

Single Environmental Impact Report

J136S Tap Line Rebuild Project

May 2026

PREPARED FOR

Massachusetts Electric Company

170 Data Drive

Waltham, MA 02451

PREPARED BY

BSC GROUP 

1 Mercantile St, Suite 610

Worcester, MA 01608



Engineers
Environmental Scientists
Software Developers
Landscape Architects
Planners
Surveyors

May 13, 2026

www.bscgroup.com

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: J136S Tap Line Rebuild Project
Single Environmental Impact Report, EEA #17004

Dear Secretary Tepper,

On behalf of Massachusetts Electric Company ("MECO"), BSC Group, Inc. is pleased to submit this Single Environmental Impact Report ("SEIR") for the J136S Tap Line Rebuild Project (the "Project"). The Project involves a rebuild of approximately three miles of the existing J136S 115 kV overhead electric transmission tap line, within an existing right-of-way in the towns of Leominster and Sterling in Massachusetts (the "Project"). The proposed Project includes required maintenance and system improvements to mitigate potential risks of electrical failure and to provide reliable delivery of electrical service.

This SEIR responds to the November 14, 2025, Certificate issued by the Executive Office of Energy and Environmental Affairs ("EEA") on the Expanded Environmental Notification Form ("EENF") for the Project (EEA No. 17004). This SEIR addresses the Scope outlined in the Certificate, and responds to comments received, as required per the Massachusetts Environmental Policy Act ("MEPA") (M.G.L. c. 30 §§ 61-62L) and MEPA regulations (301 CMR 11.00). The SEIR was prepared in accordance with the general guidelines for outline and content found in Section 11.06(8) and Section 11.07(5) of the MEPA regulations.

Please publish the Notice of Availability for this SEIR in the May 22, 2026, Environmental Monitor to initiate the 30-day public review and comment period. In accordance with the Secretary's Certificate and 301 CMR 11.16 of the MEPA regulations, the SEIR has been circulated to those who commented

on the EENF, state and local agencies from which permits or approvals will be sought, as well as to the public libraries in Sterling and Leominster.

Please do not hesitate to contact me at 617-896-4317 or spatisteas@bscgroup.com or Timothy Sullivan with MECO at Timothy.Sullivan@nationalgrid.com with any questions or comments.

Sincerely,
BSC Group, Inc.

A handwritten signature in blue ink, reading "Sióna Patisteas".

Sióna O'Flynn Patisteas
Ecological Project Manager
Environmental Permitting Specialist

Single Environmental Impact Report

J136S Tap Line Rebuild Project

Project Narrative

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List of Acronyms & Abbreviations

ACHP	Advisory Council on Historic Preservation
ADT	Average Daily Trip
AUL	Activity and Use Limitation
Bank	Inland Bank
BLSF	Bordering Land Subject to Flooding
BMPs	Best Management Practices
BSC	BSC Group, Inc.
BVW	Bordering Vegetated Wetland
C.91	Chapter 91
CBO	Community-Based Organization
C&D	Construction and Demolition
CFR	Code of Federal Regulations
CGP	Construction General Permit
CMP	Conservation & Management Permit
CMR	Code of Massachusetts Regulations
CO	Carbon Monoxide
CVP	Certified Vernal Pool
CWA	Clean Water Act
CWQC	Comprehensive Water Quality Certification
DCR	Department of Conservation and Recreation
DEP	Department of Environmental Protection (see also MassDEP)
DFW	Division of Fisheries and Wildlife
DGA	Designated Geographic Area
DPH	Massachusetts Department of Public Health
EEA	Executive Office of Energy and Environmental Affairs (see also EOEEA)
EENF	Expanded Environmental Notification Form
EFI	Environmental Field Issue
EIR	Environmental Impact Report
EJ	Environmental Justice
eNOI	Electronic Notice of Intent
EOEEA	Executive Office of Energy and Environmental Affairs (see also EEA)
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
ft	Feet/Foot
G&P	Gray & Pape, Inc.
GGCP	Greening the Gateway Cities Program
GHG	Greenhouse Gas
HUC	Hydrologic Unit Code
IWQC	Individual Waters Quality Certification

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km	Kilometer
kV	kilovolt
lf	Linear Feet
LID	Low Impact Development
LiDAR	Light Detection and Ranging
LSP	Licensed Site Professional
LST	Land Surface Temperature
LUWW	Land Under Water Bodies and Waterways
m	Meters
MACRIS	Massachusetts Cultural Resource Information System
MassDEP	Massachusetts Department of Environmental
MassDOT	Massachusetts Department of Transportation
MCAA	Massachusetts Climate Change Assessment
MCP	Massachusetts Contingency Plan
MECO	Massachusetts Electric Company
MEPA	Massachusetts Environmental Protection Act
MESA	Massachusetts Endangered Species Act
M.G.L	Massachusetts General Laws
MHC	Massachusetts Historical Commission
MVP	Municipal Vulnerability Preparedness
NEP	New England Power Company
NERC	North American Electric Reliability Commission
NESC	National Electric Safety Code
NESHAP	National Emission Standards for Hazardous Pollutants
NHESP	Natural Heritage and Endangered Species Program
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWP	Nationwide Permit
OMP	Operation and Maintenance Plan
OOC	Order of Conditions
OPGW	Optical Ground Wire
OSHA	Occupational Safety and Health Administration
PCN	Pre-Construction Notification
PDF	Portable Document Format
PEM	Palustrine Emergent
PFO	Palustrine Forested
PM	Particulate Matter
PNF	Project Notification Form
PSS	Palustrine Scrub-Shrub
RAM	Release Abatement Measure
RCP	Representative Concentration Pathway

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RFA	Riverfront Area
RMAT	Resilient Massachusetts Action Team
ROW	Right-of-Way
SEIR	Single Environmental Impact Review
sf	square feet
SHMCAP	State Hazard Mitigation and Climate Adaptation Plan
SWPPP	Stormwater Pollution Prevention Plan
SWPZ	Surface Water Protection Zone
THPO	Tribal Historic Preservation Officer
TOY	Time-of-year
ULSD	Ultra-Low Sulfur Diesel
USACE	United States Army Corps of Engineers
USC	United States Code
USGS	United States Geological Survey
VOC	Volatile Organic Compounds
VMP	Vegetation Management Plan
WOTUS	Waters of the United States
WPA	Wetlands Protection Act
WQC	Water Quality Certification/Certificate
WRP	Waterways Regional Program

1. Project Overview

1.1 Introduction

This Single Environmental Impact Report (“SEIR”) responds to the November 14, 2025, Certificate of the Secretary of Energy and Environmental Affairs (the “Certificate”) on the Expanded Environmental Notification Form (“EENF”) for the J136S Tap Line Rebuild Project in Massachusetts (Executive Office of Energy and Environmental Affairs [“EEA”] No. 17004). This SEIR addresses the Scope outlined in the Certificate, responds to comments received, as required per the Massachusetts Environmental Policy Act (“MEPA”) (Massachusetts General Laws [“M.G.L.”] c. 30 §§ 61-62L) and MEPA regulations (301 Code of Massachusetts Regulations [“CMR”] 11.00) and was prepared in accordance with the general guidelines for outline and content found in Section 11.07 of the MEPA regulations (C-1).

Massachusetts Electric Company (“MECO”) proposes to rebuild approximately three miles of the existing J136S 115 kilovolt (“kV”) overhead electric transmission tap line¹ (the “J136S Tap Line” or “Line” or “Project”). The Project will be located entirely within an existing right-of-way (“ROW”) that extends northward from the Pratts Junction (#225) Substation at 26 Pratts Junction Road in Sterling to the Litchfield Street (#207) Substation at 189 Litchfield Street in Leominster. Project activities include refurbishment and system improvements to 42 structures along the existing Tap Line ROW. Please refer to the United States Geological Survey (“USGS”) Map (**Figure 1**) and MEPA General Purpose Plans or Environmental Resource Maps (the “Plans”) (**Figure 2**) in **Appendix A: Project Figures** for more information.

The SEIR follows Section 11.07 of the MEPA regulations for outline and content and provides the information and analyses required in the Scope. The SEIR is organized as follows:

- Section 1 Project Overview*
- Section 2 Regulatory Compliance*
- Section 3 Land Alteration*
- Section 4 Wetlands and Waterways*
- Section 5 Historic, Archaeological and Cultural Resources*
- Section 6 Environmental Justice/Public Health*
- Section 7 Climate Change Adaptation and Resiliency*
- Section 8 Construction*
- Section 9 Avoidance, Minimization, and Mitigation*
- Section 10 Draft Section 61 Findings*

¹ Tap line are transmission line that serve as a connection between a primary transmission line (i.e., the mainline) and a substation facility.

Section 11 Response to Comments

The information presented in the EENF is incorporated herein by reference. A glossary of acronyms and technical terms is located at the beginning of this document. **Appendices A through F** include relevant supplemental information, e.g., figures and plans, the annotated response to comment letters, and the SEIR Distribution List ([C-5](#)). All comments received in response to the EENF have been addressed in **Table 11-1**, *Section 11* of this SEIR, which also includes page references to the main text. References to Comment IDs also appear within the main text and to identify where in the main text each comment is addressed. For example, the reference “(C-1)” in the main text is a reference to the first comment in the Certificate on the EENF.

1.2 From the Secretary’s Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within *Section 1*:

C-1: The Single EIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope.

C-2: It should clearly demonstrate that the Proponent will avoid, minimize, and mitigate Damage to the Environment to the maximum extent practicable through project alternatives and design.

C-3: The Single EIR should include updated site plans for existing and post-development conditions at a legible scale and a detailed description of all project components.

C-5: The information and analyses identified in this Scope should be addressed within the main body of the Single EIR and not in appendices. In general, appendices should be used only to provide raw data, such as wetland delineations, that is otherwise adequately summarized with text, tables and figures within the main body of the Single EIR. Information provided in appendices should be indexed with page numbers and separated by tabs, or, if provided in electronic format, include links to individual sections. Any references in the Single EIR to materials provided in an appendix should include specific page numbers to facilitate review.

