THE CONNECTICUT PORTION

OF THE INTERSTATE RELIABILITY PROJECT

BY

THE CONNECTICUT LIGHT AND POWER COMPANY

VOLUME 2: ENVIRONMENTAL – WETLANDS/ WATERCOURSES REPORT

DECEMBER 2011

INVENTORY AND DELINEATION OF WETLANDS AND WATERCOURSES

ALONG THE CONNECTICUT PORTION

OF THE

INTERSTATE RELIABILITY PROJECT

Prepared For:

The Connecticut Light and Power Company
P.O. Box 270
Hartford, Connecticut 06141

Prepared By:

AECOM Environment
10 Orms Street, Suite 405
Providence, Rhode Island 02904

December 2011

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1.0 Introduction

This report provides a summary of the wetland and watercourse inventories and delineations conducted by AECOM Environment (AECOM) along the Connecticut portion of the proposed Interstate Reliability Project (Project). These delineations were designed to identify both federal and Connecticut jurisdictional water resources within the transmission line rights-of-way (ROWs) and on associated Project areas.

Project Background and Location. The Project is a series of proposed improvements to the electrical transmission systems in Connecticut, Rhode Island, and Massachusetts that would provide additional safe, reliable, and economic electric service to these states. The Project would also increase the utilities' ability to meet the growing demand for power and would ensure compliance with mandatory federal and regional reliability standards. The Connecticut Light and Power Company (CL&P) would construct, own, and operate the proposed Project facilities located in Connecticut. The proposed facilities in Rhode Island would be owned by the Narragansett Electric Company, and those in Massachusetts would be owned by The New England Power Company. The Narragansett Electric Company and The New England Power Company are wholly-owned subsidiaries of National Grid USA (National Grid). This report has been prepared in conjunction with CL&P's application to the Connecticut Siting Council (Council) and also in support of other environmental permit applications.

CL&P and National Grid are proposing the construction and operation of the new 345-kilovolt (kV) transmission lines and associated facilities, which would extend between Lebanon, Connecticut and Millbury, Massachusetts. In Connecticut, the new 345-kV transmission lines would be located adjacent to CL&P's existing 345-kV lines, extending between the Card Street Substation (Town of Lebanon), the Lake Road Switching Station (Town of Killingly), and the Connecticut/Rhode Island border in the Town of Thompson, Connecticut. Along this approximately 37-mile Proposed Route, the new 345-kV lines would traverse the municipalities of Lebanon, Columbia, Coventry, Mansfield, Chaplin, Hampton, Brooklyn, Pomfret, Killingly, Putnam, and Thompson.

Along the vast majority of the Proposed Route, the new 345-kV lines would be aligned within CL&P's existing transmission ROWs that generally average 300 feet in width. These existing

ROWs are occupied in part by existing overhead 345-kV lines (and in some locations other transmission and distribution lines), but include sufficient un-used space to accommodate the proposed lines. However, approximately 1.4 linear miles of the Proposed Route would cross two segments of federally-owned properties in the towns of Mansfield and Chaplin, where CL&P's existing ROW is only 150 feet wide. To align the new 345-kV line across these two segments, CL&P proposes the expansion of the ROW by the acquisition of approximately 11 additional acres of easement from the federal government.[1]

In the vicinity of the existing transmission lines along all of these ROWs, CL&P routinely conducts vegetation management to maintain scrub-shrub habitat, consistent with the operation of the overhead lines. Most of the vegetation along the un-used portions of the ROWs (including the planned location for the new 345-kV lines) is not managed, and is characterized by plant communities common in the Project region.

Water Resource Studies. On behalf of CL&P, AECOM conducted wetland and watercourse identification and delineations along the Connecticut portion of the Project and in the vicinity of the Card Street Substation.[2] Desktop analyses, as well as on-site field delineations, were employed to determine state and federal wetland boundaries. Resources consulted during the desktop analyses included the United States Geological Survey (USGS) topographic mapping, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping, Connecticut Department of Energy and Environmental Protection (CTDEEP) Wetland Soils Mapping, United States Department of Agriculture, Natural Resource Conservation Service (USDA/NRCS) Soil Surveys, and the USGS's National Hydrography Dataset (NHD).

