i>Maianthemum canadense</i>	15	YES	FACU
Total Cover:		20	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>45</u>	x 3 = <u>135</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>190 (A)</u>	<u>715 (B)</u>
Prevalence Index = B/A = <u>3.76</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					ORGANIC	
2-4	10YR 3/2	100					SILT LOAM	
4-10	10YR 3/3	100					LOAM	
10-18	10YR 3/3	50	10YR 4/4	50	C	M	SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 11975.3	County: Franklin	Date: 07/25/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CN-M-W001-PFO
Investigators: CM		Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 5M	Logbook Pg.: 132	Tract: 603		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 2
Subregion (LRR): Middle Atlantic		Lat: 42.541079	Long: -72.722197	Datum: NAD83
Soil Map Unit Name: Ninigret very fine sandy loam, 3 to 8 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PFO

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	<u>Secondary Indicators (2 or more required)</u>
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Moss Trim Lines (B16)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):	
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 2	
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)	

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Ulmus americana</i>	40	YES	FACW
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Tsuga canadensis</i>	20	YES	FACU
<i>Betula lenta</i>	10	NO	FACU
<i>Acer saccharum</i>	10	NO	FACU
Total Cover:		90	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Acer rubrum</i>	30	YES	FAC
<i>Berberis thunbergii</i>	10	NO	FACU
<i>Ulmus americana</i>	30	YES	FACW
<i>Lonicera morrowii</i>	10	NO	FACU
<i>Acer saccharum</i>	10	NO	FACU
<i>Tsuga canadensis</i>	10	NO	FACU
Total Cover:		100	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Onoclea sensibilis</i>	10	YES	FACW
<i>Impatiens capensis</i>	5	NO	FACW
<i>Parathelypteris noveboracensis</i>	10	YES	FAC
<i>Dryopteris intermedia</i>	15	YES	FAC
Total Cover:		40	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vitis riparia</i>	10	YES	FAC
Total Cover:		10	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>85</u>	x 2 = <u>170</u>
FAC Species: <u>75</u>	x 3 = <u>225</u>
FACU Species: <u>80</u>	x 4 = <u>320</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>240 (A)</u>	<u>715 (B)</u>
Prevalence Index = B/A = <u>2.98</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	5Y 3/1	95	10YR 6/4	5	C	PL	SILT LOAM	
6-10	5Y 2.5/1	100					SILT LOAM	
10-24	GLE Y1 4/10Y	100					SILT LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



SW

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED	Milepost: 12013.7	County: Franklin	Date: 07/25/2015
Applicant/Owner: Kinder Morgan		State: MA	Sampling Point: CN-M-W001-UPL
Investigators: CM MN	Quad Name: Shelburne Falls	Township: Conway	
Logbook No.: 5M	Logbook Pg.: 133	Tract: 603	

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave Convex None Slope%.: 5

Subregion (LRR): Middle Atlantic Lat: 42.540988 Long: -72.722046 Datum: NAD83

Soil Map Unit Name: Ninigret very fine sandy loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p>Secondary Indicators (2 or more required)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula lenta</i>	10	NO	FACU
<i>Tsuga canadensis</i>	40	YES	FACU
<i>Ulmus americana</i>	15	NO	FACW
<i>Betula populifolia</i>	10	NO	FAC
Total Cover:	75		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lonicera morrowii</i>	10	NO	FACU
<i>Betula alleghaniensis</i>	10	NO	FAC
<i>Tsuga canadensis</i>	30	YES	FACU
Total Cover:		50	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Polystichum acrostichoides</i>	10	YES	FACU
<i>Poa spp.</i>	20	NA	NONE
<i>Dryopteris intermedia</i>	20	YES	FAC
Total Cover:		50	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>40</u>	x 3 = <u>120</u>
FACU Species: <u>100</u>	x 4 = <u>400</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>155 (A)</u>	<u>550 (B)</u>
Prevalence Index = B/A = <u>3.55</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	7.5YR 2.5/1	100					ORGANIC	
1-6	7.5YR 3/2	100					LOAM	
6-12	7.5YR 3/1	70	10YR 5/6	30			SILT LOAM	Rock refusal at 12"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

ROCK

12

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 23061.5	County: Franklin	Date: 07/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CN-M-W003-PSS
Investigators: CM		Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 6M	Logbook Pg.: 19	Tract: 26954		

Landform (hillslope, terrace, etc.): Slope - mid Local Relief: Concave
 Convex
 None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.551054 Long: -72.684342 Datum: NAD83

Soil Map Unit Name: Chatfield-Hollis complex, 15 to 25 percent slopes, rocky NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes
 No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks: Floodplain

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input checked="" type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Microtopographic Relief (D4)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 6</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Acer saccharum</i>	15	YES	FACU
Total Cover:	25		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Kalmia latifolia</i>	10	NO	FACU
<i>Salix interior</i>	15	YES	FACW
<i>Acer saccharum</i>	10	NO	FACU
<i>Tsuga canadensis</i>	15	YES	FACU
<i>Lonicera morrowii</i>	35	YES	FACU
Total Cover:		85	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Equisetum palustre</i>	15	NO	FACW
<i>Typha latifolia</i>	10	NO	OBL
<i>Impatiens capensis</i>	35	YES	FACW
<i>Onoclea sensibilis</i>	25	YES	FACW
Total Cover:		85	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>10</u>	x 1 = <u>10</u>
FACW Species: <u>90</u>	x 2 = <u>180</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>95</u>	x 4 = <u>380</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>195 (A)</u>	<u>570 (B)</u>
Prevalence Index = B/A = <u>2.92</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	7.5YR 4/1	100					FINE SANDY LOAM	
7-10	10YR 5/2	30	10YR 6/1	70	D	M	SANDY LOAM	
10-14	10YR 5/1	20	10YR 6/1 10YR 5/8	65 15	D C	M M	COARSE SANDY LOAM	Cobble at 14", refusal

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low

Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



E

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 23124.8	County: Franklin	Date: 07/28/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: CN-M-W003-UPL
Investigators: CM		Quad Name: Shelburne Falls		Township: Conway
Logbook No.: 6M	Logbook Pg.: 20	Tract: 26954		
Landform (hillslope, terrace, etc.): Floodplain terrace		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 1
Subregion (LRR): Middle Atlantic	Lat: 42.551085	Long: -72.684104	Datum: NAD83	
Soil Map Unit Name: Paxton fine sandy loam, 8 to 15 percent slopes, very stony			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks: Disturbed vegetation due to OHVPL maintenance

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Pinus strobus</i>	50	YES	FACU
Total Cover:		50	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Tsuga canadensis</i>	5	NO	FACU
<i>Acer saccharum</i>	10	NO	FACU
<i>Kalmia latifolia</i>	30	YES	FACU
<i>Lonicera morrowii</i>	25	YES	FACU
<i>Fagus grandifolia</i>	20	YES	FACU
Total Cover:		90	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Parthenocissus quinquefolia</i>	5	YES	FACU
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>145</u>	x 4 = <u>580</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145 (A)</u>	<u>580 (B)</u>
Prevalence Index = B/A = <u>4.00</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5YR 4/3	100					LOAM	
5-15	7.5YR 3/3	60	7.5YR 5/4	40	C	M	SANDY LOAM	
15-18	7.5YR 5/4	70	7.5YR 6/6	30	C	M	COARSE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



S

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 122445.6	County: Franklin	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-M-W002A-PEM
Investigators: CM		Quad Name: Northfield		Township: Northfield
Logbook No.: 6M	Logbook Pg.: 106	Tract: 21118		

Landform (hillslope, terrace, etc.): Depression Local Relief: Concave Convex None Slope%.: 0

Subregion (LRR): Middle Atlantic Lat: 42.658341 Long: -72.424839 Datum: NAD83

Soil Map Unit Name: Woodstock-Millsite-Rock outcrop complex, 8 to 15 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks: ACCESS ROAD BISECTS WETLAND

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input checked="" type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input checked="" type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula alleghaniensis</i>	10	YES	FAC
<i>Larix laricina</i>	2	NO	FACW
<i>Kalmia latifolia</i>	5	NO	FACU
<i>Acer rubrum</i>	2	NO	FAC
<i>Vaccinium corymbosum</i>	10	YES	FACW
Total Cover:		29	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Scirpus cyperinus</i>	5	YES	OBL
<i>Woodwardia virginica</i>	5	YES	OBL
<i>Carex lurida</i>	5	YES	OBL
Total Cover:		15	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>15</u>	x 1 = <u>15</u>
FACW Species: <u>12</u>	x 2 = <u>24</u>
FAC Species: <u>12</u>	x 3 = <u>36</u>
FACU Species: <u>5</u>	x 4 = <u>20</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>44 (A)</u>	<u>95 (B)</u>
Prevalence Index = B/A = <u>2.16</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/2	100					ORGANIC	
7-14	10YR 4/1	30	10YR 6/1 10R 5/8	60 10	D C	M M,PL	VERY FINE SAND	
14-16	2.5Y 4/2	40	2.5Y 5/2 2.5Y 5/6	50 10	D C	M PL	COARSE SANDY LOAM	Refusal at 16"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 16

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

ASSOCIATED WITH NO-AC3-VP001

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 122404.5	County: Franklin	Date: 08/10/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-M-W002A-UPL
Investigators: CM		Quad Name: Northfield		Township: Northfield
Logbook No.: 6M	Logbook Pg.: 107	Tract: 21118		
Landform (hillslope, terrace, etc.): Hilltop		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 10
Subregion (LRR): Middle Atlantic	Lat: 42.658256	Long: -72.424943	Datum: NAD83	
Soil Map Unit Name: Woodstock-Millsite-Rock outcrop complex, 8 to 15 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Marl Deposits (B15)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): 14 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Quercus rubra</i>	10	NO	FACU
<i>Acer rubrum</i>	10	NO	FAC
<i>Tsuga canadensis</i>	40	YES	FACU
Total Cover:	60		