1.3 Project Name and Proponent

Project Name: J136S Tap Line Rebuild Project

EEA Number: 17004

Project Proponent: Massachusetts Electric Company

1.4 Project Location

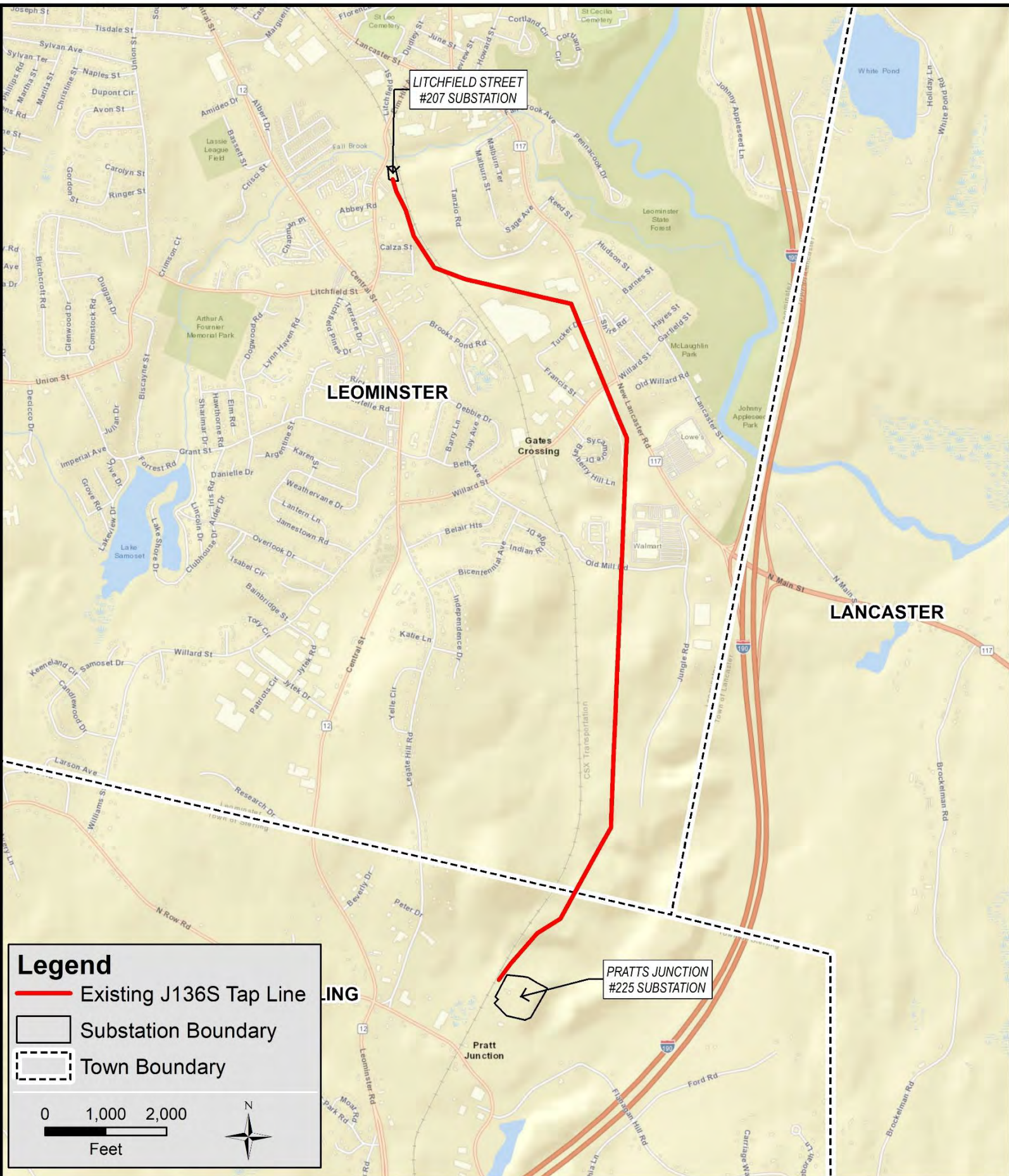
The Project ROW is generally oriented south-to-north, through the Town of Sterling and the City of Leominster. The Project will be located within the existing Tap Line ROW beginning at the Pratts Junction (#225) Substation at 26 Pratts Junction Road in Sterling and terminates at the Litchfield Street (#207) Substation at 189 Litchfield Street in Leominster. Please refer to **Figure 1-1** for an overview of the Project ROW and **Appendix A: Project Figures** for current plans that reflect the existing and proposed post-development conditions at an appropriate and legible scale ([C-3](#)).

The ROW is typically 250-feet (“ft”) wide and consists of moderately sloped terrain. Vegetation

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J136S Tap Line Rebuild Project

within the maintained ROW includes closed-scrub and open heath communities with occasional gramineous and herbaceous pioneer communities, while adjacent undeveloped areas consist of transitional upland forest and forested wetland. Adjacent land uses are primarily industrial, exempt, and commercial, with limited residential areas.



J136S Tap Line Rebuild Project

1.5 Project Description

As stated in the EENF, MECO is proposing to rebuild the J136S Tap Line to address deteriorating asset conditions of the structures and to re-conductor the Line to provide a higher capacity for future power demands. Reconductoring will not increase the voltage of the Line; the J136S Tap Line will continue to operate at 115 kV following construction. The Project involves rebuilding the existing Tap Line in a new alignment within the ROW. The new alignment is offset approximately 40-ft or 12 meters (“m”) east of the existing alignment. The offset is necessary so that the existing Line can remain in service during construction. The rebuild will include the removal of 42 structures and replacement with 40 new steel H-frame or single pole structures, access upgrades and work pad construction, and tree removal. Specifically, the refurbishment activities will include:

- Replacing the existing (mostly wooden) structures with a combination of steel single pole davit arm and steel H-frame structures (as shown in **Figure 3 - Cross Sections** in **Appendix A**). Two wood structures will be removed and not replaced. Replacement suspension type structures will either be supported on concrete caisson foundations² (15 structures) or will be direct embed structures³ (25 structures).
- Performing tree removals along the eastern edge of the ROW to accommodate the new centerline of the Tap Line and provide the required clearance between the re-aligned conductor wires and the tree line. Tree removal will extend approximately 40-ft into the existing forested edge. Additional tree removal will occur where needed for proposed workspaces. Vegetation management (mowing and trimming) along the existing managed corridor is required to provide access to the proposed structure locations, to facilitate safe vehicular and equipment passage, and to provide safe work sites for personnel.
- Performing access improvements and construction within the ROW corridor, including grading and the addition of stone to existing access. Wherever feasible, MECO is proposing access upgrades in alignment with previously utilized routes and pathways.
- Constructing work pads at structure locations. Work pads are areas at the base of structures where construction machinery and crews perform construction and maintenance activities. Work pads are designed to accommodate multiple vehicles at the required specifications for safe operation. MECO is proposing temporary and permanent work pads and other work areas (pull pads, equipment lay-down areas) throughout the ROW corridor.
- Replacing the existing copper conductor with a composite conductor made of a steel core and aluminum strands, which will improve system reliability and increase capacity without increasing the voltage of the line.
- Replacing the shieldwire with Optical Ground Wire (“OPGW”). OPGW is both a shieldwire and

² The installation of a self-supporting concrete caisson foundation involves drilling a vertical temporary casing shaft (oversized to fit the permanent casing), installing a permanent casing within the temporary casing, installing a steel reinforcing cage, placing anchor bolt clusters (to attach the structure to the foundation), pouring the concrete to form the caisson foundation within the permanent casing, backfilling the void between the permanent and temporary casing as the temporary casing is removed, bolting the new structure to the foundation, and finally grading around the base of the structure. Caisson foundations are typically around 8-ft in diameter, resulting in ~50-square feet (“sf”) of impact.

³ The installation of a direct embed structure involves the excavation of a hole, the installation of a vertically placed steel culvert (corrugated pipe), placement of the new pole within the culvert, and backfill of the culvert with stone around the pole. A direct embed culvert is typically 5-ft in diameter, resulting in ~20-sf of impact. Guy wires and anchors will be installed as required by code.

a telecommunication line between substations.

- Installing additional electrical infrastructure within the Litchfield Street Substation to accommodate the OPGW and upgraded conductor.

The full extent of proposed Project activities are shown on the Plans in **Figure 2 – Environmental Resource Maps** in **Appendix A**. Project construction activities will be generally sequenced as follows:

- Tree removal and vegetation management;
- Implementation of stormwater management and site control Best Management Practices (“BMPs”), including sediment and erosion controls (where applicable);
- Access and work pad re-establishment/improvement;
- Installation of new structures/structure replacements and overhead work such as reconductoring and installation of OPGW;
- Transfer of service from the existing Line to the rebuilt Line;
- Removal of old structures, wires, and other components;
- Restoration of the ROW (grading, mulching, seeding etc.) and removal of construction matting; and
- Once the ROW is fully stabilized, removal of sediment and erosion controls.

The phasing of construction is due in part to restrictions on the availability of outages on the existing Tap Line. The Tap Line must remain in service throughout most of the rebuild of the Line.

1.6 Project Needs and Benefits

Project Need: MECO is proposing to rebuild the J136S Tap Line to address deteriorating asset conditions of the structures and to reconductor the Line to provide a higher capacity for future power demands. Installation of OPGW will provide communication between the substations, further increasing system reliability. Several structures along the Line are original structures constructed in the late 1960’s, with other structures having been replaced in 2007. Additional past replacements include the majority of the insulators which MECO installed in 2006. The Line needs replacement as the structures are at the end of their designed life as evidenced in recent inspections detailing deteriorating conditions. Generally, the aging structures along the Line pose a threat to the reliability of the transmission system supplying the Leominster area. Additionally, the condition of the wood structures poses a risk to personnel and public safety and will incur greater costs if the aging infrastructure issues are not addressed.

Project Benefits: The Project will improve transmission system infrastructure and comply with comprehensive regional plans for improving electric transmission reliability in New England. Because this Project is a refurbishment of an existing transmission line, area residents and businesses will benefit directly from the upgrades through increased system reliability. Benefits of the Project include the following:

- Increased resiliency of the overall transmission line. By installing improved foundations and more robust structures, the proposed infrastructure will be better suited to withstand strong winds and storm events.

- The installation of OPGW will allow better communication between substations, resulting in improved response time during storm-related emergencies and outages, which will increase public safety.
- Designing for future needs reduces the frequency of disturbance to wetland resource areas, rare species habitats and adjacent landowners over time by reducing the likelihood of multiple repeat projects, thereby reducing environmental impacts and costs to MECO's customers.

1.7 Summary of Existing Conditions

The land within the ROW has been actively used and maintained as a transmission line corridor since the 1960s. Today, the existing Tap Line transmits power from the Pratts Junction Substation to the Litchfield Street Substation and provides electricity to the City of Leominster. The total land area of the J136S Tap Line ROW is approximately 92.45 acres, inclusive of the maintained ROW corridor and the easement areas outside of the maintained corridor (typically 250-ft wide). Several parcels along the ROW are owned in fee by MECO or New England Power Company ("NEP"). Vegetative communities and land cover within the ROW reflect standard vegetative management practices for overhead electrical transmission lines (i.e., routine mowing and trimming of vegetation to maintain early successional community types, hazard tree removal).

As described in the EENF (Section 4 – *Land Use*), land uses within the ROW are predominantly industrial (74.95%), followed by exempt properties⁴ (14.58%). Additional land uses in the ROW include commercial properties (4.89%), transportation (4.48%), and residential (0.31%). Areas within 300-ft of the ROW are predominantly industrial (57.64%), followed by exempt properties (15.83%), residential (11.30%), commercial properties (7.63%), and transportation (7.61%).