The majority of the wetland and watercourse investigations were conducted from January through April, 2008 and again in April and May, 2011. These investigations encompassed the entire width of CL&P's existing ROWs along which the proposed 345-kV lines would be located (i.e., surveys included water resources along the vegetatively managed portions of the ROWs in

[1] Water resources were delineated within both the proposed 11-acre expansion area and CL&P's existing 150-foot-wide ROW. Along the 1.4 miles of 150-foot-wide ROW on the federally-owned properties, CL&P also has identified two design options that would minimize or avoid the need for additional easement expansion. The water resource studies for the existing ROW and the proposed 11-acre easement expansion encompass all areas along these two design options.

[2] Wetlands were delineated within 100 feet of the existing substation fence line, all on property owned by CL&P.

the vicinity of the existing transmission lines, as well as on the presently un-managed portions of the ROWs, where the new 345-kV lines would be aligned). In the spring of 2009 and 2011, field investigations were also performed on CL&P fee-owned property that may be used to access the ROWs, and along the two segments of the Proposed Route across federally-owned property (under the jurisdiction of the United States Army Corps of Engineers [USACE]) in the towns of Mansfield and Chaplin (also referred to as the Mansfield Hollow area).

In the fall of 2010 and spring of 2011, AECOM conducted field verification surveys to affirm the accuracy of the 2008 and 2009 wetland and watercourse delineations. Specifically, supplemental field investigations were conducted of the previously delineated wetlands to verify that the wetland determinations had not been affected by the passage of time and are in conformance with the USACE's October 2009 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (*Regional Supplement*; USACE, 2009).

This report discusses the methods used to identify the wetlands and watercourses encountered along the existing CL&P ROWs within which the Proposed Route would be located, and summarizes the findings of the surveys. Tables listing all wetlands and watercourses identified during the course of the surveys are located in Appendix A. Appendices B and C contain the field data forms and representative wetland and watercourse photographs used to document the wetland and watercourse delineations in 2008; these data forms are organized by town. Appendices D and E contain the field data forms and representative wetland and watercourse photographs used to document the wetland and watercourse delineations in 2011 (also organized by town). Appendix F contains representative samples of hydric soil and wetland mapping resources reviewed as pre-survey information.

2.0 Wetland and Watercourse Regulations

AECOM soil and wetland scientists identified wetlands and watercourses subject to state or federal jurisdiction, based upon the Connecticut Inland Wetlands and Watercourses Act (Section 22a-36 through 45 of the Connecticut General Statutes) and the Federal Clean Water Act ([CWA]; 33 U.S.C. 1344). The Project does not cross any Navigable Waters of the United States Subject to Section 10 of the Rivers and Harbors Act (33 U.S.C. 403).

2.1 Section 404 – Clean Water Act

Wetlands, springs and other Waters of the United States are regulated under Section 404 of the CWA by the USACE (U.S. Environmental Protection Agency, 2006). Federal jurisdictional wetlands include interstate wetlands, wetlands adjacent (i.e., bordering, contiguous, or neighboring) to waters of the United States, and intrastate wetlands whose degradation or destruction could affect interstate or foreign commerce as per the application of the CWA. According to the 1987 *Corps of Engineers Wetland Delineation Manual* (1987 USACE Manual; Environmental Laboratory), areas must exhibit three distinct characteristics to be considered wetlands:

1. The prevalent vegetation must consist of plants adapted to life in hydric soil conditions. These species, due to morphological, physiological, and/or reproductive adaptations, can and do persist in anaerobic soil conditions;

2. Soils in wetlands must be classified as hydric or they must possess characteristics that are associated with reducing soil conditions; and

3. They must be inundated either permanently or periodically at mean water depths less than 6.6 feet (two meters) or the soil saturated at the surface for some time during the growing season of the prevalent vegetation.

Wetlands meeting these criteria are subject to federal jurisdiction under Section 404 of the CWA.