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Kalmia latifolia</i>	5	NO	FACU
<i>Viburnum lantanoides</i>	15	YES	FACU
<i>Tsuga canadensis</i>	10	YES	FACU
<i>Hamamelis virginiana</i>	10	YES	FACU
<i>Betula lenta</i>	5	NO	FACU
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Vaccinium angustifolium</i>	5	YES	FACU
Total Cover:		5	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>100</u>	x 4 = <u>400</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>110 (A)</u>	<u>430 (B)</u>
Prevalence Index = B/A = <u>3.91</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	5YR 3/2	100					ORGANIC	Bedrock refusal at 3"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown YES 3	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:
 DUFF LAYER OVER EXPOSED BEDROCK SHELF

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

DATA PLOT TAKEN ON CENTERLINE
 Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



NE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 122490.2	County: Franklin	Date: 08/26/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: NO-M-W002-PEM
Investigators: CM MN		Quad Name: Northfield		Township: Northfield
Logbook No.: 7M	Logbook Pg.: 59	Tract: 21118		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave <input type="checkbox"/> Convex <input type="checkbox"/> None		Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.658537	Long: -72.424948	Datum: NAD83	
Soil Map Unit Name: Woodstock-Millsite-Rock outcrop complex, 8 to 15 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No
 Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PEM

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 14 (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Larix laricina</i>	5	NO	FACW
<i>Acer rubrum</i>	2	NO	FAC
<i>Vaccinium corymbosum</i>	10	NO	FACW
<i>Kalmia latifolia</i>	15	NO	FACU
<i>Betula alleghaniensis</i>	5	NO	FAC
Total Cover:		37	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>SPAGHNUM SP.</i>	25	YES	OBL
<i>Scirpus cyperinus</i>	10	NO	OBL
<i>Carex lurida</i>	15	NO	OBL
<i>Woodwardia virginica</i>	10	NO	OBL
Total Cover:		60	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>60</u>	x 1 = <u>60</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>7</u>	x 3 = <u>21</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>97 (A)</u>	<u>171 (B)</u>
Prevalence Index = B/A = <u>1.76</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No**

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/2	100					ORGANIC	
7-14	10YR 4/1	30	10YR 5/8 10YR 6/1	10 60	C D	M,PL M	VERY FINE SANDY LOAM	
14-16	2.5Y 4/2	40	2.5Y 5/2 2.5Y 5/6	50 10	D C	M M	COARSE SANDY LOAM	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown
 ROCK
 16

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS

SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 5855.0	County: Middlesex	Date: 08/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W008-PSS
Investigators: PB	Quad Name: Lowell		Township: Dracut	
Logbook No.: 6	Logbook Pg.: 25	Tract: 21267		
Landform (hillslope, terrace, etc.): Depression		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 2
Subregion (LRR): Middle Atlantic	Lat: 42.693321	Long: -71.272507	Datum: NAD83	
Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes			NWI Classification: Not mapped	

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation Soil or Hydrology naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Betula populifolia</i>	15	YES	FAC
<i>Spiraea tomentosa</i>	10	YES	FACW
<i>Rhamnus cathartica</i>	10	YES	FAC
<i>Acer rubrum</i>	10	YES	FAC
Total Cover:		45	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Eutrochium purpureum</i>	5	NO	FAC
<i>Solidago gigantea</i>	5	NO	FACW
<i>Juncus effusus</i>	15	NO	OBL
<i>Equisetum scirpoides</i>	10	NO	FAC
<i>Lythrum salicaria</i>	20	YES	OBL
<i>SOLIDAGO TENUIFOLIA</i>	5	NO	FACW
<i>Eupatorium perfoliatum</i>	5	NO	FACW
<i>Iris versicolor</i>	10	NO	OBL
Total Cover:		75	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>45</u>	x 1 = <u>45</u>
FACW Species: <u>25</u>	x 2 = <u>50</u>
FAC Species: <u>50</u>	x 3 = <u>150</u>
FACU Species: <u>0</u>	x 4 = <u>0</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120 (A)</u>	<u>245 (B)</u>
Prevalence Index = B/A = <u>2.04</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR 3/1	100					SILT	
12-18	GLE Y1 5/N	100					SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L, M)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? Yes No Unknown

Hydric Soil Present? Yes No

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



W

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 5941.0	County: Middlesex	Date: 08/11/2015
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: DR-D-W008-UPL
Investigators: PB	Quad Name: Lowell		Township: Dracut	
Logbook No.: 6	Logbook Pg.: 26	Tract: 21267		

Landform (hillslope, terrace, etc.): Flat Local Relief: Concave Convex None Slope%.: 1

Subregion (LRR): Middle Atlantic Lat: 42.693200 Long: -71.272180 Datum: NAD83

Soil Map Unit Name: Scituate fine sandy loam, 3 to 8 percent slopes NWI Classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year?: Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No
 Hydric Soil Present? Yes No
 Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p style="text-align: center;">Wetland Hydrology Present?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Rhamnus cathartica</i>	25	YES	FAC
<i>Rosa multiflora</i>	10	YES	FACU
Total Cover:		35	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Lythrum salicaria</i>	3	NO	OBL
<i>Asclepias purpurascens</i>	5	NO	FACU
<i>Solidago canadensis</i>	5	NO	FACU
<i>Fragaria virginiana</i>	15	YES	FACU
<i>Vicia americana</i>	15	YES	FACU
<i>Onoclea sensibilis</i>	5	NO	FACW
<i>Euthamia caroliniana</i>	10	NO	FAC
Total Cover:		58	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of: Multiply by:

OBL Species: 3 x 1 = 3

FACW Species: 5 x 2 = 10

FAC Species: 35 x 3 = 105

FACU Species: 50 x 4 = 200

UPL Species: 0 x 5 = 0

Column Totals: 93 (A) 318 (B)

Prevalence Index = B/A = 3.42

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	7.5YR 4/3	100					SILT	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

- Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Project/Site: NED		Milepost: 53694.9	County: Middlesex	Date: 12/08/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WL-P-W003-PSS
Investigators: AF CV		Quad Name: Wilmington	Township: Wilmington	
Logbook No.: 2014P3	Logbook Pg.: 60	Tract: 8628		
Landform (hillslope, terrace, etc.): DEPRESSION		Local Relief: <input checked="" type="checkbox"/> Concave	<input type="checkbox"/> Convex	<input type="checkbox"/> None Slope%.: 0
Subregion (LRR): Middle Atlantic	Lat: 42.590676	Long: -71.152672	Datum: NAD83	
Soil Map Unit Name: Udorthents, loamy		NWI Classification: Not mapped		

Are climatic / hydrologic conditions on the site typical for this time of year?
 Yes
 No (If no, explain in Remarks.)

Are Vegetation
 Soil
 or Hydrology
 significantly disturbed?
 No
 Are "Normal" Circumstances present?
 Yes
 No

Are Vegetation
 Soil
 or Hydrology
 naturally problematic?
 No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Field Wetland Classification: PSS

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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<p>Field Observations:</p> <p>Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 1-6</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): 0 (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
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Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Alnus incana</i>	15	YES	FACW
Total Cover:		15	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Carex stricta</i>	10	NO	OBL
<i>Juncus effusus</i>	30	YES	OBL
<i>Scirpus cyperinus</i>	30	YES	OBL
<i>Carex comosa</i>	10	NO	OBL
<i>Lythrum salicaria</i>	5	NO	OBL
Total Cover:		85	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>85</u>	x 1 = <u>85</u>
FACW Species: <u>15</u>	x 2 = <u>30</u>
FAC Species: <u>0</u>	x 3 = <u>0</u>
FACU Species: <u>15</u>	x 4 = <u>60</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>115 (A)</u>	<u>175 (B)</u>
Prevalence Index = B/A = <u>1.52</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is > 50%

3 - Prevalence Index is ≤ 3.0

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL								
Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 2/1	100					SANDY LOAM	
12-20	10YR 3/3	100					SANDY LOAM	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ² Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.)								
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)			<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)			<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)			<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Dark Surface (S7) (LRR K, L, M)		
<input type="checkbox"/> Stratified Layers (A5)			<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Redox Dark Surface (F6)			<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)		
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Depleted Dark Surface (F7)			<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)						<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
<input type="checkbox"/> Sandy Redox (S5)						<input type="checkbox"/> Red Parent Material (F21)		
<input type="checkbox"/> Stripped Matrix (S6)						<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)						<input type="checkbox"/> Other (Explain in Remarks)		
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown						Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks:								
Description of Habitat Characteristics, Aquatic Diversity or General Comments:								
Wetland Quality: <input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low Isolated Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown								
General Comments:								

PHOTOS



SE

WETLAND DETERMINATION FORM - Northcentral and Northeast Region

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Project/Site: NED		Milepost: 53672.1	County: Middlesex	Date: 12/08/2014
Applicant/Owner: Kinder Morgan			State: MA	Sampling Point: WL-P-W003-UPL
Investigators: AF CV		Quad Name: Wilmington	Township: Wilmington	
Logbook No.: 2014P3	Logbook Pg.: 61	Tract: 8628		
Landform (hillslope, terrace, etc.): HILLSIDE		Local Relief: <input type="checkbox"/> Concave <input checked="" type="checkbox"/> Convex <input type="checkbox"/> None	Slope%.: 10	
Subregion (LRR): Middle Atlantic	Lat: 42.590738	Long: -71.152731	Datum: NAD83	
Soil Map Unit Name: Udorthents, loamy		NW1 Classification: Not mapped		

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation Soil or Hydrology significantly disturbed? No Are "Normal" Circumstances present? Yes No

Are Vegetation Soil or Hydrology naturally problematic? No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Field Wetland Classification: UPLAND PLOT

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Moss Trim Lines (B16)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> Microtopographic Relief (D4)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
--	--

<p>Field Observations:</p> <p>Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches):</p> <p>Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): (includes capillary fringe)</p>	<p>Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
---	--

Remarks (Describe Recorded Data (stream gage, monitoring well, aerial photos, previous inspections), if available):

VEGETATION

Tree Stratum			
Plot Size: 30			
Scientific Name	% Cover	Dominant	Indicator Status
<i>Juniperus virginiana</i>	5	YES	FACU
Total Cover:		5	

Sapling/Shrub Stratum

Plot Size: 15

Scientific Name	% Cover	Dominant	Indicator Status
<i>Elaeagnus angustifolia</i>	20	YES	FACU
Total Cover:		20	