Public open space (designated as Article 97 Lands) are adjacent to or transected by the J136S Tap Line ROW. Approximately 12.64 acres of Open Space are located within the Project ROW itself (13.67%) and approximately 27.26 acres of Open Space are located within 300-ft of the ROW (approximately 11.8%). The J136S Tap Line ROW transects three Open Space parcels, all owned by the City of Leominster. Two of these parcels are managed by the City of Leominster Water Department, and the third, the Nashua Valley Conservation Area, is managed by the City of Leominster Conservation Commission.

The J136S Tap Line ROW does not fall within Zone I (the 400-foot radius surrounding a public water supply well), but it is located within the Zone II aquifer recharge area. Two parcels within the ROW are managed by the City of Leominster Water Department and are associated with municipal groundwater wells and their designated wellhead protection areas.

Field surveys conducted in 2022 and 2023 identified 10 wetlands, six perennial streams and rivers, and three intermittent streams within the Project ROW. Wetland resource areas are classified as palustrine scrub/shrub ("PSS"), palustrine emergent ("PEM"), or palustrine forested ("PFO") wetlands⁵. Wetlands generally supported early succession and transitional vegetative

⁴ Exempt Property qualifies for tax exemption under various provisions of the law and include public land and facilities, hospitals, schools, churches and cultural institutions, M.G.L. Chp. 59 §5. This category of land use includes federal, state, and local land (municipal and authorities); charitable (hospitals, cemeteries); and educational institutions.

⁵ Dominant species recorded for each wetland category included: **PFO**: Eastern white pine (*Pinus strobus*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), eastern hemlock (*Tsuga canadensis*), speckled alder (*Alnus incana*), common winterberry holly (*Ilex verticillata*), and highbush blueberry (*Vaccinium corymbosum*); **PSS**: Cinnamon fern (*Osmundastrum cinnamomeum*), creeping

communities, typical of ROWs where vegetation is regularly mown, and periodic disturbance associated with maintenance and operations is common. Other regulated resource areas present include Inland Bank (“Bank”) and Riverfront Area (“RFA”). No certified vernal pools occur within the ROW. Wetlands, waterways and water resources are discussed in detail in *Section 4: Wetlands and Waterways*, of this SEIR and depicted in **Appendix A**.

The Project ROW does not intersect any rare species habitat, though a portion of the off-ROW access through the Pratts Junction Substation property traverses Priority Habitat. MECO will use existing access that passes through a Priority Habitat in Leominster (access to Structure 7) for a reptile species. The name and location of the species are not provided, as requested by Natural Heritage Endangered Species Program (“NHESP”). MECO is not proposing to improve or upgrade the existing access. MECO anticipates use of the access to be covered by MECO’s Operation and Maintenance Plan (“OMP”) with NHESP.

Cultural resources within the Project area have been evaluated as documented in the EENF (Section 7 - Historic, Archaeological and Cultural Resources). MECO engaged Gray & Pape, Inc. (“G&P”) to complete cultural due diligence for the Project. No archaeological resources are present within the Project ROW or surrounding study area. Architectural assessments identified inventoried above-ground historic resources in the study area, none of which are located within the ROW. For additional details and updates, refer to *Section 5: Historic, Archaeological and Cultural Resources*, of this SEIR.

According to public data layers, an Activity and Use Limitation (“AUL”) area is indicated within the Pratts Junction Substation in Sterling. MECO is not proposing ground disturbing work within the limits of the AUL, nor will there be subsurface work within the Substation.

1.8 Summary of Proposed Conditions

Proposed conditions are consistent with the existing use of the Project area as an active utility ROW. The maintained ROW width will increase by 40-ft to account for the off-set construction of the rebuilt Line. MECO is proposing to construct the rebuilt Line on steel monopole structures to reduce the off-set distance. The steel monopoles will be taller than the H-Frame structures to accommodate the shift from a horizontal to vertical arrangement of the conductor wires.

In total, the area of the ROW subject to routine vegetation management is approximately 11.87 acres within uplands and 1.17 acres within wetlands (approximately 13.0 acres total). Vegetation along the ROW will continue to be maintained to prevent the growth of tall woody species that could interfere with reliable operation of the transmission line. This is critical to retain reliability and provide unrestricted access to the ROW and structures for construction, maintenance, and operation of the lines. Management of vegetation along the Line will be consistent with MECO’s Five-Year Vegetation Management Plan (“VMP”), which follows mandates set by federal and state regulations for the purposes of ensuring safe, reliable delivery of electric services.

Existing access conditions vary along the ROW. In certain segments, existing access routes require repair and do not meet MECO’s standards for safely supporting specialized construction

dewberry (*Rubus hispidus*), common winterberry holly, speckled alder, gray dogwood (*Swida racemosa*), highbush blueberry, red maple, and gray birch (*Betula populifolia*); **PEM**: cinnamon fern, tussock sedge (*Carex stricta*), swamp rose (*Rosa palustris*), sensitive fern (*Onoclea sensibilis*), Canada goldenrod (*Solidago canadensis*), soft rush (*Juncus effusus*), and arrow-leaved tearthumb (*Persicaria sagittata*).

equipment. In other locations, new access will be necessary where structures are being re-aligned and no access currently exists. In general, access outside of Bordering Vegetated Wetland (“BVW”) and wetlands will be approximately 12-ft wide for the travelled surface plus additional width as necessary for road shoulders and stormwater features. MECO will also establish work pads at off-set structure locations to facilitate construction and ongoing maintenance. With some exceptions where work pads are within RFA, MECO will continue to maintain constructed access and work pad areas following construction of the Project. The Project includes approximately 3.3 acres of new and/or improved access, approximately 21 acres of permanent gravel work pads, 3 acres of temporary gravel areas (access and/or work pads) and will result in approximately 0.8 acres of temporary wetland fill associated with construction matting used for access routes and work pads. MECO will restore temporary work pads by applying loam and seed post-construction. Temporary work pads include areas within RFA and work pads surrounding existing structures that will be removed. All access routes and work pads are depicted on the Plans in **Figure 2** in **Appendix A**.

1.9 Project Changes Since Submission of the EENF

Planning and design of a utility project is a dynamic process involving a balance of environmental, regulatory, and engineering considerations ([C-4](#)). The Project’s parameters are unchanged since the EENF filing, but coordination with state agencies has advanced since submission of the EENF. While it has not been feasible to change the designs of the Project or further reduce the impacts of the Project, MECO is providing clarification on the Project’s impacts (e.g., for land alteration), further justification of how the Project will comply with state requirements including stormwater management measures, and an analysis of Environmental Justice (“EJ”) hot spot in this SEIR. Please refer to **Table 1-1** for a general overview of Project impacts, *Section 3: Land Alteration*, *Section 4: Wetland and Waterways*, and *Section 6: Environmental Justice/Public Health* for further details.

1.10 Summary of Potential Project Impacts

Table 1-1 (below) provides a summary of impacts associated with the Project. Impacts are discussed in more detail within the later sections of this report, including *Section 3: Land Alteration* and *Section 4: Wetlands and Waterways*.

Table 1-1: Summary of Project Impacts by Resource Area

Resource Area	Temporary Impacts	Permanent Impacts/Conversion
New Land Altered	Total – 3.0 +/- acres ▪ Gravel/Grading of Work Pads and Pull Pads to be restored following construction	Total – approximately 33 +/- acres ▪ Conversion of vegetative cover types (13.0+/- acres) associated with tree removal¹ ▪ New/improved access ▪ New/replacement structure foundations ▪ Cut/fill for access and work pads ▪ Stabilization material in new/improved sections of existing access
Bordering Vegetated Wetland (“BVW”)	Total – approximately 0.8 +/- acres ▪ Construction mats for access where BVW crossings could not be avoided ▪ Temporary Work Pads, including construction mats for Work Pads and Pull Pads that overlap with BVW	Total – approximately 1.2 +/- acres ▪ Conversion of vegetative cover types associated with tree removal¹
Other Wetland Resource Areas		
Riverfront Area (“RFA”)	Total – approximately 1.3 +/- acres ▪ Vegetation management activities ▪ Temporary work pads, including construction mats for Work Pads and Pull Pads	Total – approximately 1.1 +/- acres* ▪ Conversion of vegetative cover types¹ ▪ New/improved access ▪ New/replacement structure foundations ▪ Cut/fill for access, and work pads ▪ Stabilization material in new/improved sections of existing access *Approximately 2.5 acres prior to restoration²
Waterways	Waterways crossings do not involve structures within the waterways, only construction mats to temporarily span waterways during construction. No adverse impacts are anticipated from waterways crossings.	

Resource Area	Temporary Impacts	Permanent Impacts/Conversion
Rare Species Impacts	The Project ROW falls outside the Priority or Estimated Habitat; however, MECO will use existing access that passes through a Priority Habitat area in Leominster (access to Structure 7). Consultation with Natural Heritage and Endangered Species Program (“NHESP”) is not required for this access since there is no impact proposed and work will take place under an existing Operation and Maintenance Plan (“OMP”) with NHESP. Also, per Massachusetts Wetlands Protection Act (“WPA”) requirements, MECO will submit the Notice of Intent (“NOI”) filed with the City of Leominster Conservation Commission to NHESP.	
Historical/Archaeological Impacts	No archaeological resources are present within the Project ROW or surrounding study area. Architectural assessments identified inventoried above-ground historic resources in the study area, none of which are located within the ROW.	

¹ This value includes the conversion of vegetated types (e.g., trees) to other vegetated types (e.g., shrubs).

² ‘Restored’ areas include gravel or graded areas to be loamed and seeded post-construction. As such, the pre-restoration values include all permanent project impacts, while post-restoration values exclude the restored gravel/graded areas. All new gravel access and work areas in RFA will be restored.

1.11 Summary of Project Avoidance, Minimization, and Mitigation Measures

MECO’s mitigation measures fall into three primary categories: avoidance and minimization measures implemented in Project planning and design, construction-phase BMPs to be implemented in the field to minimize impacts, and restoration where impacts are unavoidable ([C-2](#)). Efforts to avoid impacts have been a major design consideration for MECO. Where avoidance will not be practicable, MECO crews will implement appropriate construction-phase BMPs to minimize impacts and post-construction restoration of impacted resource areas. Avoidance and minimization are discussed by resource area in each section of this SEIR, and mitigation measures proposed for the Project are then presented comprehensively in *Section 9: Avoidance, Minimization, and Mitigation* ([C-2](#)). **Table 1-2** includes a few examples of each type of mitigation measure.