In October 2009, the USACE issued the *Regional Supplement*, which provides further guidance for wetland delineations in the northeastern United States. The *Regional Supplement* presents wetland indicators, delineation guidance, and other information specific to the Northcentral and Northeast Regions, supplementing the 1987 USACE Manual in some procedures, but superseding the 1987 USACE Manual in other procedures (i.e., such items as Hydrophytic Vegetation Indicators, Hydric Soil Indicators, Wetland Hydrology Indicators, Growing Season definition, and Hydrology Standard for Highly Disturbed or Problematic Wetland Situations). Indicators and procedures in the *Regional Supplement* are designed to identify wetlands as

defined jointly by the USACE (33 CFR 328.2) and the U.S. Environmental Protection Agency (40 CFR 230.3) and subject to regulation under Section 404 of the CWA.

2.2 Connecticut Inland Wetlands and Watercourses Act

Connecticut regulates work in and around inland wetlands under the Inland Wetlands and Watercourses Act (The Act). Typically, the state statutes are implemented through the Inland Wetlands and Watercourse Regulations as administered by the individual municipalities. However, the Council assumes this implementation role as part of the overall application review process for energy facilities, including this Project.

Under Section 2 of The Act, a wetland is defined as "land, including submerged land…which consists of poorly drained, very poorly drained, alluvial and floodplain soils as defined by the National Cooperative Soils Survey. Such areas may include filled, graded or excavated sites which possess an aquic (saturated) moisture regime as defined by the United States Department of Agriculture (USDA) Cooperative Soil Survey." As written, the statute assigns no bearing to vegetation when performing wetland delineations. According to the CTDEEP website, approximately 17 percent of the state's land area is comprised of wetlands under the Connecticut wetland definition; however, "under the federal definition only roughly half of this same area would be classified as wetlands" (CTDEEP, 2011).

Watercourses are defined in The Act as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." The Act defines Intermittent watercourses as having a defined permanent channel bed and bank and the occurrence of two of the following: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration of longer than a particular storm incident, or C) the presence of hydrophytic vegetation.

3.0 Wetland Delineation Procedures

The wetland delineation methodologies outlined in the 1987 USACE Manual, the New England District Wetland Delineation Datasheet and Supplemental Information (CENAE-R-PT Version

9/1/04) were initially used for the wetland and watercourse investigations conducted from January through April, 2008. In addition, the Connecticut Inland Wetlands and Watercourses Act criteria were used to identify and delineate wetlands and watercourses along CL&P's existing ROWs. In the fall of 2010 and spring of 2011, AECOM performed supplemental surveys of wetlands and watercourses along CL&P's existing ROWs in order to verify that the previously delineated wetlands comply with the *Regional Supplement* and associated Wetland Determination Data Form, and also to identify and assess whether any substantial changes had occurred to wetland boundaries or characteristics since the completion of the 2008 wetland delineations. The study methods included both on-site field investigations and off-site analysis to determine the wetland and watercourse resource areas proximate to the proposed Project.

In accordance with the 1987 USACE Manual, and the *Regional Supplement,* hydrophytic vegetation, hydric soils, and wetland hydrology must all be present for a wetland to be subject to jurisdiction under Section 404 of the CWA. Both state and federal methodologies were employed in the field during the delineations.

3.1 Pre-Survey Desktop Investigations

Prior to the commencement of field surveys, AECOM reviewed information from multiple sources to determine the potential extent of wetlands within the survey areas. Pre-survey information reviewed included: USGS topographical quadrangles, USGS NHD, NWI Maps, USDA/NRCS – Web Soil Surveys, and CTDEEP online wetland mapping services. Examples of these database and mapping resources are provided in Figures 1 through 3 in Appendix F.

3.2 Field Surveys

AECOM soil and wetland scientists conducted the 2008 and 2009 field surveys of the Project area in accordance with the 1987 USACE Manual and the State of Connecticut Inland Wetlands and Watercourses Act. The subsequent 2010 and 2011 investigations were performed in accordance with the 1987 USACE Manual and the *Regional Supplement*. Vegetation, soils, and hydrology data were assessed during the field surveys to determine if the three wetland parameters described above were satisfied for each potential wetland area. The "top of bank"

was used to demarcate the limits of a watercourse when no wetlands were adjacent to the channel.