Herb Stratum

Plot Size: 5

Scientific Name	% Cover	Dominant	Indicator Status
<i>Euthamia graminifolia</i>	10	YES	FAC
<i>Schizachyrium scoparium</i>	20	YES	FACU
Total Cover:		30	

Woody Vine Stratum

Plot Size: 30

Scientific Name	% Cover	Dominant	Indicator Status
Total Cover:			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL Species: <u>0</u>	x 1 = <u>0</u>
FACW Species: <u>0</u>	x 2 = <u>0</u>
FAC Species: <u>10</u>	x 3 = <u>30</u>
FACU Species: <u>45</u>	x 4 = <u>180</u>
UPL Species: <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>55 (A)</u>	<u>210 (B)</u>
Prevalence Index = B/A = <u>3.82</u>	

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is > 50%
 - 3 - Prevalence Index is ≤ 3.0
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Profile Description: (Describe the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 4/6	100					LOAM	URBAN FILL

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered Sand or Coated Grains. ²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRR's, unless otherwise noted.) **Indicators for Problematic Hydric Soils³:**

- | | | |
|---|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L, M) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	---

Remarks:

Description of Habitat Characteristics, Aquatic Diversity or General Comments:

Wetland Quality: High Moderate Low Isolated Wetland? Yes No Unknown

General Comments:

PHOTOS



N

APPENDIX 2e-E

Army Corps of Engineers Waterbody Data Sheets and Photographs

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Waterbody Data Form

Feature ID: HA-N-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/13/2015 9:35:53 AM Client/Project Name: NED Milepost: 3713.0

Investigators: N Latitude/Longitude: 42.538731, -73.32854

State: MA County: Berkshire Quad Name: Hancock

Logbook No.: 1 Logbook Pg.: 54 Tract No.: 20930

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 15.0 Water Surface (At Crossing Location)(ft.): 0

Stream Depth (in.): 0

OHWM Indicators: LEAF LITTER DISTURBED
 BENT, MATTED OR MISSING VEGETATION
 SEDIMENT DEPOSITION
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 1
 Right: 1

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 50%
 COBBLES: 25%
 SILTS: 20%
 SANDS: 5%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SE UPSTREAM



NW DOWNSTREAM



BANKS WEST

Waterbody Data Form

Feature ID: HA-N-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/13/2015 11:18:27 AM Client/Project Name: NED Milepost: 4060.8

Investigators: N Latitude/Longitude: 42.538668, -73.32726

State: MA County: Berkshire Quad Name: Hancock

Logbook No.: 1 Logbook Pg.: 56 Tract No.: 20930

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 7.0 Water Surface (At Crossing Location)(ft.): 1.0

Stream Depth (in.): 12-18

OHWM Indicators: LEAF LITTER DISTURBED
SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 1
 Right: 1

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 5%
 SILTS: 45%
 SANDS: 45%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



WEST BANKS



SOUTH UPSTREAM



AECOM
10 Orms Street, Suite 405
Providence, RI 02904



NORTH DOWNSTREAM

Waterbody Data Form

Feature ID: HN-M-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/1/2015 3:26:29 PM Client/Project Name: NED Milepost: 71555.7

Investigators: CM Latitude/Longitude: 42.473509, -73.11017

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 2 Logbook Pg.: 132 Tract No.: 20963

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.0 Water Surface (At Crossing Location)(ft.): 4.0

Stream Depth (in.): 3-6

OHWM Indicators: SHELVING
 BENT, MATTED OR MISSING VEGETATION
 CLEAR NATURAL LINE ON BANK

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 3
 Right: 3

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SANDS: 70%
 COBBLES: 30%

Aquatic Habitats:

- Sand Bar Gravel Riffles In-stream Emergent Plants
- Gravel Bar Deep Pools In-stream Submerged Plants
- Mud Bar Bank Root Systems Fringing Wetlands¹
- Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



NW



AECOM
10 Orms Street, Suite 405
Providence, RI 02904



SE

Waterbody Data Form

Feature ID: HN-M-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/3/2015 10:03:12 AM Client/Project Name: NED Milepost: 71865.3

Investigators: CM Latitude/Longitude: 42.473008, -73.10924

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 2 Logbook Pg.: 142 Tract No.: 20963

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.0 Water Surface (At Crossing Location)(ft.): 1.0

Stream Depth (in.): 3-6

OHWM Indicators: SEDIMENT SORTING
 BENT, MATTED OR MISSING VEGETATION
 WRACK LINE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 0
 Right: 0

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SANDS: 75%
 MUCK: 25%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FISH (JUVENILE)

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



NE



AECOM
10 Orms Street, Suite 405
Providence, RI 02904



NW

Waterbody Data Form

Feature ID: HN-M-S003

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/9/2015 10:55:39 AM Client/Project Name: NED Milepost: 77697.7

Investigators: CM Latitude/Longitude: 42.469392, -73.09079

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 3 Logbook Pg.: 52 Tract No.: 20984

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.5 Water Surface (At Crossing Location)(ft.): 1.0

Stream Depth (in.): 1-3

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 LEAF LITTER DISTURBED

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 2
 Right: 2

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SANDS: 90%
 SILTS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed:

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SE



E



AECOM
10 Orms Street, Suite 405
Providence, RI 02904



NW

Waterbody Data Form

Feature ID: HN-M-S004

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/10/2015 11:02:37 AM Client/Project Name: NED Milepost: 79364.3

Investigators: CM Latitude/Longitude: 42.470386, -73.08478

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 3 Logbook Pg.: 60 Tract No.: 20984

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 30.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 50.0 Water Surface (At Crossing Location)(ft.): 25.0

Stream Depth (in.): 12-18

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 SEDIMENT SORTING
 BENT, MATTED OR MISSING VEGETATION
 WRACK LINE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 90
 Right: 90

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 90%
 SANDS: 5%
 GRAVEL: 5%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FISH (JUVENILE), FISH (ADULT), INVERTEBRATES

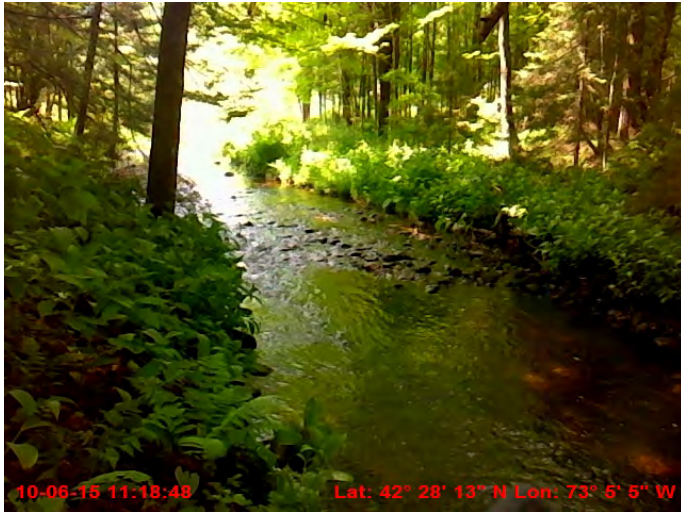
Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SOUTH



NORTH



BANKS

Waterbody Data Form

Feature ID: HN-M-S004A

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/10/2015 11:23:24 AM Client/Project Name: NED Milepost: 79386.7

Investigators: CM Latitude/Longitude: 42.470361, -73.08469

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 3 Logbook Pg.: 62 Tract No.: 20984

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 7.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 1-3

OHWM Indicators: SEDIMENT SORTING
 WRACK LINE
 BENT, MATTED OR MISSING VEGETATION
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 80
 Right: 80

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 5%
 SILTS: 15%
 SANDS: 80%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos

BANKS



NORTH



SOUTH

Waterbody Data Form

Feature ID: HN-N-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/11/2015 12:11:59 PM Client/Project Name: NED Milepost: 81751.3

Investigators: CM Latitude/Longitude: 42.472544, -73.07643

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 1 Logbook Pg.: 36 Tract No.: 20984

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 15.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 20.0 Water Surface (At Crossing Location)(ft.): 15.0

Stream Depth (in.): 12-18

OHWM Indicators: SEDIMENT DEPOSITION
 LEAF LITTER DISTURBED
 CLEAR NATURAL LINE ON BANK

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 2
 Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 45%
 GRAVEL: 10%
 SANDS: 40%
 SILTS: 5%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FISH (ADULT), FISH (ADULT)

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NW UPSTREAM



SW DOWNSTREAM



BANKS W

Waterbody Data Form

Feature ID: HN-N-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/11/2015 1:45:44 PM Client/Project Name: NED Milepost: 82502.2

Investigators: JM Latitude/Longitude: 42.473103, -73.07375

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 1 Logbook Pg.: 42 Tract No.: 20984

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 7.0 Water Surface (At Crossing Location)(ft.): 1.0

Stream Depth (in.): 1-3

OHWM Indicators: LITTER AND DEBRIS
 SOIL CHARACTER CHANGES

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 45
 (looking downstream) Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other: NOT RECORDED

Stream Substrate %: SILTS: 80%
 GRAVEL: 10%
 SANDS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



N



S



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E

Waterbody Data Form

Feature ID: WR-M-S005

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 5/26/2015 10:34:19 AM Client/Project Name: NED Milepost: 93605.5

Investigators: CM Latitude/Longitude: 42.481327, -73.03408

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 2 Logbook Pg.: 80 Tract No.: 1316

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 7.0 Water Surface (At Crossing Location)(ft.): 1.0

Stream Depth (in.): 3-5

OHWM Indicators: WRACK LINE
 BENT, MATTED OR MISSING VEGETATION
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 45
 Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SANDS: 10%
 COBBLES: 90%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FISH (ADULT), INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

sensitive habitat

Stream Quality: High Moderate Low

Comments:

Photos



E



N



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W

Waterbody Data Form

Feature ID: WR-M-S009

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/15/2015 12:29:13 PM Client/Project Name: NED Milepost: 99884.0

Investigators: CM Latitude/Longitude: 42.493491, -73.02147

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 3M Logbook Pg.: 100 Tract No.: 1015