Table 1-2: Examples of Mitigation Measures

Design-Phase Avoidance and Minimization	▪ The Project utilizes an existing transmission line ROW, and the majority of the work will be within the ROW (some off-ROW access is required). ▪ Existing access will be utilized to the fullest extent practicable, reducing the need for disturbance of new areas. ▪ During Project design, detailed constructability reviews were conducted to avoid and minimize work pads within resource areas. ▪ Where practicable, replacement structures will be located close to existing structures, reducing the area of new disturbance. ▪ Where practicable, replacement structures will be relocated outside of wetlands (the ability to relocate structures is limited by the span between structures, and other site constraints). ▪ No permanent stream crossings or wetland crossings are proposed.
Construction-Phase Avoidance and Minimization (BMPs)	▪ Use of temporary soil erosion and sediment controls. ▪ Use of temporary construction matting for access and work areas within wetlands, to protect soil and rootstock. ▪ Restoration of wetlands and other ecologically sensitive areas to pre-construction configurations and contours, to the extent practicable. ▪ Time-of-year (“TOY”) restrictions, rare species sweeps, and other avoidance measures required by Natural Heritage and Endangered Species Program (“NHESP”), for work within rare species habitats.
Restoration and Other Mitigation	▪ MECO proposes <i>in situ</i> restoration of areas impacted by temporary construction matting and/or temporary soil disturbance. ▪ MECO proposes to use the United States Army Corps of Engineers (“USACE”) <i>In-Lieu Fee</i> Program to mitigate for secondary impacts associated with tree removals and the resultant conversion of vegetative community type within wetlands. MECO’s proposed mitigation for secondary impacts will comply with the USACE’s New England District Compensatory Mitigation Guidance (the “USACE Guidance”).
Environmental Enhancement Measure	▪ MECO has designed the Project and associated mitigation and restoration measures in compliance with all federal, state and local requirements. While there is no federal or state regulatory mandate for providing restoration/mitigation for tree removals, MECO recognizes the importance of tree canopy cover. As such, MECO has minimized the extent of tree removals to the extent possible and, as requested in the Certificate on the EENF, has committed to making a funding contribution to compensate for unavoidable tree loss within “Hot Spots” along the Project corridor (C-15).

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MECO anticipates that the final mitigation plan for wetlands impacts will be developed during the federal, state, and local permitting processes and that the plan will fully address the required permit conditions and agency concerns. MECO's proposed measures will avoid or minimize most environmental impacts and will meet applicable regulatory requirements to compensate for the remaining unavoidable impacts.

The MEPA regulations at 301 CMR 11.07(6)(k) require that the SEIR contain the proposed Section 61 Findings. In accordance with this requirement, MECO's proposed Section 61 Findings for the Project are presented in *Section 10: Draft Section 61 Findings* of this SEIR.

2. Regulatory Compliance

The Certificate on the EENF states that the Proponent should provide a brief description and analysis of all applicable statutory and regulatory standards and requirements and describe how the project will meet those standards. This section provides a general overview of the Project's approach to complying with federal, state, and local regulatory requirements. It outlines the relevant statutory and regulatory standards that apply to the Project. This section also describes how the Project will meet these standards through design, avoidance, minimization, and mitigation measures.

2.1 From the Secretary's Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 2:

C-4: The Single EIR should identify and describe state, federal and local permitting and review requirements associated with the project, provide an update on the status of each of these pending actions, analyze applicable statutory and regulatory standards and requirements, and provide a discussion of the project's consistency with those standards.

C-16: The Proponent should coordinate with MassDEP WRP [Waterways Regional Program] to ensure the project description includes adequate information about the scope of work as it relates to c. 91, and that any necessary c. 91 review and/or authorization is obtained. The Single EIR should contain an update on this discussion and whether c. 91 review is required.

DEP-2: The EENF does not make clear whether activities proposed in BVW would result in permanent loss of more than 5,000 sf such that an individual 401 WQC may be required under 314 CMR 9.04(1) or (11).

WRP-1: However, the project description also includes the temporary placement of construction matting within jurisdictional waterways, contrary to the description in the EENF that, "No structure fill is proposed within any rivers or streams". The EENF does not include details or an explanation to support that the temporary work within Chapter 91 jurisdiction is exempt from licensing or other Chapter 91 authorization. Therefore, it is recommended that the Proponent coordinate with the Department to ensure the project description includes adequate information about the scope of work as it relates to Chapter 91, and that any necessary Chapter 91 review and/or authorization is obtained.

2.2 Permit Requirements, Compliance and Status

MECO will obtain environmental approvals and permits required by federal, state, and local agencies for the Project, and the Project will be constructed and operated in full compliance with all performance standards and/or issued permits and authorizations.

Table 2-1 (below) provides an overview of the agencies and regulatory programs involved in permitting and compliance for the Project ([C-4](#)). *Section 2.4* provides more detail on each state environmental regulatory program, and how the Project conforms with applicable regulations. A full list of federal, state, and local environmental permits and approvals required for the Project, and MECO’s compliance with the conditions of each, was provided in Section 9 of the EENF.

Table 2-1: Permitting, Project Compliance and Legal Status Updates Since the EENF

Agency	Permit/ Review/ Approval	Summary of Project Compliance	Status
Federal			
U.S. Army Corps of Engineers (“USACE”)	Section 404 Nationwide Permit (“NWP”) Authorization via Pre-Construction Notification (“PCN”) and associated consultations under Section 106 of National Historic Preservation Act (“NHPA”) and Section 7 of the Endangered Species Act (“ESA”)	MECO will submit a PCN for the Project to USACE, for authorization under the NWPs for Section 404. Specifically, Project activities will be filed under NWP 33 (<i>Temporary Construction, Access, and Dewatering</i>), and NWP 57 (<i>Electric Utility Line and Telecommunications Activities</i>). The Project will conform with all applicable General Conditions, which will be outlined in the PCN. Section 106 Consultation with state, tribal, and local historic preservation offices will be performed, and coordination will continue throughout Project permitting. Section 7 consultation under the ESA will be performed.	To be filed in conjunction with the Section 401 Individual WQC. Anticipated filing June 2026.
United States Environmental Protection Agency (“EPA”)	National Pollutant Discharge Elimination System (“NPDES”) General Permit for Stormwater Discharges and Construction Dewatering Activities/Stormwater Pollution Prevention Plan (“SWPPP”)	MECO will submit an electronic Notice of Intent (“eNOI”) to the EPA at least one month prior to the start of construction. As a component of the eNOI process, MECO will prepare a SWPPP for the Project outlining the appropriate use of Best Management Practices (“BMP”) and documenting compliance with the EPA’s NPDES program.	To be filed at least 14 days prior to the start of construction.
State			
Massachusetts Executive Office of Energy and Environmental Affairs (“EOEEA”)	Massachusetts Environmental Protection Act (“MEPA”) Review / Certificate of the Secretary (EEA #17004)	This SEIR represents the second submittal to the EOEEA for the Project (EEA #17004). MECO submitted an EENF for the Project on September 26, 2025, and received the Secretary’s Certificate on November 14, 2025. At each stage in the permitting process, Massachusetts Electric Company (“MECO”) has responded to all comments received from the Secretary and other parties and is continuing to coordinate with all agencies. Conformance with applicable regulations is described for each individual agency/regulatory program listed in this table.	Filed the Expanded Environmental Notification Form (“EENF”) September 26, 2025; Received Certificate November 14, 2025 (EEA number #17004). MECO is submitting this SEIR in response to Secretary’s comments.
Massachusetts Department of Environmental Protection (“MassDEP”)	Section 401 Individual Water Quality Certification (“WQC”)	MECO will file an application for Individual WQC under 314 CMR 9.00 with MassDEP. It is anticipated that the Project will require an Individual WQC because Project-related alterations, including temporary fill from construction matting, are likely to exceed 5,000 square feet (“sf”). The statutory standards and requirements for projects requiring a 401 WQC application are listed in 314 CMR 9.06.	Anticipated filing June 2026, or ~60 days after the Single Environmental Impact Review (“SEIR”) Certificate is issued.
Natural Heritage and Endangered Species Program (“NHESP”)	Massachusetts Endangered Species Act (“MESA”) – Determination of “Take” or “No Take”	The proposed work is located outside of Priority Habitat for rare species as currently mapped by the Division. Therefore, a MESA Project Review Checklist is not required. Access to Structure 7 requires passage along an existing access route that passes through NHESP Priority Habitat in Leominster. MECO will implement BMPs, as prescribed in the current Division-approved annual Operation and Maintenance Plan (“OMP”) (NHESP 25-19522), to protect rare species and their habitats.	Because MECO will perform the Project under the conditions of the approved OMP, no Checklist submittal or Determination letter is required.
Massachusetts Historical Commission (“MHC”)	Consultation under M.G.L. c. 9 § 27C in accordance with 950 CMR 70-71	Through review of the Section 404 PCN, MECO will continue consultation with MHC and the USACE to identify historic, archaeological, or cultural resources prior to construction and to avoid, minimize, or mitigate impacts to cultural and historic resources. Based on surveys and consultation performed to date, MECO does not anticipate additional actions beyond providing documentation.	The archaeological survey report was provided to the MHC and Tribes April 28, 2025. MHC requested a second copy of the report with no revisions on May 23, 2025, and final copies were provided to the MHC and Tribes on June 24, 2025.
Local			
Conservation Commissions in Sterling and Leominster	Order of Conditions (“OOC”) per the Massachusetts Wetlands Protection Act (“WPA”) ¹ .	MECO will submit an NOI to the Sterling and Leominster Conservation Commissions. The Project will comply with the requirements of the WPA, and local Bylaws (where applicable).	Anticipated Submittal Summer/Fall 2026

¹ WPA Orders of Conditions (“OOCs”) are local permits, unless and until a superseding OOC is issued by Massachusetts Department of Environmental Protection (“MassDEP”).

2.3 Agency Interactions Since EENF

Table 2-2 (below) summarizes the primary consultations with federal, state, and local agencies that have occurred since the EENF was submitted to MEPA ([C-4](#)). Additional consultations with agencies are ongoing, or will be undertaken, as appropriate. For example, meetings with local Conservation Commissions (or the Commission’s Agent) are anticipated prior to filings in the municipalities along the Project ROW.

Table 2-2: Agency Consultations Since the EENF Publication in the Environmental Monitor

Agency	Date(s)	Notes
Massachusetts Department of Environmental Protection (“MassDEP”)	04/30/2026	Pre-application meeting - general overview and discussion of the Project.

2.4 State Regulatory Review

MECO will design, construct, and maintain the infrastructure for the Project in accordance with relevant federal, state, and local regulations, and in compliance with those permitting programs listed in **Table 2-1**. More information on regulatory compliance under these statutes is provided below. Detailed avoidance, minimization, and mitigation measures are described in *Section 9* of this SEIR.

2.4.1 Section 401 Water Quality Certification, MassDEP

In conjunction with the Section 404 permit filing, MECO anticipates filing an application for an Individual Water Quality Certificate (“IWQC”) under 314 CMR 9.00 with Massachusetts Department of Environmental Protection (“MassDEP”). The Project is anticipated to require an Individual WQC because:

- The Project does not qualify for National Grid’s 2023 Comprehensive Water Quality Certification for Utility Maintenance (“CWQC”), as the Project does not meet condition 18a, which requires that structure replacements must occur within “actively managed transmission rights-of-way”, and due to the exclusion for tree removals for ROW widening.
- The Project includes the placement of fill material within Waters of the United States (“WOTUS”) associated with the use of temporary construction matting for access and work areas. The use of temporary construction matting is exempt from the requirement to obtain an Order of Conditions; however, an IWQC is required pursuant to 314 CMR 9.04(4);

Upon completion of construction and the removal of temporary matting, MECO will fully restore wetlands and WOTUS, including re-establishing pre-construction grades, hydrology, and vegetation. No permanent structure fill is proposed within wetlands or WOTUS ([WRP-1](#); [DEP-2](#)).