During the field investigations along the ROWs, the soil and wetland scientists identified the boundary between the water resource (wetland and/or watercourse) and the upland area, and delineated the boundary with survey flagging. Wetlands were delineated in the field with pink survey flagging hung on vegetation at approximately 15 to 30 foot intervals, while watercourses were delineated with blue flagging. Documentation to confirm the wetland boundaries was taken at specific locations for each wetland area and wetland resource field data summary sheets were completed for each wetland and watercourse delineated (see Appendix B and D). Each wetland and watercourse was given a unique (Project-specific) alphanumeric designation and these assigned designations were used to identify the wetlands and watercourses on the associated Project mapping. Appendices C and E include representative photographs taken during the delineations.

The specific methods for characterizing and evaluating vegetation, hydrology, and soils for determination for the presence or absence of a wetland were performed as follows:

> *Soils:* At the center of each data plot, the soil and wetland scientists completed borings 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 (mottles and other features). Colors of the soil matrix and mottles were identified using Munsell Soil Color Charts. All hydric soil determinations in 2008 and 2009 were based on criteria established in the 1987 USACE Manual (Environmental Laboratory, 1987), along with *Field Indicators of Hydric Soils in the United States* (NRCS, 2006), *Field Indicators for Identifying Hydric Soils in New England* (NEIWPCC, 2004). During the 2010-2011 surveys, the *Regional Supplement* (USACE, 2009) was used in addition to the aforementioned. Additionally, the presence of any saturation and/or standing water encountered during the soil profile description was noted.

Vegetation: Species abundance in both upland and wetland communities were 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 of the plot. Dominant herbaceous vegetation was recorded within a 5-foot radius of the plot. The indicator status of each species was identified using the *National List of Plant Species That Occur in Wetlands, Region 1-Northeast* (Resource Management Group 1999). Hydrophytic vegetation was determined to be prevalent when greater than 50 percent of the dominant species were classified as having a wetland indicator status of facultative (FAC+ or FAC), facultative wetland (FACW) or obligate wetland (OBL). However, during the 2010-2011 surveys along the existing CL&P ROWs, those wetland communities that lacked specific vegetation indicators and did not meet the 1987 USACE Manual criteria were evaluated using criteria from the *Regional Supplement,* Chapter 5 (Difficult Wetland Situations in the Northcentral and Northeast Region).

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 (Environmental Laboratory 1987). However, during the 2010-2011 surveys along the existing CL&P ROWs, those wetlands which lacked any hydrology indicators due to temporarily dry conditions, disturbance, or other factors and did not meet the 1987 USACE Manual criteria were evaluated using criteria from the *Regional Supplement*, Chapter 5 (Difficult Wetland Situations in the Northcentral and Northeast Region).

Wetland and watercourse flag positions and data point locations were field located by AECOM personnel using a Trimble global positioning system (GPS) data collection device capable of sub-meter accuracy. The collected GPS data points were then corrected, geo-referenced, and plotted out on aerial photograph imagery.

3.3 Wetland and Watercourse Classification

While in the field, AECOM soil and wetland scientists classified the various wetlands and watercourses according to the "Cowardin system", which is a process discussed in "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et. al, 1979). Identified wetlands were classified as Palustrine Forested (PFO), Palustrine Scrub-Shrub (PSS), Palustrine Emergent (PEM), Palustrine Open Water (POW), or Palustrine Unconsolidated Bottom (PUB), all of which are 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. Water quality designations were determined using CTDEEP mapping resources (CTDEEP, 2011a).

Palustrine Forested Wetlands (PFO)

Forested wetlands are characterized by woody vegetation that is six meters (approximately 20 feet) tall or taller. These areas normally contain an overstory of trees, an understory of young trees and/or shrubs, and a herbaceous layer. These wetland types are located predominantly in the unmanaged / non-cleared areas of the existing ROWs or in adjacent off-ROW areas.