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 7.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 10.0 Water Surface (At Crossing Location)(ft.): 7.0

Stream Depth (in.): 24-36

OHWM Indicators: WRACK LINE
 SCOUR
 BENT, MATTED OR MISSING VEGETATION
 LITTER AND DEBRIS

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 60
 (looking downstream) Right: 50

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: COBBLES: 50%
 SANDS: 20%
 SILTS: 10%
 GRAVEL: 20%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FISH (JUVENILE), INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

OBSERVED AFTER 2" OF RAIN

Stream Quality: High Moderate Low

Comments:

Photos



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SE



NW

Waterbody Data Form

Feature ID: WR-M-S016

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/18/2015 9:35:11 AM Client/Project Name: NED Milepost: 101032.0

Investigators: CM MN Latitude/Longitude: 42.495415, -73.01894

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 5M Logbook Pg.: 44 Tract No.: 1014

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 5.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 3.0

Stream Depth (in.): 3-6

OHWM Indicators:
 SCOUR
 CLEAR NATURAL LINE ON BANK
 LITTER AND DEBRIS
 WRACK LINE
 SEDIMENT DEPOSITION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 2
 Right: 30

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 10%
 COBBLES: 10%
 BEDROCK: 50%
 SILTS: 10%
 SANDS: 20%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SE



S



NW

Waterbody Data Form

Feature ID: WR-M-S018

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/19/2015 2:11:07 PM Client/Project Name: NED Milepost: 101378.2

Investigators: CM Latitude/Longitude: 42.495600, -73.01766

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 5M Logbook Pg.: 62 Tract No.: 1014

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 6.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 10.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 1-3

OHWM Indicators: BENT, MATTED OR MISSING VEGETATION
 SEDIMENT SORTING
 LEAF LITTER DISTURBED
 SEDIMENT DEPOSITION
 LITTER AND DEBRIS
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 45
 Right: 30

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 10%
 COBBLES: 30%
 SANDS: 60%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: SALAMANDER, INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



S



NW



SE

Waterbody Data Form

Feature ID: WR-M-S019

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/19/2015 1:02:46 PM Client/Project Name: NED Milepost: 101429.0

Investigators: CM Latitude/Longitude: 42.495803, -73.01753

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 5M Logbook Pg.: 64 Tract No.: 1014

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 15.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 21.0 Water Surface (At Crossing Location)(ft.): 5.0

Stream Depth (in.): 3-6

OHWM Indicators:
 LITTER AND DEBRIS
 WRACK LINE
 SEDIMENT SORTING
 CLEAR NATURAL LINE ON BANK
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 15
 Right: 15

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 80%
 GRAVEL: 10%
 SANDS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments: STEEP GRADIENT

Photos



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NW



SE

Waterbody Data Form

Feature ID: WR-M-S017B

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/18/2015 2:33:13 PM Client/Project Name: NED Milepost: 101592.3

Investigators: CM MN Latitude/Longitude: 42.496010, -73.01692

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 5M Logbook Pg.: 52 Tract No.: 1014

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 6.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 8.0 Water Surface (At Crossing Location)(ft.): 5.0

Stream Depth (in.): 1-3

OHWM Indicators:
 WRACK LINE
 SEDIMENT SORTING
 SCOUR
 CLEAR NATURAL LINE ON BANK

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 35
 Right: 25

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 50%
 SANDS: 30%
 GRAVEL: 20%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FROGS, BEAVER

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NW



SE



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Waterbody Data Form

Feature ID: WR-M-S017C

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/18/2015 3:17:46 PM Client/Project Name: NED Milepost: 101585.0

Investigators: CM Latitude/Longitude: 42.496231, -73.01695

State: MA County: Berkshire Quad Name: Peru

Logbook No.: 5M Logbook Pg.: 54 Tract No.: 1014

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 1.5

Stream Depth (in.): 1-3

OHWM Indicators: SCOUR
LITTER AND DEBRIS

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 60
 Right: 75

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 60%
 BEDROCK: 20%
 GRAVEL: 20%

Aquatic Habitats:

- Sand Bar Gravel Riffles In-stream Emergent Plants
- Gravel Bar Deep Pools In-stream Submerged Plants
- Mud Bar Bank Root Systems Fringing Wetlands¹
- Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



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NE

Waterbody Data Form

Feature ID: WR-M-S015

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/20/2015 9:40:32 AM Client/Project Name: NED Milepost: 109200.4

Investigators: CM Latitude/Longitude: 42.502654, -72.99080

State: MA County: Berkshire Quad Name: Plainfield

Logbook No.: 4M Logbook Pg.: 28 Tract No.: 1003

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 1-3

OHWM Indicators: LEAF LITTER DISTURBED

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 3
 (looking downstream) Right: 3

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SANDS: 50%
 SILTS: 40%
 COBBLES: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NE



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SW

Waterbody Data Form

Feature ID: PL-E-S003

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/27/2015 11:43:02 AM Client/Project Name: NED Milepost: 133581.7

Investigators: SW Latitude/Longitude: 42.524216, -72.90854

State: MA County: Hampshire Quad Name: Plainfield

Logbook No.: 1E Logbook Pg.: 62 Tract No.: 891

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 2.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 3.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 3-6

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 90
 (looking downstream) Right: 65

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 10%
 SANDS: 30%
 COBBLES: 10%
 MUCK: 50%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



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NE

Waterbody Data Form

Feature ID: PL-E-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/26/2015 3:46:59 PM Client/Project Name: NED Milepost: 134831.9

Investigators: SE Latitude/Longitude: 42.524407, -72.90387

State: MA County: Hampshire Quad Name: Plainfield

Logbook No.: 1E Logbook Pg.: 58 Tract No.: 919

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 12.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 14.0 Water Surface (At Crossing Location)(ft.): 8.0

Stream Depth (in.): 6-12

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 LITTER AND DEBRIS
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 50
 Right: 50

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 15%
 SANDS: 15%
 COBBLES: 30%
 MUCK: 40%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, FISH (JUVENILE), INVERTEBRATES, FISH (ADULT)

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



S



N



W

Waterbody Data Form

Feature ID: PL-E-S001A

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 6/26/2015 3:05:47 PM Client/Project Name: NED Milepost: 135256.6

Investigators: SE Latitude/Longitude: 42.524528, -72.90230

State: MA County: Hampshire Quad Name: Plainfield

Logbook No.: 1E Logbook Pg.: 58 Tract No.: 919

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 8.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 3.0

Stream Depth (in.): 6-12

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 80
 (looking downstream) Right: 50

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: GRAVEL: 10%
 MUCK: 60%
 COBBLES: 20%
 SANDS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: SALAMANDER, FROGS, INVERTEBRATES, FISH (JUVENILE)

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



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N

Waterbody Data Form

Feature ID: PL-M-S003

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/3/2015 4:04:06 PM Client/Project Name: NED Milepost: 141763.6

Investigators: CM Latitude/Longitude: 42.527703, -72.87854

State: MA County: Hampshire Quad Name: Plainfield

Logbook No.: 4 Logbook Pg.: 64 Tract No.: 898

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.5 Water Surface (At Crossing Location)(ft.): 4.0

Stream Depth (in.): 3-6

OHWM Indicators: WRACK LINE
 ABRUPT PLANT COMMUNITY CHANGE
 SCOUR
 SEDIMENT SORTING

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 2
 Right: 2

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SILTS: 50%
 SANDS: 50%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NW



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SE

Waterbody Data Form

Feature ID: PL-M-S004

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/4/2015 9:49:49 AM Client/Project Name: NED Milepost: 142422.7

Investigators: CM Latitude/Longitude: 42.528262, -72.87620

State: MA County: Hampshire Quad Name: Plainfield

Logbook No.: 4 Logbook Pg.: 68 Tract No.: 898

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 15.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 16.0 Water Surface (At Crossing Location)(ft.): 12.0

Stream Depth (in.): 1-3

OHWM Indicators: LITTER AND DEBRIS
 BENT, MATTED OR MISSING VEGETATION
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 5
 Right: 5

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SILTS: 20%
 SANDS: 50%
 COBBLES: 30%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



BANKS - NORTH



DOWNSTREAM - EAST



AECOM
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UPSTREAM- WEST

Waterbody Data Form

Feature ID: AS-M-S001

BILLINGS BROOK

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/6/2015 6:14:56 PM Client/Project Name: NED Milepost: 143304.6

Investigators: CM Latitude/Longitude: 42.528495, -72.87293

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 4M Logbook Pg.: 74 Tract No.: 339

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 25.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 27.0 Water Surface (At Crossing Location)(ft.): 25.0

Stream Depth (in.): 60+

OHWM Indicators: SCOUR
 SHELVING
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 80
 (looking downstream) Right: 80

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SILTS: 30%
 MUCK: 70%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FISH (JUVENILE), TURTLES, INVERTEBRATES, FISH (ADULT), BEAVER, WATERFOWL, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

VERNAL POOL ADJACENT TO BANK

Stream Quality: High Moderate Low

Comments: PLOT TAKEN ON BEAVER DAM LOCATED AT CENTERLINE. OHWM WAS FLAGGED AT MAIN CHANNEL WITHIN A DEEP MARSH; INUNDATION EXTENDS PAST FLAGGED BANKS.