The Project’s conformance with the statutory standards and requirements of 314 CMR 9.06 was described in detail in Section 9 of the EENF. In summary, MECO completed a comprehensive and detailed alternatives analysis that established the proposed Project as the best alternative that will address the need for improved performance of the Line with the fewest environmental impacts and least discharge of fill within WOTUS. MECO will employ appropriate BMPs, including sediment and

erosion controls, throughout construction to minimize adverse impacts to vegetated wetlands and WOTUS. MECO has designed the Project to comply with the applicable Massachusetts Stormwater Management Standards to the extent practicable and will be subject to the standards and conditions of the National Pollutant Discharge Elimination System (“NPDES”) Construction General Permit (“CGP”). Specific stormwater management practices, procedures, and BMPs are outlined in *Section 3.3* of this SEIR. Refer to MECO’s Environmental Guidance document *EG-303NE - ROW Access, Maintenance and Construction Best Management Practices for New England* in **Appendix C** for a presentation of MECO’s BMPs and **Appendix D** for the Stormwater Memo.

One of MECO’s most important goals in Project design was to avoid and minimize adverse impacts on wetlands and water resources. This includes measures to minimize the number of required structures located within wetland resource areas, minimize the extent of temporary matting used to access and work on structures within wetland resource areas, and BMPs to minimize impacts where work within wetland resource areas cannot be avoided. Refer to *Section 9* of this SEIR for additional details.

2.4.2 Massachusetts Wetlands Protection Act, MassDEP, and Conservation Commissions

The Project will require approvals under the Massachusetts Wetlands Protection Act (“WPA”) and the implementing regulations at 310 CMR 10.00. MECO will file Notice of Intent (“NOI”) permit applications with the Sterling and Leominster Conservation Commissions for temporary and permanent “alteration” of jurisdictional resource areas. These NOIs will detail the proposed work, the short-term and long-term impacts, and the proposed avoidance, minimization, and mitigation measures for those impacts. The NOI review process focuses on how the Project and the proposed mitigation conform to the performance standards for each affected WPA resource area.

MECO has designed the Project to conform to the performance standards of the WPA. The Project meets the performance standards for proposed temporary and permanent alteration of Bank, BVW, and RFA resource areas. The Project’s consistency with the specific resource area performance standards is presented in the Sections 9.1.2.1, 9.1.2.2, 9.1.2.3, and 9.1.2.4 of the EENF. Permanent alterations are limited, primarily involving structure foundations in upland resource areas and conversion of vegetative cover within BVW and upland resource areas. Although the Project will involve more than 5,000 square feet (“sf”) of alteration due to tree removals, conversion of wetland vegetation cover type is not a loss of wetlands. Some functions and values may change as a result of the change in vegetation; however, wetlands will continue to provide the statutory interests protected by the WPA. Additionally, MECO’s forestry crews will retain understory vegetation to the extent feasible to maintain shading and habitat. No permanent impacts to water quality, flood control, or wildlife habitat functions are anticipated. BMPs and in situ restoration measures will be implemented to avoid, minimize, and mitigate impacts, ensuring that resource areas largely retain their pre-construction conditions. Proposed permanent alteration of the ground surface within RFA associated with access and work pads is below regulatory thresholds, and no substantial adverse effects to ecological functions, including wildlife functions are expected.

To meet the “no significant adverse impact criteria” of CMR 10.58(4)(d), MECO has minimized impacts within RFA, including through the loaming and seeding of disturbed areas, use of temporary matted access and work pads where suitable, and minimization of tree removals. Where necessary for installation of linear site-related utilities, temporary impacts are allowed within the RFA, provided the impacted area is restored to its natural conditions (310 CMR 10.58 (4)(d)(1)(a)). Temporary RFA impacts resulting from the proposed Project consist primarily of construction-phase land

disturbance associated with work areas and access. MECO is proposing only temporary work pads and access within RFA; crews will restore these areas to meet existing ROW conditions, most of which has been historically affected by the safe operation of the transmission facilities.

2.4.3 Massachusetts Stormwater Management Standards

MassDEP applies the Massachusetts Stormwater Management Standards (the “Standards”) pursuant to the Wetlands Regulations (310 CMR 10.00) and the Water Quality Regulations (314 CMR 9.00) relating to stormwater. The Standards define 10 stormwater management performance standards for development and redevelopment projects. The Project is not anticipated to significantly impact hydrology along the ROW. Rather, by controlling the run-on to and runoff from the constructed access and work pads and allowing it to recharge into the ROW ground surface in a controlled manner, the Project is meeting the intent of the Massachusetts Stormwater Handbook and the provisions of 310 CMR 10.05(6)(k) through (q).

MECO will employ stormwater BMPs for construction-phase stormwater management including sediment and erosion controls. During the construction of the Project, MECO additionally will construct permanent stormwater management features such as swales, water bars, plunge pools, and check dams to promote stability of the constructed access improvements, reducing potential for erosion and/or washout, and protecting resource areas. The extent to which the Standards apply to the Project will be addressed as part of the WPA and 401 Water Quality permitting process. Additionally, MECO will submit an NOI and prepare a Stormwater Pollution Prevention Plan (“SWPPP”) for the Project in compliance with the United States Environmental Protection Agency’s (“EPA”) NPDES Stormwater CGP.

Refer to the Stormwater Memo in **Appendix D** for additional discussion on stormwater implications ([C-12](#); [C-18](#); [DEP-1](#)).

2.4.4 Waterway Permitting – Chapter 91 Jurisdictional and Exempt Crossings

As described in the EENF, the Project intersects six non-tidal perennial streams that are likely navigable streams jurisdictional under Chapter 91 (“C.91”). However, all of the work proposed by MECO at these crossings is exempt from further licensing. First, with respect to the overhead wires, the Project will meet the conditions of 310 CMR 9.05(3)(g), for *“placement in a non-tidal river or stream [subject to C.91] of fill or structures for which a final OOC has been issued, and which does not reduce the space available for navigation, limited to (1) overhead wires, conduits, or cables...constructed and maintained in accordance with the National Electrical Safety Code”*. Final Order of Conditions (“OOCs”) will be required from both Leominster and Sterling before the Project can commence, and the replacement of overhead wires will not alter their height or reduce the space available for navigation. As such, the Project will comply with provisions of 310 CMR 9.05(3)(g).

Second, where construction matting must be used as a best management practice for temporary stream crossings, the work is exempt as part of MECO’s obligations to maintain the existing lines. Under 310 CMR 9.22(a), MECO must *“maintain and repair all authorized fill and structures in good working order...[n]o application for license or license amendment shall be required for such activity.”* All of the proposed activities at each of the crossings are necessary to maintain and repair the authorized Lines. This includes the use of construction mats to temporarily span waterways so that construction vehicles conducting maintenance activities can cross the waterways without damaging the surrounding resource areas. Because construction mats are a means and method

for maintenance activities, they are exempt from further licensing or other C.91 approvals under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1). ([C-16](#), [WRP-1](#)).

Refer to *Section 9* of this SEIR for a comprehensive description of the avoidance, minimization, mitigation, restoration, and monitoring measures applicable to wetlands and waterways ([C-15](#)).

2.4.5 Massachusetts Endangered Species Act

Only a small portion of existing off-ROW access intersects with NHESP Estimated or Priority Habitat. MECO is not proposing improvements, upgrades, or other ground-disturbing work along this existing and well-established access route. Crews will travel this existing access to gain entry to the ROW. When using this access, crews will follow applicable guidelines within MECO's established OMP with NHESP. In accordance with the MESA regulations at 321 CMR 10.14(11) Projects and activities that include *"routine operation and maintenance that are part of an operation and maintenance plan approved by the Division of Fisheries and Wildlife"* are exempt from review.

Although the Project is exempt from review, MECO will coordinate with NHESP in the course of Massachusetts Wetlands Protection Act ("WPA") permitting per 310 CMR 10.59 and provide a copy of NOIs submitted for the Project to NHESP.

2.4.6 Massachusetts Historical Commission

Any projects that require funding, licenses, or permits from any state agency must be reviewed by the Massachusetts Historical Commission ("MHC") in compliance with M.G.L. c. 9, §26-27C. As consultants to MECO, G&P completed a due diligence and desktop archaeological sensitivity assessment for the Project in December 2022, with intensive surveys performed between October 2023 and September 2024 under State Archaeologist Permit #4281, issued on June 9, 2023, amended August 9, 2023, and extended on July 29, 2024.

G&P submitted a report to the MHC in April 2025 indicating that no archaeological resources were located and recommending that no further archaeological investigations are warranted for the Project. MHC responded with a concurrence letter on May 23, 2025.

MECO anticipates additional consultation with MHC and the applicable Tribal Historic Preservation Officers during the Section 106 Consultation process, which will be undertaken as part of Section 404 permitting.

3. Land Alteration

This section addresses elements in the Scope associated with land alteration, including distinction between potential temporary and permanent impacts, stormwater management, and potential hazard waste associated with the Project.

3.1 From the Secretary's Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 3 of this SEIR:

C-10: The Single EIR should provide an update of total of land alteration, distinguishing between temporary and permanent impacts.

C-11: The Single EIR should identify the total existing and proposed gravel areas, including access roads and work pads.

C-12: It should describe any stormwater management that will be constructed as part of the project and include a copy of the Stormwater Report.

3.2 Land Alteration

As noted in the EENF, the Project site is currently an active utility ROW, and the Project is consistent with these existing facilities and activities. Land alteration associated with the Project is limited to the conversion of forested land to managed vegetation, access improvements, and work pad alteration. Temporary impacts are associated with the areas where gravel/grading of Work Pads and Pull Pads will be restored post-construction. The Plans in **Appendix A** depict areas of proposed temporary and permanent land alteration.

Table 3-1 presents land alteration associated with proposed Project activities, distinguished between temporary and permanent impacts ([C-10](#)).

Table 3-1: Land Alteration Total by Activity

	Activity	Total (acres)
Permanent Alteration	Tree Removal/Vegetation Cover Type Conversion*	13.0
	Gravel/Grading of Work Pads and Pull Pads	21
	Gravel/Grading of Access (Upgrades and Construction)	3.3
	Total Permanent Alteration	32.9
Temporary Alteration	Gravel/Grading of Access, Work Pads, and Pull Pads to be Restored	3.0
	Total Temporary Alteration	3.0
	TOTAL**	36

*Approximately 4.33 acres of tree removal overlaps with other impact areas summarized in this table.