Palustrine Scrub-Shrub Wetlands (PSS)

Scrub-shrub wetlands are typically dominated by woody vegetation less than six meters (approximately 20 feet) tall. Areas classified as scrub-shrub cover types may represent a successional stage that through natural processes would transition to a forested wetland; or may contain 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. Area of open water may exist as man-made or natural waterbodies.

Palustrine Unconsolidated Bottom (PUB)

Areas of open water with unconsolidated bottoms that border on palustrine systems are referred to as PUB.

3.4 Post-Survey Desktop Analysis

The wetland and watercourse boundaries were plotted on aerial imagery and subsequently reviewed and confirmed by AECOM field personnel. The aerial-based maps in Volumes 9 and 11 show the locations of the delineated resources relative to the proposed limits of the Project. USGS topographical quadrangles, National Wetland Inventory Maps, Natural Resource Conservation Service maps, and CTDEEP wetland maps were also utilized in determining approximate wetland boundaries in inaccessible areas. Because of a combination of factors, including thick canopies, steep topography and/or heavy cloud cover, the GPS unit sometimes experienced poor satellite reception and/or geometry. The boundaries of wetlands in areas of poor satellite reception are based upon field observations and aerial photographic interpretation of mapped resources.

4.0 Results

As illustrated in Tables 4-1 through 4-4, a total of 227 wetlands and 104 watercourses were identified along the CL&P ROWs associated with the Proposed Route during the 2008 through

2011 investigations.[3] The tables include a reference to the mapsheet on which the delineated wetlands and/or watercourses are located.

Sixty-two wetlands located along the ROWs that the Proposed Route would follow were determined to contain vernal pools for obligate species and 26 wetlands were determined to contain amphibian breeding habitats (i.e., areas not meeting the specific criteria defined by the State of Connecticut to be considered a vernal pool). Several wetlands contained multiple vernal pool and/or amphibian breeding habitat areas within one wetland system. As a result, 88 vernal pools and 29 amphibian breeding habitats were identified in total. A separate summary report has been prepared for the vernal pools and amphibian breeding habitat encountered along the CL&P ROWs along which the Proposed Route would be located.

During the process of delineating the wetlands within the ROWs, both state and federal methodologies were employed. In Connecticut, state and federal boundaries can differ due to the different delineation methodologies. Frequently, areas of alluvial and floodplain soils that qualify as wetlands in Connecticut may not exhibit a wetland plant community and evidence of wetland hydrology, as required by the USACE (Federal) methodology. As a result, some locations on the Connecticut landscape do require distinct state and federal wetland boundaries. Based on field and desktop investigations, AECOM determined five of the 227 wetland areas to be strictly state jurisdictional. These wetlands are identified in the tables and shown on Project mapsheets.

As described above, wetlands were classified according to the Cowardin system. One hundred and eighty-seven wetlands examined in the Project Study Area are classified either wholly or in-part as PFO. One hundred and sixty-six wetlands examined during this study are classified either wholly, or in-part, as PSS, and another 35 wetlands examined during this study are classified either wholly, or in-part, as PEM. Eighteen wetlands examined during this study were classified either wholly, or in-part, as POW, and another nine wetlands were classified as PUB. Vegetation and soil types encountered within these wetlands are presented below.

[3] These wetlands and watercourses were identified within the width of the existing CL&P ROWs (and within the proposed ROW expansion areas across 1.4 miles of USACE-owned property in Mansfield and Chaplin. However, not all of these water resources would necessarily be affected by the construction of the proposed Project.

Wetland Vegetation

Common species encountered in the various PFO wetlands included some combination of the following species: red maple (*Acer rubrum*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), silky dogwood (*Cornus amomum*), white pine (*Pinus strobus*), yellow birch (*Betula alleghaniensis*), sphagnum moss (*Sphagnum sp.*), highbush blueberry (*Vaccinium corymbosum*), Japanese barberry (*Bereris thunbergii*), sedges (*Carex spp.*), spicebush (*Lindera benzoin*), and skunk cabbage (*Symplocarpus foetidus*), as well as the invasive species multiflora rose (*Rosa multiflora)* and/or common reed (*Phragmites australis*). Common species found within the PSS wetland areas included: red maple, cinnamon fern, sphagnum moss, speckled alder (*Alnus incana*), sensitive fern, sedges, reed canary grass (*Phalaris arundinacea*), silky dogwood, skunk cabbage and multiflora rose. The vegetation species commonly encountered in PEM wetlands included: tussock sedge (*Carex stricta*), cattails (*Typha latifolia*), sensitive fern, sedges and skunk cabbage.