Photos



NE



S



AECOM
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NW

Waterbody Data Form

Feature ID: AS-M-S002

SWIFT CREEK

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/6/2015 4:33:58 PM Client/Project Name: NED Milepost: 143837.6

Investigators: CM Latitude/Longitude: 42.528620, -72.87095

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 4 Logbook Pg.: 72 Tract No.: 339

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 10.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 20.0 Water Surface (At Crossing Location)(ft.): 8.0

Stream Depth (in.): 18-24

OHWM Indicators: WRACK LINE
 CLEAR NATURAL LINE ON BANK
 ABRUPT PLANT COMMUNITY CHANGE
 BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+

(looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 80

(looking downstream) Right: 40

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SILTS: 10%
 SANDS: 70%
 COBBLES: 20%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FISH (JUVENILE), TURTLES, INVERTEBRATES, FISH (ADULT), FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



E



SW



NE

Waterbody Data Form

Feature ID: AS-M-S003

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/8/2015 11:24:05 AM Client/Project Name: NED Milepost: 145268.1

Investigators: CM Latitude/Longitude: 42.529423, -72.86575

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 4M Logbook Pg.: 94 Tract No.: 11968

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 15.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 18.0 Water Surface (At Crossing Location)(ft.): 5.0

Stream Depth (in.): 3-6

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 LEAF LITTER DISTURBED
 SCOUR
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 30
 Right: 20

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SILTS: 10%
 COBBLES: 80%
 SANDS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, BEAR, INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NE



E



SW

Waterbody Data Form

Feature ID: AS-M-S004
 FORD POND

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/9/2015 9:33:07 AM Client/Project Name: NED Milepost: 148047.2

Investigators: CM Latitude/Longitude: 42.530817, -72.85562

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 4M Logbook Pg.: 104 Tract No.: 26881

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 420.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 420.0 Water Surface (At Crossing Location)(ft.): 420.0

Stream Depth (in.): 60+

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 CLEAR NATURAL LINE ON BANK

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 10
 (looking downstream) Right: 1

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 100%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, FISH (JUVENILE), WATERFOWL, SALAMANDER, FISH (ADULT), INVERTEBRATES, TURTLES, SNAKES, BEAVER

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments: MANMADE POND

Photos



N



E



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S

Waterbody Data Form

Feature ID: AS-M-S006

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/13/2015 11:17:28 AM Client/Project Name: NED Milepost: 153259.6

Investigators: CM MN Latitude/Longitude: 42.533507, -72.83662

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 4M Logbook Pg.: 144 Tract No.: 344

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 1-3

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 LEAF LITTER DISTURBED

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 30
 Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 10%
 COBBLES: 40%
 SANDS: 50%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, SALAMANDER

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



N



S



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E

Waterbody Data Form

Feature ID: AS-M-S007

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/13/2015 1:08:57 PM Client/Project Name: NED Milepost: 153676.2

Investigators: CM MN Latitude/Longitude: 42.533928, -72.83516

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 5M Logbook Pg.: 10 Tract No.: 344

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 5.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 15.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 1-3

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 CLEAR NATURAL LINE ON BANK

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 5
 Right: 5

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 100%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, SALAMANDER, FISH (ADULT), FISH (JUVENILE), FROGS, BEAVER

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



N



E



S

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Waterbody Data Form

Feature ID: AS-M-S008

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/14/2015 10:08:09 AM Client/Project Name: NED Milepost: 154226.2

Investigators: CM MN Latitude/Longitude: 42.534025, -72.83311

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 5M Logbook Pg.: 14 Tract No.: 341

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 5.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 12.0 Water Surface (At Crossing Location)(ft.): 4.0

Stream Depth (in.): 3-6

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 LEAF LITTER DISTURBED

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 50
 (looking downstream) Right: 10

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SILTS: 25%
 SANDS: 25%
 COBBLES: 10%
 GRAVEL: 40%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, SALAMANDER, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



N



NW



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SE

Waterbody Data Form

Feature ID: **AS-M-S009B**
SMITH BROOK

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/15/2015 3:26:58 PM Client/Project Name: NED Milepost: 155992.4

Investigators: CM SB MN Latitude/Longitude: 42.535252, -72.82675

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 5M Logbook Pg.: 28 Tract No.: 358

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other: IMPOUNDED BEAVER POND WITH ENGINEERING CONTROLS

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 60.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 75.0 **Water Surface (At Crossing Location)(ft.):** 60.0

Stream Depth (in.): 60+

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 15
 Right: 25

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 15%
 GRAVEL: 60%
 SILTS: 25%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FISH (ADULT), TURTLES, FROGS, BEAVER, SNAKES, SALAMANDER, WATERFOWL, FISH (JUVENILE)

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

BEAVER DAM IMPOUNDED STREAM WITH ACTIVE ENGINEERING CONTROLS IN PLACE. POND FLOWS OUT THROUGH A CULVERT IN A BEAVER DAM CONNECTED TO A CAGED DRAIN IN THE POND. SHORELINE FLAGGED BASED ON OBSERVED INUNDATION & PRESENCE OF SUBMERGED VEGETATION

Stream Quality: High Moderate Low

Comments: STREAM FLOWS INTO ASHFIELD RESERVOIR (PUBLIC DRINKING WATER SUPPLY FOR TOWN OF ASHFIELD)

Photos



SOUTH



EAST



NORTH EAST

Waterbody Data Form

Feature ID: **AS-M-S009A**
Smith Brook

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/15/2015 3:51:31 PM Client/Project Name: NED Milepost: 156009.7

Investigators: CM Latitude/Longitude: 42.534864, -72.82659

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 5M Logbook Pg.: 26 Tract No.: 358

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 7.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 8.0 Water Surface (At Crossing Location)(ft.): 7.0

Stream Depth (in.): 48-60

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 SHELVING

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 1
 Right: 1

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SILTS: 100%

Aquatic Habitats:

- Sand Bar Gravel Riffles In-stream Emergent Plants
- Gravel Bar Deep Pools In-stream Submerged Plants
- Mud Bar Bank Root Systems Fringing Wetlands¹
- Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, TURTLES, FISH (ADULT), BEAVER, SNAKES, FROGS, WATERFOWL, FISH (JUVENILE), SALAMANDER

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments: STREAM FLOWS INTO ASHFIELD RESERVOIR (PUBLIC DRINKING WATER SUPPLY FOR TOWN OF ASHFIELD)

Photos



SE



NORTH



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E

Waterbody Data Form

Feature ID: AS-M-S010

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/21/2015 2:59:16 PM Client/Project Name: NED Milepost: 157800.7

Investigators: CM Latitude/Longitude: 42.535747, -72.82005

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 5M Logbook Pg.: 86 Tract No.: 316

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 2.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.0 Water Surface (At Crossing Location)(ft.): 0.5

Stream Depth (in.): 1-3

OHWM Indicators: LEAF LITTER DISTURBED
 LITTER AND DEBRIS
 SCOUR
 SEDIMENT DEPOSITION

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 5
 (looking downstream) Right: 15

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 10%
 SANDS: 70%
 GRAVEL: 10%
 SILTS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



E



NE

Waterbody Data Form

Feature ID: AS-M-S011

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/22/2015 11:49:37 AM Client/Project Name: NED Milepost: 167658.3

Investigators: CM Latitude/Longitude: 42.538876, -72.78390

State: MA County: Franklin Quad Name: Ashfield

Logbook No.: 5M Logbook Pg.: 120 Tract No.: 11973

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 2.5

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.0 Water Surface (At Crossing Location)(ft.): 1.5

Stream Depth (in.): 3-6

OHWM Indicators: SCOUR
 BENT, MATTED OR MISSING VEGETATION
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 50
 Right: 40

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SANDS: 50%
 SILTS: 30%
 COBBLES: 20%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, SALAMANDER

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



NE



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SE

Waterbody Data Form

Feature ID: CN-M-S005

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/27/2015 11:31:55 AM Client/Project Name: NED Milepost: 22127.6

Investigators: CM Latitude/Longitude: 42.549960, -72.68747

State: MA County: Franklin Quad Name: Shelburne Falls

Logbook No.: 6M Logbook Pg.: 12 Tract No.: 26954

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.5

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.0 Water Surface (At Crossing Location)(ft.): 3.0

Stream Depth (in.): 3-6

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 LEAF LITTER DISTURBED
 BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 20
 Right: 10

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 50%
 SANDS: 25%
 SILTS: 10%
 COBBLES: 15%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SE



NE



SW

Waterbody Data Form

Feature ID: CN-M-S003

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/26/2015 11:05:28 AM Client/Project Name: NED Milepost: 24285.7

Investigators: CM Latitude/Longitude: 42.552298, -72.68012

State: MA County: Franklin Quad Name: Shelburne Falls

Logbook No.: 5M Logbook Pg.: 140 Tract No.: 26954

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 7.0 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: SEDIMENT SORTING
 SCOUR
 BENT, MATTED OR MISSING VEGETATION
 LITTER AND DEBRIS

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 5
 (looking downstream) Right: 25

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 GRAVEL: 10%
 SANDS: 20%
 COBBLES: 60%
 SILTS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



W



SE

Waterbody Data Form

Feature ID: CN-M-S004

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/26/2015 11:25:02 AM Client/Project Name: NED Milepost: 24339.0

Investigators: CM Latitude/Longitude: 42.552153, -72.67982

State: MA County: Franklin Quad Name: Shelburne Falls

Logbook No.: 5M Logbook Pg.: 142 Tract No.: 26954

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 10.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 13.5 Water Surface (At Crossing Location)(ft.): 2.5

Stream Depth (in.): 3-6

OHWM Indicators:
 WRACK LINE
 SEDIMENT SORTING
 SCOUR
 BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 30
 Right: 55

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 25%
 GRAVEL: 25%
 SILTS: 25%
 SANDS: 25%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FISH (ADULT), FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



S



SW



NE

Waterbody Data Form

Feature ID: MO-M-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/30/2015 12:46:53 PM Client/Project Name: NED Milepost: 83123.0

Investigators: CM Latitude/Longitude: 42.575754, -72.48650

State: MA County: Franklin Quad Name: Millers Falls

Logbook No.: 6M Logbook Pg.: 38 Tract No.: 866

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: WRACK LINE
 LEAF LITTER DISTURBED
 SEDIMENT SORTING
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 45
 Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SANDS: 10%
 GRAVEL: 10%
 COBBLES: 80%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



N



E



S

Waterbody Data Form

Feature ID: MO-M-S002A

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/30/2015 12:41:59 PM Client/Project Name: NED Milepost: 83148.8

Investigators: CM Latitude/Longitude: 42.575662, -72.48624

State: MA County: Franklin Quad Name: Millers Falls

Logbook No.: 6M Logbook Pg.: 40 Tract No.: 866

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.0 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: SEDIMENT SORTING
 CLEAR NATURAL LINE ON BANK
 SCOUR

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 30
 (looking downstream) Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: COBBLES: 60%
 GRAVEL: 10%
 SANDS: 30%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: SNAKES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