**Since tree removal overlaps with areas other alteration areas (e.g. work pads and/or access), the total impact area is not equal to the sum of each activity. Following restoration of RFA, total permanent land alteration will be approximately 32.9 acres.

3.2.1 Existing and Proposed Gravel (Access and Work Pads)

In response to comment [C-11](#), identifying the total existing area of gravel (for access and work pads is impracticable for this Project; however, we have conservatively identified all proposed areas of grading and gravelling as “new,” except “existing off-ROW access” which will not require any improvements. Refer to **Table 3-1** for these values.

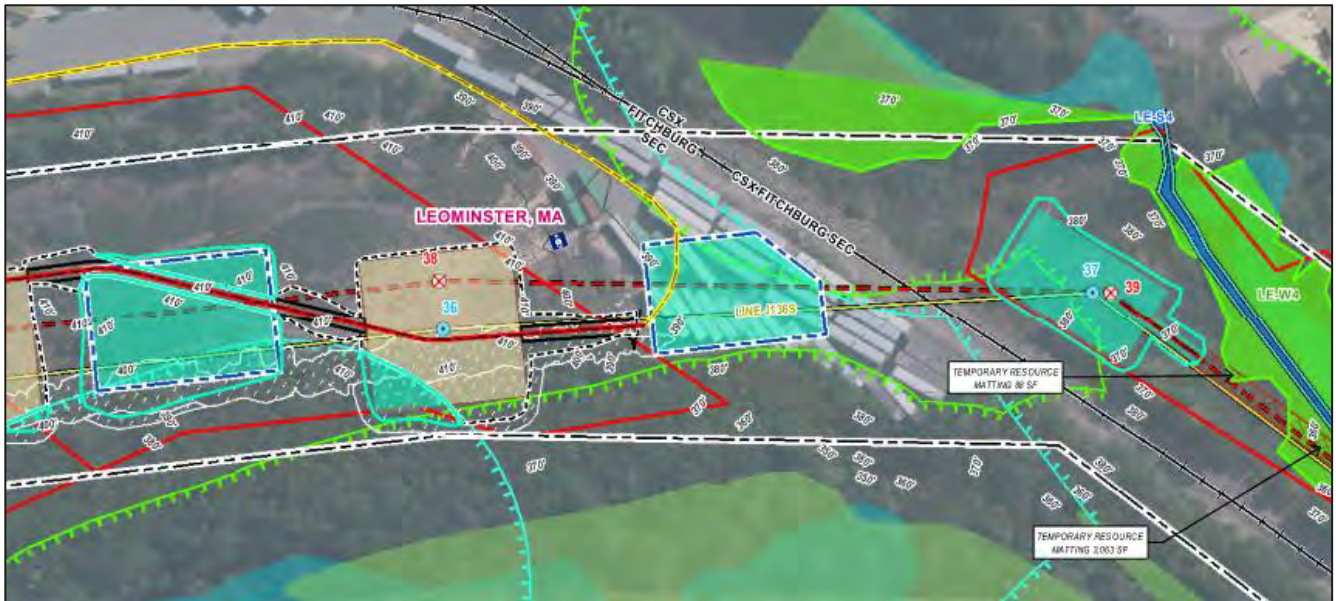
The existing access conditions (width, quality, and proportion of existing gravel) vary throughout the ROW. For example, existing access is typically between 8 and 12-ft in width; however, different segments of access will have varying amounts of gravel in terms of proportion (roads may be entirely sand or other substrate, lightly graveled, or heavily graveled) or in terms of distribution (there may be small patches of gravel from intermittent road repairs, gravel may have been displaced from erosion or degradation, and may have been revegetated over time).

Similarly for work areas, MECO has not evaluated the extent of existing gravel Work Pads and Pull Pads as existing conditions vary significantly, and it is not feasible to outline the aerial extent of existing graveled surfaces. For example, due to the proposed re-alignment of the Line, there are no existing work pads at the proposed new structure locations. Further, existing work areas for the existing structures may be small or indistinguishable from the surrounding area due to degradation and revegetation. Similar to access, work areas may have varying proportions and distribution of gravel, when present.

Refer to the Plans in **Appendix A** and **Figure 3-1** (below) for an example of how proposed access and work areas are depicted. Access to be repaired, upgraded/widened, or constructed (temporary or permanent) is depicted with a red centerline. Where this access is permanent, the travelled surface is depicted with two thick black lines and associated limits-of-disturbance (inclusive of road shoulders and stormwater management measures) are depicted with black-white dashed lines and represents the “Gravel/Grading of Access (Upgrades and Construction)” listed in **Table 3-1**. *Where work areas are permanent*, the travelled/flat surface areas are shaded in brown and are surrounded by black-white limits-of-disturbance for side-slopes and represents “Gravel/grading of

Work Pads and Pull Pads” listed in **Table 3-1**. Where access and work areas will be restored, these areas are depicted with a teal limits-of-disturbance and the travelled/flat surfaces are shaded in teal and are represented collectively as “Gravel/Grading of Access, Work pads, and Pull Pads to be Restored” listed in **Table 3-1**.

Figure 3-1: Proposed Access and Work Areas



MECO is conservatively estimating the total land alteration associated with access and work area improvements and construction as the full extent of each area, inclusive of any existing historic graveled surfaces. Further context on existing and proposed conditions is described in the next two sections, starting with access and followed by work areas.

3.2.2 Permanent Alteration

3.2.2.1 Tree Removal/Vegetative Cover Type Conversion

As stated in the EENF, approximately 40-ft of trees and forested vegetation cover along the east side of the ROW is necessary to meet conductor clearance requirements. Tree removal is required to provide access to the proposed structure locations, to facilitate safe vehicular and equipment passage, to provide safe work sites for personnel, and to meet safety standards for the clearance between the conductor and nearby vegetation⁶.

In order to operate the Lines in accordance with the North American Electric Reliability Commission (“NERC”) document FAC-003-4 “Transmission Vegetation Management” with the conductors under “blowout” conditions (6 pounds per sf of wind on wire) approximately 13.03 acres of vegetative

⁶ Safe clearance distances are dictated largely by line voltage, but also by structure height and site topography. Lines must not only be clear of falling trees and limbs, but also from the risk of “arcing” – when electric current jumps the air gap between a conductor and nearby vegetation, with associated safety and fire risks. For the J136S Tap Line, analysis has shown that an additional 40 feet of clearance is required on the east side of the ROW, in order to meet modern safety standards.

cover type conversion will occur along the forested edges of the Project ROW, of which 1.17 acres are within wetland resources (including BVW) and 11.87 acres are in upland as shown in **Table 3-2**. Where historic access requires widening or grading, or new access is required to accommodate modern equipment, more extensive tree removal will be required.

Table 3-2: Conversion of Vegetative Cover Types Along the J136S Tap Line ROW

Resource Area	Conversion of Vegetative Cover Types (acres)*
Upland	11.87
Bordering Vegetated Wetland ("BVW")	1.17
Total (Upland and Wetland)	13
100-ft Buffer Zone to Bordering Vegetated Wetland	1.70
Riverfront Area ("RFA")**	1.07
Open Space	3.01

* This is the total area of proposed tree removal in each resource area; these totals are not additive, as tree removals occur in overlapping resource areas, such as 100-ft Buffer Zone and RFA.

** Indicates tree removal in RFA in uplands only.

3.2.2.2 Access Improvements and Construction

The majority of the proposed access follows existing or historic access routes. Since access conditions vary considerably throughout the ROW, MECO needs to upgrade historic access paths in some areas to ensure the safe operation of equipment needed to construct the Project. Some existing access routes are degraded and do not meet MECO's standards to safely support specialized equipment. Additionally, due to the proposed off-set of the Line, there is little existing access directly to the proposed structure locations. As such, some new access and work areas are required within the ROW.

Proposed access (repaired, upgraded/widened, or new) will typically be constructed as 12-ft wide along the travelled surface as well as road shoulders and stormwater management measures, where needed to meet the Massachusetts Stormwater Management Standards. The total footprint of access (inclusive of the traveled width, road shoulders, and stormwater management measures) are depicted in the Project Plans (**Appendix A**). The traveled width may be wider in some locations (e.g. where access curves to accommodate the turning radii of the equipment). The full limits of disturbance for road shoulders and stormwater management measures may be wider depending on site terrain.

Since most historic access roads/paths require some level of improvement to meet access requirements for the Project and are of varying existing widths and conditions, MECO has conservatively identified all in-ROW access routes as new gravel areas that will either be permanent or temporary (restored post-construction), even when overlapping with existing access. The degree of improvements and grading needed in any location will vary with site topography, degree of access degradation, and other site conditions. Methods of access construction, described further in *Section 8* of this SEIR, will vary depending on existing conditions.

3.2.2.3 Work Areas (Work Pads and Pull Pads)

Crews will establish work pads at structure locations to facilitate the removal of existing structures

and the installation of new or replacement structures and associated components. Pull pads will also be used to stage equipment for overhead wire installation. Wire stringing and pulling areas are typically needed at line angle points and dead-end structures to provide stable, level work surfaces for personnel and equipment. These temporary wire stringing and pulling sites will be stabilized and allowed to revegetate. In sensitive resource areas, such as wetlands, pull pads will consist of construction matting placed over existing vegetation where feasible. In general, MECO has designed work pads to be up to approximately 125-ft by 125-ft, but each work pads may vary in size depending on work needs and site constraints. Proposed work area locations are shown on the Plans in **Appendix A**.

Work pad improvements will depend upon site topography and existing conditions at each structure location. Where site topography and stability of existing ground allows, work pads will be mowed only. Where topography is steeper or the ground surface is unstable, work pads will require grading and the placement of stone (gravel) to provide a stable work surface. Where construction matting is placed in BVW, matting will be removed once construction is complete. Outside of sensitive wetland resource areas, work pads will remain in place to provide permanent work pads for future maintenance/emergency work at new structure locations.

3.2.3 Temporary Impacts

In certain locations, access, pull pads, and work areas will be improved by grading and gravel placement to support the safe operation of utility equipment. These areas will be restored post-construction by applying loam and seed to revegetate these areas, resulting in temporary impacts (Refer to Section 8.2.2 of the EENF for further details on restoration). Temporary access, work areas, and their limits-of-disturbance are depicted in teal on the Project Plans in **Appendix A**. Work areas will involve grading and stone placement to create a stable surface. Construction matting placed within BVW and RFA will be removed once construction is complete. Outside of sensitive wetland resource areas, work areas may remain to serve as permanent platforms for future maintenance or emergency work. Upon completion of construction, MECO will restore temporary work areas, including pull pads, work pads used for removals, and areas within RFA, by applying loam and seed to revegetate the surfaces.