Appendices B and D include additional details and site-specific information for each wetland and watercourse area.

Wetland Soils

Multiple soil types representing a wide variety of soil series designations were identified during the wetland and watercourse inventory. Soils identified in the various wetlands appear to have formed in parent materials including glacial till, glaciolacustrine sediments, glacial outwash, and organic materials. The soil types within the study area were identified as moderately well drained soils to the very poorly drained hydric soils and included fine sandy loams, gravelly sandy loams, silty loams, sandy loams and muck. Many areas were 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.

See Appendices B and D for additional details and site specific information for each wetland and watercourse area.

Watercourses

The watercourses encountered during this inventory varied greatly in type, size and character. "Rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof" are considered watercourses, according to the Connecticut Inland Wetlands and Watercourses Act. Some of the streams that were inventoried are natural, whereas others were man-made. Silty sediments, sand, rock, gravel, riprap, and/or cobble bottoms dominated the stream beds that were inventoried. The shape, height, susceptibility to erosion and direction of flow of the individual watercourses varied greatly. Man made watercourses that were inventoried included those with culverts and corrugated and smooth drainage pipes, retention ponds, and man-made farm ponds.

See Appendices B and D for additional details and site-specific information for regarding each watercourse area.

Table 4-1 Wetlands Identified Along the Project ROWs, By Municipality	
Parameter	**Number of Identified Wetlands**
Total Number of Wetlands	**227**
Municipality: **Lebanon***	5
Municipality: **Columbia***	20
Municipality: **Coventry***	8
Municipality: **Mansfield***	42
Municipality: **Chaplin***	24
Municipality: **Hampton***	32
Municipality: **Brooklyn***	44
Municipality: **Pomfret***	4
Municipality: **Killingly***	12
Municipality: **Putnam**	31
Municipality: **Thompson**	10

*Wetlands W20-5, W20-24, W20-68, W20-92, and W20-120, span the border of two municipalities. These wetlands have been included in the inventory for both respective municipalities but were counted only once in the Total Number of Wetlands.

Table 4-2
Watercourses Identified Along the Project ROWs,
By Municipality

Parameter	Number of Identified Watercourses
Total Number of Watercourses	**104**
Municipality: **Lebanon***	1
Municipality: **Columbia** *	4
Municipality: **Coventry** *	3
Municipality: **Mansfield** *	21
Municipality: **Chaplin** *	12
Municipality: **Hampton**	17
Municipality: **Brooklyn***	26
Municipality: **Pomfret**	2
Municipality: **Killingly** *	6
Municipality: **Putnam***	16
Municipality: **Thompson**	4

*Watercourses S20-1, S20-2, S20-4, S20-20, S20-54, S20-55, S20-58, and S20-59 span the border of two municipalities. These watercourse have been included in the inventory for each of the respective municipalities but each crossing was counted only once in the Total Number of Watercourses.

Table 4-3
Wetlands Identified Along the Project ROWs, By Type

Parameter	Number of Identified Wetlands
Total Number of Wetlands	**227**
Wetland Classification: **PFO**[1]	187
Wetland Classification: **PSS**[1]	166
Wetland Classification: **PEM**[1]	35
Wetland Classification: **POW**[1]	18
Wetland Classification: **PUB**[1]	9

1 – Wetlands were classified according to Cowardin et al. PEM = palustrine emergent wetland; PSS = palustrine scrub-shrub wetland; PFO = palustrine forested wetland; POW = palustrine open water; PUB = palustrine unconsolidated bottom. The Wetland areas were classified by AECOM soil and wetland scientists. The Total Number of Wetlands reflects the actual number of wetlands areas identified, but multiple Cowardin classifications may apply to a particular wetland area, resulting in the appearance of a discrepancy with the tabulations.