E



N



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NW

Waterbody Data Form

Feature ID: ER-M-S001

MILLERS RIVER

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 5/19/2015 12:08:28 AM Client/Project Name: NED Milepost: 84982.2

Investigators: CM SH Latitude/Longitude: 42.579237, -72.48145

State: MA County: Franklin Quad Name: Millers Falls

Logbook No.: 2 Logbook Pg.: 44 Tract No.: 9154

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 140.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 142.0 Water Surface (At Crossing Location)(ft.): 130.0

Stream Depth (in.): 18-24

OHWM Indicators: BENT, MATTED OR MISSING VEGETATION
 WRACK LINE
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 55
 Right: 55

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: COBBLES: 100%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FISH (ADULT)

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

TROUT HABITAT

Stream Quality: High Moderate Low

Comments:

Photos



UPSTREAM - E



B TO B - S



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DOWNSTREAM - W

Waterbody Data Form

Feature ID: ER-M-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/31/2015 12:34:40 PM Client/Project Name: NED Milepost: 86743.6

Investigators: CM MN Latitude/Longitude: 42.582601, -72.47675

State: MA County: Franklin Quad Name: Millers Falls

Logbook No.: 6M Logbook Pg.: 48 Tract No.: 8453

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.0 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: SEDIMENT DEPOSITION
 WRACK LINE
 LEAF LITTER DISTURBED
 SCOUR

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 10
 Right: 20

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 70%
 SANDS: 10%
 GRAVEL: 20%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments: EPHEMERAL SECTION OF STREAM LOCATED UPSTREAM OF PLOT POINT

Photos



SW



N



S

Waterbody Data Form

Feature ID: NO-L-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 5/28/2015 2:44:35 PM Client/Project Name: NED Milepost: 125310.8

Investigators: BH AK Latitude/Longitude: 42.664918, -72.41900

State: MA County: Franklin Quad Name: Northfield

Logbook No.: 2 Logbook Pg.: 128 Tract No.: 21115

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 5.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 1-3

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 30
 Right: 2

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 100%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, SALAMANDER, INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NW DOWNSTREAM



NE BANK TO BANK



SE UPSTREAM

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Waterbody Data Form

Feature ID: NO-G-S002

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Date: 5/29/2015 8:23:07 AM Client/Project Name: NED Milepost: 125876.7

Investigators: NF CM Latitude/Longitude: 42.666358, -72.41815

State: MA County: Franklin Quad Name: Northfield

Logbook No.: 2015-3 Logbook Pg.: 108 Tract No.: 21115

Waterbody Type:
 Stream
 Pond
 Lake
 Borrow Pit
 Ag Ditch
 Other:

Stream Flow:
 Fast
 Moderate
 Slow
 Very Slow
 None

Flow Type:
 Perennial (Flows year round)
 Intermittent (Flows <3 months)
 None
 Seasonal (Continuous flow >3 months)
 Ephemeral (Flows only in response to rainfall)

Direction of Flow:
 N
 NE
 E
 SE
 SW
 W
 NW
 S
 No Flow

OHWM Width (ft.): 3.0

Sinuosity:
 Braided
 Meandering
 Straight
 N/A

Stream Width (ft.): 3.5 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.):

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 20
 Right: 20

Qualitative Attributes

Water Appearance:
 Clear
 Turbid
 Sheen on Surface
 Floating Algal Mats
 No Flow
 Slightly Turbid
 Very Turbid
 Greenish Color
 Obvious Surface Scum
 Other:

Stream Substrate %:
 GRAVEL: 30%
 COBBLES: 40%
 SANDS: 30%

Aquatic Habitats:

Sand Bar
 Gravel Riffles
 In-stream Emergent Plants
 Gravel Bar
 Deep Pools
 In-stream Submerged Plants
 Mud Bar
 Bank Root Systems
 Fringing Wetlands!
 Undercut Banks
 Overhanging Trees/Shrubs
 None

Aquatic Organisms Observed: SALAMANDER, INVERTEBRATES, FROGS

Channel Condition:
 Channelization/Braiding
 Unnatural Straightening
 Downcutting
 Dikes/Berms
 Excessive Bank Erosion
 N/A
 Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality:
 High
 Moderate
 Low

Comments:

Photos



SW



SE



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NW

Waterbody Data Form

Feature ID: DR-E-S006

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/9/2015 12:39:58 PM Client/Project Name: NED Milepost: 8971.6

Investigators: SE JW Latitude/Longitude: 42.686509, -71.26548

State: MA County: Middlesex Quad Name: Lowell

Logbook No.: 2015-1 Logbook Pg.: 74 Tract No.: 5357

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 5.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 4.0

Stream Depth (in.): 3-6

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 SOIL CHARACTER CHANGES
 WRESTED VEGETATION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 30
 Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 60%
 COBBLES: 40%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NE



NW



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SE

Waterbody Data Form

Feature ID: DR-E-S006A

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/9/2015 12:16:10 PM Client/Project Name: NED Milepost: 8993.4

Investigators: SE JW Latitude/Longitude: 42.686434, -71.26549

State: MA County: Middlesex Quad Name: Lowell

Logbook No.: 2015-1 Logbook Pg.: 74 Tract No.: 5357

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.0 Water Surface (At Crossing Location)(ft.): 2.0

Stream Depth (in.): 3-6

OHWM Indicators: WRESTED VEGETATION
 ABRUPT PLANT COMMUNITY CHANGE
 SOIL CHARACTER CHANGES

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 90
 Right: 60

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 60%
 COBBLES: 40%

Aquatic Habitats:

- Sand Bar Gravel Riffles In-stream Emergent Plants
- Gravel Bar Deep Pools In-stream Submerged Plants
- Mud Bar Bank Root Systems Fringing Wetlands¹
- Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SE



NE



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NW

Waterbody Data Form

Feature ID: AN-K-S001A

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/29/2015 9:22:08 AM Client/Project Name: NED Milepost: 22645.9

Investigators: CG JW Latitude/Longitude: 42.645147, -71.22807

State: MA County: Essex Quad Name: Lawrence

Logbook No.: 2015-1 Logbook Pg.: 34 Tract No.: 9040

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 2.5

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.0 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: BENT, MATTED OR MISSING VEGETATION
 SOIL CHARACTER CHANGES

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 25
 (looking downstream) Right: 20

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SILTS: 20%
 COBBLES: 10%
 SANDS: 60%
 GRAVEL: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



NE



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SE

Waterbody Data Form

Feature ID: TK-K-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/30/2015 12:10:03 PM Client/Project Name: NED Milepost: 24628.7

Investigators: CG JW Latitude/Longitude: 42.641415, -71.22327

State: MA County: Essex Quad Name: Lawrence

Logbook No.: 2015-1 Logbook Pg.: 56 Tract No.: 4314

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.5 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 10
 Right: 10

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SANDS: 10%
 SILTS: 20%
 MUCK: 70%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NE



NW



AECOM
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SW

Waterbody Data Form

Feature ID: TK-K-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/31/2015 12:23:54 PM Client/Project Name: NED Milepost: 30542.6

Investigators: CG JW Latitude/Longitude: 42.632946, -71.20590

State: MA County: Middlesex Quad Name: Lawrence

Logbook No.: 2015-1 Logbook Pg.: 63 Tract No.: 7845

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 7.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 8.0 Water Surface (At Crossing Location)(ft.): 5.0

Stream Depth (in.): 1-3

OHWM Indicators: BENT, MATTED OR MISSING VEGETATION
 SOIL CHARACTER CHANGES
 SEDIMENT DEPOSITION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 70
 Right: 60

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SANDS: 65%
 MUCK: 30%
 SILTS: 5%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



SE



AECOM
10 Orms Street, Suite 405
Providence, RI 02904



EAST

Waterbody Data Form

Feature ID: TK-K-S003

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 8/4/2015 10:46:24 AM Client/Project Name: NED Milepost: 39640.5

Investigators: PF JW Latitude/Longitude: 42.619499, -71.17997

State: MA County: Middlesex Quad Name: Wilmington

Logbook No.: 2015-1 Logbook Pg.: 118 Tract No.: 7428

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 3.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 4.0 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: SOIL CHARACTER CHANGES
 ABRUPT PLANT COMMUNITY CHANGE

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 10
 Right: 10

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 10%
 SANDS: 90%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



NW



AECOM
10 Orms Street, Suite 405
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NE

Waterbody Data Form

Feature ID: TK-K-S004A

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 8/5/2015 11:16:11 AM Client/Project Name: NED Milepost: 40806.5

Investigators: CG JW Latitude/Longitude: 42.617533, -71.17719

State: MA County: Middlesex Quad Name: Wilmington

Logbook No.: 2015-1 Logbook Pg.: 89 Tract No.: 7800

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 6.5

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.5 Water Surface (At Crossing Location)(ft.): 6.0

Stream Depth (in.): 18-24

OHWM Indicators: LITTER AND DEBRIS
BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 70
 Right: 80

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 70%
SANDS: 30%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SOUTH



NORTH



AECOM
10 Orms Street, Suite 405
Providence, RI 02904



WEST

Waterbody Data Form

Feature ID: TK-K-S005

SHAWSHEEN RIVER

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 8/6/2015 12:54:47 PM Client/Project Name: NED Milepost: 42307.8

Investigators: CG JW Latitude/Longitude: 42.614896, -71.17433

State: MA County: Middlesex Quad Name: Wilmington

Logbook No.: 2015-1 Logbook Pg.: 98 Tract No.: 9263

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 40.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 45.0 Water Surface (At Crossing Location)(ft.): 40.0

Stream Depth (in.): 24-36

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 35
 (looking downstream) Right: 85

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 20%
 GRAVEL: 15%
 SANDS: 65%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



EAST



SOUTH



AECOM
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WEST

Waterbody Data Form

Feature ID: AN-P-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 12/5/2014 11:32:05 AM Client/Project Name: NED Milepost: 43316.6

Investigators: AF CV Latitude/Longitude: 42.612304, -71.17286

State: MA County: Essex Quad Name: Wilmington

Logbook No.: 2014P3 Logbook Pg.: 35 Tract No.: 4321

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 250.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 250.0 Water Surface (At Crossing Location)(ft.): 200.0