3.3 Stormwater Management

In response to comment [C-12](#), MECO has conducted additional assessments to evaluate applicability and compliance with the stormwater standards given the Project location, scope of work, and proximal resource areas. The Project will comply with applicable Standards and the NPDES CGP. It is not expected to significantly affect hydrology along the ROW. Stormwater from access and work areas will be controlled and allowed to recharge into the ground in a managed manner, consistent with the Massachusetts Stormwater Handbook and 310 CMR 10.05(6)(k) through (q). A discussion of how the Project will meet the Standards is detailed in **Appendix D: Stormwater Memo**.

Potential stormwater impacts from the Project will predominantly occur during construction, and could include erosion and sedimentation of disturbed soils, and release of fuels or other hazardous liquids from equipment and vehicles. Tree removals have the potential to impact stormwater via a number of mechanisms: ground disturbance may result in erosion and sedimentation; loss of canopy cover increases the volume and velocity of rainfall reaching the ground; and removal of trees reduces the rate of transpiration and uptake of water from the soil.

MECO has minimized the extent of tree removals required for the Project to the extent possible and will limit tree removals to a narrow band along the edge of the existing cleared width of ROW. In order to reduce stormwater runoff from areas where tree removals are proposed, MECO is planning to retain understory vegetation wherever possible. In areas where understory vegetation is absent (or is disturbed during tree removal activities), appropriate stabilization and restoration measures will be employed to ensure that stormwater runoff is minimized, and erosion and sedimentation impacts are avoided. Measures may include mulching and seeding of disturbed areas, installation of sediment and erosion controls, or other appropriate measures depending on site specific conditions and resource areas. Stormwater runoff from new stone access and work pads will be managed through appropriate stormwater controls (including drainage swales, plunge pools, and stone filters). In addition, natural revegetation of low-growing herbaceous and grass communities over these stone areas will help to both restore habitat conditions and improve infiltration of stormwater into gravel surfaces.

3.3.1 Stormwater Management During Construction

During construction, stormwater management practices will be utilized to prevent erosion of construction areas and adjacent undisturbed areas, and to prevent sedimentation of wetland resource areas and watercourses. Stormwater management will be accomplished through stabilization and structural control devices, as well as good housekeeping practices.

Potential sources of stormwater pollution during the construction phase of the Project include erosion and sedimentation resulting from land disturbing activities such as structure replacements, grading of work pads, and access road improvements. General work activities, such as travel to and from the job site, also have the potential to result in erosion, fugitive dust, and sediment tracking.

To minimize erosion and transport of sediment into wetland resource areas during the earthwork and construction phases, MECO will employ BMPs including erosion and sediment controls. Proposed sediment control barriers for the Project will include any combination of the following: silt fence, straw wattles, and straw bale barriers. Temporary filter insets may be installed in catch basins or similar drainage structures as needed. MECO crews will install erosion and sediment control measures prior to construction and maintain these controls through the construction period until final stabilization is achieved. On particularly steep or erodible slopes, additional erosion control measures may be employed, including erosion control blanket, riprap stabilization, and/or seeding with a native conservation seed mix.

MECO crews will implement dust controls as needed throughout the duration of the Project on all disturbed soils that are subject to surface dust movement and dust blowing. Water or application of calcium chloride or other MECO approved equivalent in accordance with the manufacturer's guidelines may be used for dust control. During application of water for dust control, crews will ensure that water does not create run-off or erosion issues by applying additional sediment and erosion controls, as needed.

MECO will apply structural measures to divert flows away from exposed soils and store flows or otherwise limit runoff and minimize the discharge of pollutants from the site. Structural measures will be installed on upland soils and include, but are not limited to, temporary diversion swales, water bars, fill berms and sediment traps. Stone tracking pads may also be installed at construction entrances to prevent sediment tracking onto public roadways.

Other potential stormwater pollutants likely to be present during construction include petroleum-based products, hydraulic fluids, gasoline, diesel fuel, and antifreeze and coolant. Management of hazardous materials will be described in detail in the SWPPP. Crews will practice “good housekeeping” and implement product specific practices to prevent the accidental release of hazardous materials.

MECO will inspect work areas on a pre-determined schedule until the Project is stabilized. Documentation identifying deficiencies of erosion control measures will be forwarded to the construction supervisor for implementation of corrective measures. As a proactive approach to ensure compliance with environmental permit requirements, all construction personnel will be briefed on the Project’s environmental issues and permit obligations prior to construction. Field staff will also be trained to recognize and respond to changing field conditions as they relate to protecting wetland resource areas and preventing sedimentation and stormwater run-off. MECO crews will hold regular progress meetings to reinforce contractor’s awareness of these issues.

Lastly, MECO will submit an NOI to the EPA under the NPDES Stormwater CGP for Stormwater Discharge from Construction Activities. As required under this program, MECO will develop and implement a construction SWPPP to ensure that BMPs are followed during construction to avoid, minimize, and address potential impacts.

The SWPPP establishes a construction period contact list, presents a description of the proposed work, and identifies stormwater controls, spill prevention, and inspection practices to be implemented for the management of construction-related stormwater discharges from the Project. The SWPPP clearly identifies parties responsible for monitoring and reporting any activities out of compliance with the SWPPP or other environmental permits or approvals, and for handling extraordinary situations. The SWPPP also defines monitoring to occur until all disturbed areas on the site have been stabilized using standard BMPs. Please refer to MECO’s Environmental Guidance Document EG-303NE in **Appendix C** for additional information on procedures and policies implemented during construction to identify and control environmental impacts of activities.

3.3.2 Post-Construction Stormwater Management

Stormwater management practices in the form of permanent drainage swales, plunge pools, splash pads, vegetated filter strips, or other management BMPs may be installed on a case-by-case basis as warranted to ensure stormwater is controlled and risk of erosion mitigated. SWPPP inspections will cease following permanent site stabilization as defined by the applicable federal, state, and local permit requirements and regulations.

Final stabilization is achieved after construction activities are complete. Typically, the following general requirements must be met:

- Adequate vegetative and non-vegetative stabilization is observed at work areas.
- Construction materials, waste and temporary stormwater controls have been removed and properly disposed of.
- Potential pollutants and pollutant-generating activities associated with construction have been removed from the Project area.

3.3.3 Low Impact Development and Integrated Management Practices

A small increase in imperviousness is proposed as a result of the structure replacement activities (impervious structure foundations), and access widening/construction (semi-pervious gravel surfaces). In total, approximately 944-sf of caisson foundations (impervious concrete), are proposed along the entire 92.45 acre Project area. The total area that will be occupied by proposed concrete caisson foundations will consist of a small amount of impervious areas spread out over a very large ROW. The proposed work will not result in a loss to annual recharge for the ROW or surrounding areas. Therefore, it is expected that any changes in stormwater runoff would be negligible.

All areas where soil disturbing activities have occurred will be promptly stabilized with seed and straw mulch to facilitate rapid revegetation. Therefore, MECO did not consider additional Low Impact Development (“LID”) and Integrated Management Practices as part of the Project.

4. Wetlands and Waterways

This section addresses elements of the Scope related to wetlands, waterways, and other water resources.

4.1 From the Secretary's Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 4:

C-13: The Single EIR should describe to what extent the construction matting would necessitate alteration of Bank or LUWW and should detail the amount of Bank impact at each crossing location and further describe the restoration process.

C-14: The Single EIR should provide further detail about the mitigation plan for unavoidable impacts to wetland areas and include a commitment to provide wetland replication, including identification of approximately locations if available. The Single EIR should evaluate offsite mitigation and/or restoration of onsite degraded areas to mitigate impacts.

C-15: The Single EIR should indicate whether mitigation for tree removal will be provided, whether through wetlands replication, in lieu payment, or other contribution, and provide a firm commitment in the filing.

4.2 Summary of Anticipated Wetland Resource Area Impacts

MECO anticipates that Project activities will result in temporary impacts associated with crew and machinery operation during the construction phase of the Project and in permanent impacts associated with replacement or new infrastructure. Temporary impacts to wetland resource areas include the temporary “loss” or “fill” of wetlands resulting from the placement of construction mats for access and work pads. Construction mats are a BMP device that protects the underlying wetland from permanent loss by avoiding significant rutting and alteration. Within upland resource areas such as RFA and 100-foot Buffer Zone, temporary impacts are associated with the placement of construction matting, mowing, or gravel/grading in work pads that will be restored following the completion of the Project.

MECO is not proposing access or structure foundations within BVW that would result in a permanent loss or fill of BVW. Installation of structure foundations and access improvements are anticipated to result in permanent ground disturbance within RFA and Buffer Zone. Within RFA, MECO is proposing no permanent work pads, and will restore graded/graveled work areas post-construction. MECO is anticipating permanent alteration of upland and wetland resource area alteration associated with tree removal. Tree removal will result in the permanent conversion of vegetative cover types within BVW, RFA, and Buffer Zone. No permanent or temporary impacts are proposed along Bank or within Land Under Water Bodies and Waterways (“LUWW”) ([C-13](#)). Impacts to wetland

resource areas are summarized in **Table 4-1** (below), and depicted on the MEPA Plans in **Appendix A**.

Table 4-1: Summary of Wetland Resource Area Alteration

Wetland Resource Area	Temporary Alteration	Permanent Alteration
Bordering Vegetated Wetland ("BVW")	0.8 acres: - Construction mats for access where BVW crossings could not be avoided - Temporary work areas, including construction mats for Work Pads and Pull Pads that overlap with BVW	1.2 acres: Conversion of vegetative cover types*
Riverfront Area ("RFA")	1.3 acres**: - Vegetation management activities - Temporary work areas, including gravel and grading for Work Pads and Pull Pads that will be restored	1.1 acres: - New/improved access and work areas, including cut/fill and placement of stabilization material (i.e., gravel) - New/replacement structure foundations - Conversion of vegetative cover types*
100-ft Buffer Zone to BVW and Inland Bank ("Bank")	0.9 acres**: - Vegetation management activities - Temporary work areas, including gravel and grading for Work Pads and Pull Pads that will be restored	2.8 acres: - New/improved access and work areas, including cut/fill and placement of stabilization material (i.e. gravel) - New/replacement structure foundations - Conversion of vegetative cover types¹

* This value includes the conversion of vegetated types (e.g., trees) to other vegetated types (e.g., shrubs).

** 'Restored' areas include gravel or graded areas to be loamed and seeded post-construction.

4.2.1 Temporary Impacts

MECO will install 0.8 acres (35,950 sf) of construction matting within wetlands for access and Work Pads. No permanent fill is proposed within wetlands. The use of construction matting is a standard BMP used to protect wetland soils and vegetation from significant rutting, compaction, and soil

displacement that would occur from vehicle operation directly within a wetland. Typically, the use of construction matting within wetlands can result in minimal, localized rutting or compaction, although some loss of vegetation (where matting is in place for an extended period) may occur. MECO anticipates that any impacts to wetlands from the use of temporary construction matting will be minimal. Additionally, *in situ* restoration practices (including seeding with an appropriate wetland seed mix), will be applied if disturbance is observed upon the removal of matting. MECO will monitor wetlands requiring *in situ* restoration measures until at least 75% native vegetation cover is reestablished. Refer to Section 9 of this SEIR for further details.