Table 4-4

Watercourses Identified Along the Project ROWs, By Type and Water Quality Classification

Parameter	Number of Identified Watercourses
Total Number of Watercourses	**104**
Water Quality Classification: **AA**[1]	15
Water Quality Classification: **AA**[1] **/Coldwater**	9
Water Quality Classification: **AA**[1] **/Warmwater**	4
Water Quality Classification: **A**[1]	55
Water Quality Classification: **A**[1] **/ Coldwater**	8
Water Quality Classification: **A**[1] **/ Warmwater**	7
Water Quality Classification: **B**[1] **/ Coldwater**	6
Watercourse Frequency: **I**[2]	50
Watercourse Frequency: **P**[2]	54

1 – Watercourses were classified using the CT Water Quality Standards classifications revised February 2011: AA = drinking water supply, A = potential drinking water supply, contact recreation, B = recreational use. B/AA = watercourse does not meet Class AA Criteria or designated uses. The water quality goal is achievement of Class AA Criteria and attainment of Class AA designated uses. The Total Number of Watercourses reflects the actual number of watercourses identified along the existing CL&P ROWs. Class AA watercourses crossed by the Project, are those that serve as a drinking water supply upstream of Willimantic Water Works and include the Natchaug, Fenton and Mount Hope Rivers and their tributaries.

2 – Watercourse frequency is designated using the CT Inland Wetland and Watercourses Act: P = Perennial, I = Intermittent.

5.0 Discussion

Tables 4-1 and 4-2 show the distribution of wetlands and watercourses along the existing CL&P ROWs, by municipality. Along the ROWs, Brooklyn and Mansfield have the highest number of wetlands (44 and 42 respectively). Brooklyn also has 26 watercourses, and Mansfield has 21. Thirty-two wetlands and 17 watercourses are located along the ROWs in Hampton. Thirty-one wetlands and 16 watercourses are identified in Putnam. Lebanon has five wetlands and one watercourse. Chaplin has 24 wetlands and 12 watercourses identified. Killingly has 12 wetlands and six watercourses identified, while Thompson has 10 wetlands and four watercourses identified along the CL&P ROWs. The municipality with the fewest number of wetlands and watercourses identified is Pomfret with just four wetlands and two watercourses. Tables 4-1 and 4-2 provide additional details regarding the distribution of wetlands and watercourses by municipality.

Tables 4-3 and 4-4 summarize the wetland and watercourse classifications of the water resources identified within the existing CL&P ROWs. Most of the wetlands (79 percent) identified during the investigations are classified either wholly, or in part, as PFO. Approximately 69 percent of the inventoried wetlands are classified either wholly, or in part, as PSS, and approximately 14 percent of the wetlands are classified either wholly, or in part, as PEM. Less than 10 percent of the wetland areas are classified either wholly, or in part, as POW; and less than five percent of the wetland areas are classified either wholly, or in part, as PUB, though watercourses were inventoried separately and are not accounted for in this percentage. Often, multiple Cowardin system classifications are applied to a particular wetland area. In fact, a majority of the wetlands inventoried exhibit a PSS cover type, with a bordering PFO cover type. This is very typical of most routinely managed ROWs.

A total of 104 watercourses were inventoried as part of the investigations along the existing CL&P ROWs. Of these 104 watercourses, 54 are indicated to sustain perennial flow, while the remaining 50 watercourses are classified as intermittent. Along the Proposed Route, one Level A Aquifer[4] and one municipal drinking water supply were encountered during the investigations, and the vast majority (98, or 94 percent) of the watercourses inventoried hold a Water Quality Classification of “A” or better, indicating that those watercourses represent potential drinking

water supply and are suitable for contact recreation. Six of the inventoried watercourses are deemed suitable for recreational use but are not drinking water supplies. Tables 4-3 and 4-4 provide additional details regarding the classifications of wetlands and watercourses inventoried as part of AECOM's field investigations.

6.0 References

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