Stream Depth (in.): 64+

OHWM Indicators: CLEAR NATURAL LINE ON BANK

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 45
 (looking downstream) Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: VEGETATION: 25%
 MUCK: 25%
 SANDS: 25%
 GRAVEL: 25%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FISH (ADULT)

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NW

Waterbody Data Form

Feature ID: AN-K-S004

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 8/12/2015 9:40:56 AM Client/Project Name: NED Milepost: 48159.2

Investigators: CG JW Latitude/Longitude: 42.600342, -71.16729

State: MA County: Essex Quad Name: Wilmington

Logbook No.: 2015-1 Logbook Pg.: 135 Tract No.: 4143

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 6.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 10.0 Water Surface (At Crossing Location)(ft.): 5.0

Stream Depth (in.): 12-18

OHWM Indicators: BENT, MATTED OR MISSING VEGETATION
LITTER AND DEBRIS

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 65
 Right: 50

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SANDS: 25%
 MUCK: 65%
 SILTS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands¹
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS, INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



EAST



NE



AECOM
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SOUTH

Waterbody Data Form

Feature ID: AN-G-S003

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 4/23/2015 1:05:04 PM Client/Project Name: NED Milepost: 49612.8

Investigators: NF CM Latitude/Longitude: 42.597727, -71.16323

State: MA County: Middlesex Quad Name: Wilmington

Logbook No.: 2015-1 Logbook Pg.: 124 Tract No.: 28570

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 4.0

Stream Depth (in.): 1-3

OHWM Indicators: CLEAR NATURAL LINE ON BANK

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 75
 (looking downstream) Right: 75

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SANDS: 100%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: INVERTEBRATES

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



WEST



NORTH



EAST

AECOM
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Waterbody Data Form

Feature ID: WL-K-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 8/7/2015 10:16:06 AM Client/Project Name: NED Milepost: 50097.5

Investigators: CG JW Latitude/Longitude: 42.596698, -71.16209

State: MA County: Middlesex Quad Name: Wilmington

Logbook No.: 2015-1 Logbook Pg.: 109 Tract No.: 28631

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 6.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 15.0 Water Surface (At Crossing Location)(ft.): 12.0

Stream Depth (in.): 1-3

OHWM Indicators: LITTER AND DEBRIS

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 45
 (looking downstream) Right: 50

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SILTS: 30%
 SANDS: 50%
 GRAVEL: 10%
 COBBLES: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



WEST



SOUTH



AECOM
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NORTH

Waterbody Data Form

Feature ID: WL-P-S002

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 12/8/2014 2:16:09 PM Client/Project Name: NED Milepost: 53642.3

Investigators: AF CV Latitude/Longitude: 42.590551, -71.15293

State: MA County: Middlesex Quad Name: Wilmington

Logbook No.: 2014P3 Logbook Pg.: 59 Tract No.: 8628

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 470.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 470.0 Water Surface (At Crossing Location)(ft.): 470.0

Stream Depth (in.): 60+

OHWM Indicators: CLEAR NATURAL LINE ON BANK

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 45
 Right: 90

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 SANDS: 25%
 BEDROCK: 25%
 SILTS: 25%
 MUCK: 25%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: BEAVER

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW

Waterbody Data Form

Feature ID: ME-P-S004

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 12/4/2014 11:33:20 AM Client/Project Name: NED Milepost: 27977.8

Investigators: AF CV Latitude/Longitude: 42.742706, -71.21150

State: MA County: Essex Quad Name: Lawrence

Logbook No.: 2014P3 Logbook Pg.: 26 Tract No.: 6838

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 35.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 35.0 Water Surface (At Crossing Location)(ft.): 25.0

Stream Depth (in.): 24-36

OHWM Indicators: CLEAR NATURAL LINE ON BANK

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 85
 (looking downstream) Right: 85

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 MUCK: 25%
 GRAVEL: 25%
 COBBLES: 25%
 SANDS: 25%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed:

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



E



W



AECOM
10 Orms Street, Suite 405
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N

Waterbody Data Form

Feature ID: ME-P-S007B

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/8/2015 2:10:40 PM Client/Project Name: NED Milepost: 21289.6

Investigators: PF JW Latitude/Longitude: 42.730833, -71.22635

State: MA County: Essex Quad Name: Lawrence

Logbook No.: 2015-1 Logbook Pg.: 62 Tract No.: 6440

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.0 Water Surface (At Crossing Location)(ft.): 3.0

Stream Depth (in.): 1-3

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 SOIL CHARACTER CHANGES

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 10
 (looking downstream) Right: 10

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 100%

Aquatic Habitats:

- Sand Bar Gravel Riffles In-stream Emergent Plants
- Gravel Bar Deep Pools In-stream Submerged Plants
- Mud Bar Bank Root Systems Fringing Wetlands¹
- Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NW



SE



NE

AECOM
10 Orms Street, Suite 405
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Waterbody Data Form

Feature ID: ME-P-S007

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/8/2015 9:48:46 AM Client/Project Name: NED Milepost: 20727.0

Investigators: PF JW Latitude/Longitude: 42.729263, -71.22635

State: MA County: Essex Quad Name: Lawrence

Logbook No.: 2015-1 Logbook Pg.: 60 Tract No.: 6440

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 8.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 10.0 Water Surface (At Crossing Location)(ft.): 6.0

Stream Depth (in.): 3-6

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 SOIL CHARACTER CHANGES

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 100
 (looking downstream) Right: 100

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: MUCK: 100%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NORTH



SOUTH



EAST

AECOM
10 Orms Street, Suite 405
Providence, RI 02904



Waterbody Data Form

Feature ID: ME-P-S005

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/7/2015 10:23:54 AM Client/Project Name: NED Milepost: 16774.8

Investigators: PF JW Latitude/Longitude: 42.718597, -71.22967

State: MA County: Essex Quad Name: Lawrence

Logbook No.: 2015-1 Logbook Pg.: 48 Tract No.: 6915

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 20.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 20.0 Water Surface (At Crossing Location)(ft.): 20.0

Stream Depth (in.): 12-18

OHWM Indicators: CLEAR NATURAL LINE ON BANK
 ABRUPT PLANT COMMUNITY CHANGE
 SOIL CHARACTER CHANGES

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 100
 Right: 20

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 MUCK: 30%
 COBBLES: 40%
 SILTS: 30%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands'
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



EAST

Waterbody Data Form

Feature ID: LU-K-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/23/2015 2:23:10 PM Client/Project Name: NED Milepost: 70763.3

Investigators: CG Latitude/Longitude: 42.593550, -71.75598

State: MA County: Worcester Quad Name: Fitchburg

Logbook No.: TEAM K BK1 Logbook Pg.: 10 Tract No.: 6405

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 **Water Surface (At Crossing Location)(ft.):** 1.5

Stream Depth (in.): 1-3

OHWM Indicators: SEDIMENT DEPOSITION
LITTER AND DEBRIS

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 2
 Right: 2

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 MUCK: 50%
 SILTS: 35%
 COBBLES: 15%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed:

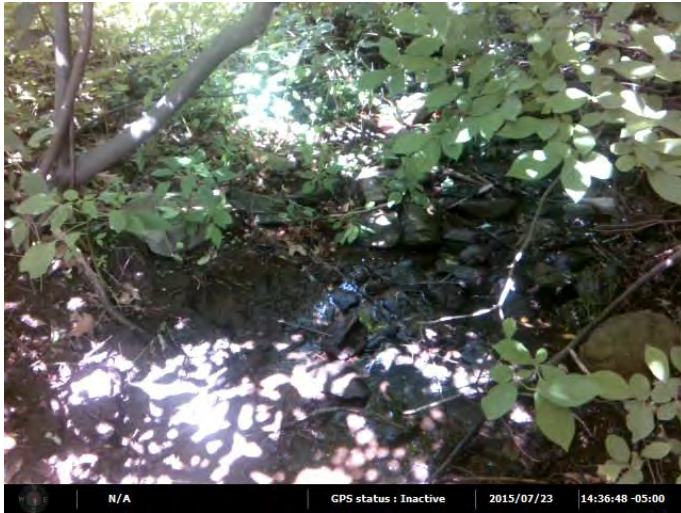
Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NE



N



AECOM
10 Orms Street, Suite 405
Providence, RI 02904



SW

Waterbody Data Form

Feature ID: LU-A-S001A

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/23/2015 11:25:31 AM Client/Project Name: NED Milepost: 72048.4

Investigators: CG Latitude/Longitude: 42.590336, -71.75457

State: MA County: Worcester Quad Name: Fitchburg

Logbook No.: TEAM K BK1 Logbook Pg.: 5 Tract No.: 6405

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 2.5

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 5.0 Water Surface (At Crossing Location)(ft.): 0

Stream Depth (in.): 0

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): Left: 0-2 2-4 4-6 6-8 8+
 (looking downstream) Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): Left: 5
 (looking downstream) Right: 2

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: COBBLES: 80%
 SILTS: 10%
 GRAVEL: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

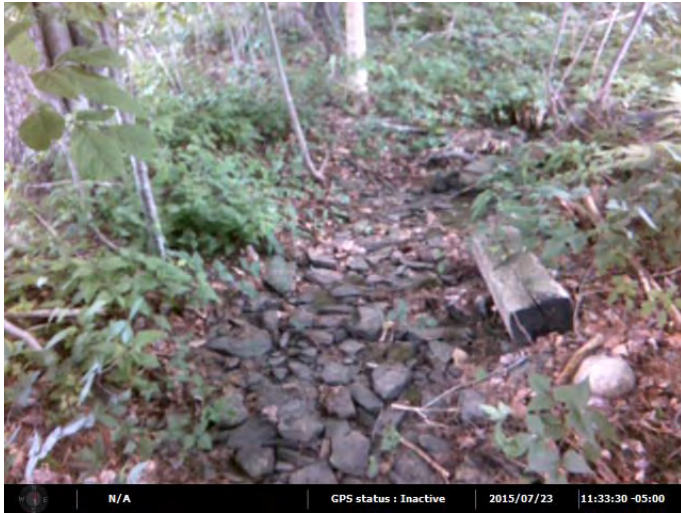
Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



SW



N



AECOM
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NE

Waterbody Data Form

Feature ID: LU-A-S001B

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 7/23/2015 9:41:56 AM Client/Project Name: NED Milepost: 72081.7

Investigators: CG Latitude/Longitude: 42.590316, -71.75478

State: MA County: Worcester Quad Name: Fitchburg

Logbook No.: TEAM K BK1 Logbook Pg.: 7 Tract No.: 6405

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 1.5

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 10.0 Water Surface (At Crossing Location)(ft.): 0.0

Stream Depth (in.): 0

OHWM Indicators: BENT, MATTED OR MISSING VEGETATION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 2
 Right: 2

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: COBBLES: 10%
 VEGETATION: 90%

Aquatic Habitats:

- Sand Bar Gravel Riffles In-stream Emergent Plants
- Gravel Bar Deep Pools In-stream Submerged Plants
- Mud Bar Bank Root Systems Fringing Wetlands¹
- Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: NONE

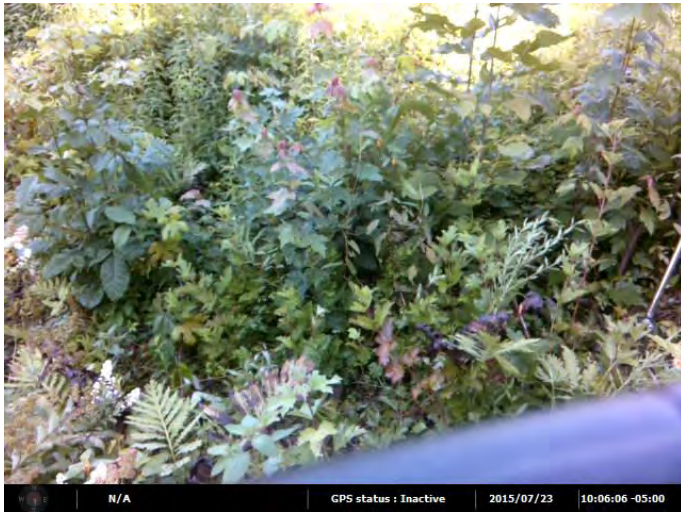
Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

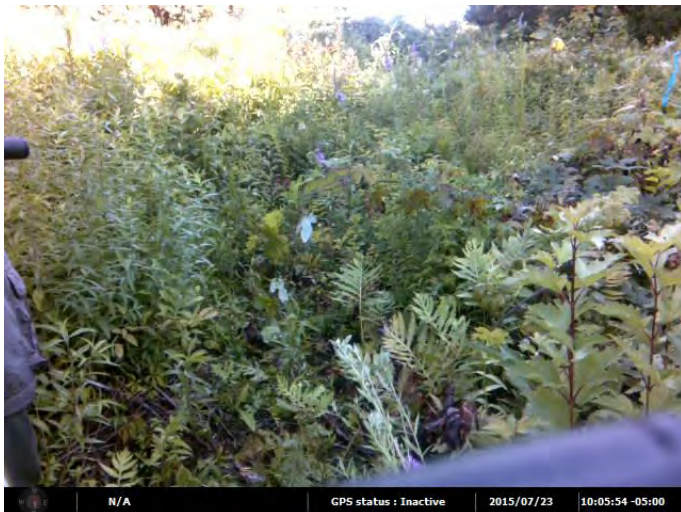
Stream Quality: High Moderate Low

Comments:

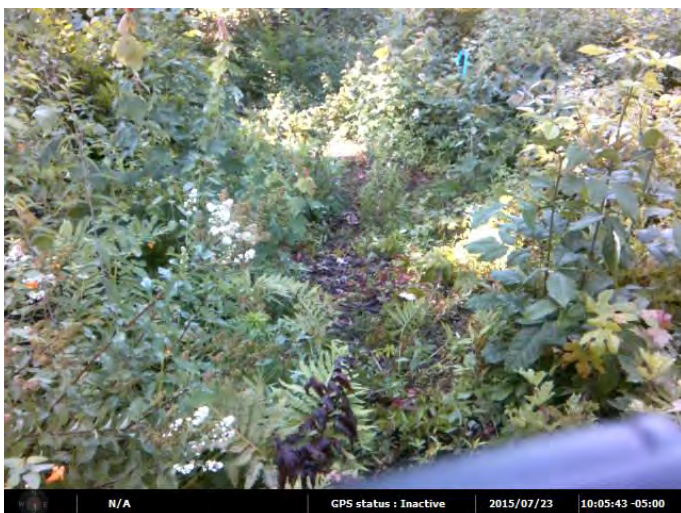
Photos



N



NE



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SW

Waterbody Data Form

Feature ID: NO-G-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 5/20/2015 8:50:47 AM Client/Project Name: NED Milepost: 0

Investigators: NF CM Latitude/Longitude: 42.665279, -72.42205

State: MA County: Franklin Quad Name: Northfield

Logbook No.: 2015-3 Logbook Pg.: 32 Tract No.: 21115

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 4.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 3.5

Stream Depth (in.): 3-6

OHWM Indicators: CLEAR NATURAL LINE ON BANK

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 45
 Right: 45

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %:
 COBBLES: 75%
 GRAVEL: 15%
 SANDS: 10%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed: SALAMANDER, INVERTEBRATES, FROGS

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NORTH



WEST



AECOM
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SOUTH

Waterbody Data Form

Feature ID: DR-A-S001

Centerline Re-Route Access Road Ancillary Facility Transmission Line Other

Date: 11/14/2014 12:51:21 PM Client/Project Name: NED Milepost: 0

Investigators: PML Latitude/Longitude: 42.681286, -71.28516

State: MA County: Middlesex Quad Name: Lowell

Logbook No.: 2014-2 Logbook Pg.: 20 Tract No.: 5331

Waterbody Type: Stream Pond Lake Borrow Pit Ag Ditch Other:

Stream Flow: Fast Moderate Slow Very Slow None

Flow Type: Perennial (Flows year round) Intermittent (Flows <3 months) None
 Seasonal (Continuous flow >3 months) Ephemeral (Flows only in response to rainfall)

Direction of Flow: N NE E SE SW W NW S No Flow

OHWM Width (ft.): 6.0

Sinuosity: Braided Meandering Straight N/A

Stream Width (ft.): 6.0 Water Surface (At Crossing Location)(ft.): 4.0

Stream Depth (in.): 1-3

OHWM Indicators: ABRUPT PLANT COMMUNITY CHANGE
 SHELIVING
 SEDIMENT DEPOSITION

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 40
 Right: 40

Qualitative Attributes

Water Appearance: Clear Turbid Sheen on Surface Floating Algal Mats No Flow
 Slightly Turbid Very Turbid Greenish Color Obvious Surface Scum Other:

Stream Substrate %: SANDS: 95%
 SILTS: 5%

Aquatic Habitats:

Sand Bar Gravel Riffles In-stream Emergent Plants
 Gravel Bar Deep Pools In-stream Submerged Plants
 Mud Bar Bank Root Systems Fringing Wetlands!
 Undercut Banks Overhanging Trees/Shrubs None

Aquatic Organisms Observed:

Channel Condition: Channelization/Braiding Unnatural Straightening Downcutting
 Dikes/Berms Excessive Bank Erosion N/A Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

Stream Quality: High Moderate Low

Comments:

Photos



NORTH



EAST



AECOM
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Providence, RI 02904



SOUTH

Waterbody Data Form

Feature ID: DR-A-S001B

Centerline
 Re-Route
 Access Road
 Ancillary Facility
 Transmission Line
 Other

Date: 11/18/2014 10:28:20 AM Client/Project Name: NED Milepost: 1062.9

Investigators: RSE Latitude/Longitude: 42.679276, -71.28650

State: MA County: Middlesex Quad Name: Lowell

Logbook No.: BOOK 1 Logbook Pg.: 45 Tract No.: 5330

Waterbody Type:
 Stream
 Pond
 Lake
 Borrow Pit
 Ag Ditch
 Other:

Stream Flow:
 Fast
 Moderate
 Slow
 Very Slow
 None

Flow Type:
 Perennial (Flows year round)
 Intermittent (Flows <3 months)
 None
 Seasonal (Continuous flow >3 months)
 Ephemeral (Flows only in response to rainfall)

Direction of Flow:
 N
 NE
 E
 SE
 SW
 W
 NW
 S
 No Flow

OHWM Width (ft.): 6.0

Sinuosity:
 Braided
 Meandering
 Straight
 N/A

Stream Width (ft.): 7.0
 Water Surface (At Crossing Location)(ft.): 5.0

Stream Depth (in.): 3-6

OHWM Indicators:
 CLEAR NATURAL LINE ON BANK
 ABRUPT PLANT COMMUNITY CHANGE
 SHELVING

Bank Height (ft.): (looking downstream)
 Left: 0-2 2-4 4-6 6-8 8+
 Right: 0-2 2-4 4-6 6-8 8+

Bank Slope (%): (looking downstream)
 Left: 30
 Right: 30

Qualitative Attributes

Water Appearance:
 Clear
 Turbid
 Sheen on Surface
 Floating Algal Mats
 No Flow
 Slightly Turbid
 Very Turbid
 Greenish Color
 Obvious Surface Scum
 Other:

Stream Substrate %:
 SILTS: 50%
 COBBLES: 50%

Aquatic Habitats:

Sand Bar
 Gravel Riffles
 In-stream Emergent Plants
 Gravel Bar
 Deep Pools
 In-stream Submerged Plants
 Mud Bar
 Bank Root Systems
 Fringing Wetlands!
 Undercut Banks
 Overhanging Trees/Shrubs
 None

Aquatic Organisms Observed:

Channel Condition:
 Channelization/Braiding
 Unnatural Straightening
 Downcutting
 Dikes/Berms
 Excessive Bank Erosion
 N/A
 Other

Habitat Characteristics, Aquatic and Terrestrial Diversity Description:

MA NATURAL HERITAGE MAPPED HABITAT

Stream Quality:
 High
 Moderate
 Low

Comments: MANHESP MAPPED HABITAT

Photos

NE



NW



AECOM
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Providence, RI 02904



SE