4.2.1.1 Construction Matting, Bank, and LUWW

As described in MECO's Environmental Guidance document EG-303NE (**Appendix C**), MECO crews will install construction mats "*to span the watercourse in its entirety without stringer placement in the water or any restriction of stream flow.*" Depictions and specifications of construction mat placement are provided in the BMP Detail Sheet CM-2. Stream crossings along the Project ROW are narrower than a standard construction mat, which is typically 8 feet in length. To span a stream, crews place a 4-ft by 8-ft mat parallel to and offset from the Bank of a stream. Crews then place matting across these parallel mats, effectively spanning both the stream and the Bank. Because the matting is not placed within the stream channel or along the top of the Bank, there are no alterations, temporary or permanent, to Bank or LUWW resource areas ([C-13](#)).

4.2.2 Permanent Impacts

MECO is not proposing permanent fill within or the permanent loss of wetlands within the Project ROW. However, the Project will result in the permanent conversion of the vegetative community as a result of tree removal activities. Because MECO is proposing tree removals within an active transmission line ROW, it is not possible to allow cleared areas to return to forested conditions, as this would be incompatible with the overhead transmission lines. Instead, wetlands subject to tree removal will be maintained as scrub-shrub or emergent vegetation cover type habitats. MECO proposes to remove trees along the current forested edge of the ROW while preserving the existing undergrowth to the extent feasible. Measures to protect non-target, understory vegetation may include hand cutting of trees, or the use of reaching equipment (such as feller bunchers or tree handlers), to reduce ground disturbance within wetlands.

While tree removal will result in permanent conversion of the vegetative community of select wetlands, it will not result in net loss of wetlands and does not require compensatory mitigation under either Section 401 or the Massachusetts WPA regulations, however, refer to Section 9.5 of this SEIR for further discussion on mitigation requirements for tree removals ([C-14](#), [C-15](#)). Furthermore, impacted wetlands will naturally revegetate into transitional forest/shrub/emergent communities, an increasingly uncommon wetland type in Massachusetts, which will help to enhance wetland functional diversity along the ROW⁷.

⁷ Classification and Types of Wetlands. (n.d.). Retrieved from <https://www.epa.gov/wetlands/classification-and-types-wetlands#undefined>

5. Historic, Archaeological and Cultural Resources

The Project requires federal and state permitting and is subject to cultural resources review under Section 106 of the National Historic Preservation Act (“NHPA”) of 1966, as amended (54 United States Code [“USC”] § 306108) and its implementing regulations 36 Code of Federal Regulations (‘‘CFR’’) 800, and M.G.L Chapter 9, Sections 26-27C (950 CMR 70-71). To support compliance with these regulations, MECO retained G&P to conduct cultural resource due diligence, including background research and field investigations.

5.1 From the Secretary’s Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 5:

C-17: The Single EIR should provide an update on coordination with MHC and provide any additional documentation received in response to the viewshed analysis.

5.2 Background

Section 7 of the EENF presented an overview of the cultural resources investigations conducted by G&P within the Project’s study area and ROW, including archaeological resources and above-ground historic architectural resources. In December 2022, at the request of MECO, G&P completed a due diligence and desktop archaeological sensitivity assessment for the Project and identified cultural resources within a Project study area defined as 1.0-kilometer (‘‘km’’) (0.62 mile) radius around the Project ROW (Elquist 2022)⁸. The assessment included review of records maintained by the MHC including the Massachusetts Cultural Resource Information System (‘‘MACRIS’’) and National Register of Historic Places (‘‘NRHP’’) database, as well as prior archaeological studies, historic maps, Light Detection and Ranging (‘‘LiDAR’’) data, soils mapping, and other relevant environmental information. No previously recorded archaeological sites were identified within the study area around the Tap Line; however, 21 inventoried above-ground resources were documented, none of which are located within the Project ROW.

To support anticipated federal cultural resource compliance requirements, G&P submitted a Project Notification Form (‘‘PNF’’) and technical proposal to MHC and obtained State Archaeologist’s Permit No. 4281. G&P conducted an intensive (locational) archaeological survey between October 2023 and September 2024. A report documenting the results was submitted to MHC in April 2025, concluding that no archaeological resources were identified and recommending that no further archaeological investigation is warranted. MHC concurred with these findings in a letter dated May

⁸ Elquist, Ora 2022 Cultural Resources Due Diligence and Archaeological Sensitivity Assessment, Line I135S/J136S Asset Condition Refurbishment (ACR) Project, Fitchburg, Leominster, and Sterling, Massachusetts. Providence Rhode Island. Prepared by Gray & Pape, Inc. for National Grid.

23, 2025.

G&P also completed a supplemental historic architectural survey to identify and evaluate above-ground resources within a 0.8-km (0.5-mile) radius of the Project ROW and to assess potential visual or physical effects associated with the proposed structure replacements. G&P submitted a PNF and permit application to the MHC for an intensive (locational) archaeological survey, including a technical proposal outlining the proposed methodology. MHC subsequently issued State Archaeologist's Permit No. 4281 for the survey. G&P also initiated consultation with the Wampanoag Tribe of Gay Head (Aquinnah), the Mashpee Wampanoag Tribe, the Narragansett Indian Tribe, the Nipmuc Tribal Nation, the Massachusetts Commission on Indian Affairs, and the local town historical commissions along the Project corridor. The survey identified 22 inventoried resources within the study area, five of which were previously demolished (as identified in MACRIS and NRHP database). Although several resources are listed in or eligible for the NRHP and some fall within the Project viewshed, G&P determined that the Project will not adversely affect these properties, as it will not alter their defining characteristics or historic setting. A technical report documenting these findings was submitted to MHC and the Tribes in June 2025. No comments or objections from MHC or the Tribes were raised during the 30-day review window from the submittal. ([C-17](#)).

6. Environmental Justice/Public Health

This section addresses comments in the Secretary's Certificate associated with EJ and public health.

6.1 From the Secretary's Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 6:

C-6: The Proponent should continue outreach and engagement efforts prior to the next filing, specifically augmenting outreach to EJ populations within Leominster and focusing on neighborhoods intersected by project activities. The Single EIR should contain a description of these efforts, including a discussion of any of the best practices listed in the MEPA EJ Public Involvement Protocol that the project employed/intends to employ. Specifically, the Proponent should consider door-to-door education efforts within specific EJ neighborhoods closest to project activities.

C-7: The Single EIR, or a summary thereof, should be distributed to all CBOs and tribes included in an updated project-specific "EJ Reference List." An updated "EJ Reference List" should be obtained from the MEPA Office to ensure contacts are up to date, and the project-specific EJ Reference List should be developed and returned to the MEPA Office.

C-8: The Single EIR should provide additional information regarding measures to mitigate any potential impacts to EJ populations during the construction period. Specifically, the Single EIR should provide more details regarding construction period activities, including the estimated number of construction period truck trips that are anticipated for the project, and the potential for increased emissions within EJ populations near and within the ROW.

C-9: The Single EIR should indicate whether any significant tree clearing/trimming or vegetation management will occur near EJ populations and/or identified "Hot Spots," as indicated in the Climate Change section below. If "Hot Spots" are identified, the project should propose mitigation to offset the effects of tree removal adjacent to those locations. The distance for this assessment should be extended to 500 feet. Mitigation could take the form of tree plantings in the affected neighborhoods or within the larger EJ populations.

6.2 Summary of Environmental Justice Populations

In accordance with the MEPA Interim Protocol for Analysis of Impacts on Environmental Justice Populations and the MEPA Public Involvement Protocol for Environmental Justice Populations ("MEPA EJ Policy and Protocols"), the EENF reviewed the 11 EJ block groups within the Project's 1-mile Designated Geographic Area ("DGA"), and a total of 45 EJ block groups within 5 miles of the Project, spanning the municipalities of Leominster and Lancaster. The Town of Sterling does not

have any block groups that meet an EJ criterion. Of the 11 EJ block groups, four meet the Minority EJ criterion; six meet the Minority and Income EJ criterion; and one meets the Minority, Income, and English Isolation criteria. Refer to **Table 6-1** for the EJ population characteristics within the DGA, and **Appendix A: EJ Overview Map** for a visual representation of EJ block groups within 1 and 5 miles of the Project. Refer to the EENF (Section 11.2) for the full list of EJ block groups within 5 miles of the Project.

Table 6-1: Environmental Justice Communities Within 1 Mile of the Project

Block Group	Census Tract	Municipality	Total Minority Population (%)	Median Household Income (\$)	Total English Isolation Population (%)	Environmental Justice Criteria Met
Within the 1-Mile Designated Geographic Area ("DGA")						
2	7092.01	Leominster	34.6	\$48,654	0.0	Minority and Income
3	7092.01	Leominster	41.7	\$54,180	3.1	Minority and Income
1	7092.03	Leominster	31.2	\$120,833	0.0	Minority
2	7092.03	Leominster	50.1	\$40,121	15.7	Minority and Income
3	7092.03	Leominster	35.4	\$46,126	50.1	Minority, Income, and English Isolation
1	7092.04	Leominster	43.8	\$92,567	14.7	Minority
2	7092.04	Leominster	49.1	\$34,291	7.4	Minority and Income
3	7092.04	Leominster	30.4	\$87,559	0.0	Minority
1	7094	Leominster	54.8	\$53,008	9.1	Minority and Income
3	7094	Leominster	50.7	\$18,563	20.1	Minority and Income
4	7131	Lancaster	36.0	\$108,676	0.0	Minority

Source: Massachusetts Executive Office of Energy and Environmental Affairs ("EEA") GIS, 2020 Environmental Justice Populations. <https://www.mass.gov/info-details/massgis-data-2020-environmental-justice-populations>

As discussed in the EENF (Section 11.2), three census tracts within the 1-mile DGA were identified as having a population in which Spanish is spoken by 5% or more of residents who report not speaking English "very well."

Within the 1-Mile DGA

- Census Tract 7092.02 – 7.7% Spanish/Spanish Creole
- Census Tract 7094 – 11.6% Spanish/Spanish Creole
- Census Tract 7096 – 10.1% Spanish/Spanish Creole

6.3 Summary of Assessment of Existing Unfair or Inequitable Environmental Burden and Related Health Consequences

As presented in the EENF (Section 11.3), MECO conducted an assessment of existing unfair or inequitable environmental burdens and related health consequences within the DGA using the Massachusetts Department of Public Health (“DPH”) EJ Tool. The assessment reviewed vulnerable health EJ criteria at both the municipal and census tract levels, potential sources of pollution, and the Resilient Massachusetts Action Team (“RMAT”) Output Report to characterize existing public health conditions and environmental burdens affecting EJ populations near and adjacent to the Project ROW.

The DPH EJ Tool includes vulnerable health EJ criteria both at the municipality-level and at the census tract-level. The four vulnerable health EJ criteria available at the municipality-level include heart attack, elevated blood lead, low birth weight, and pediatric asthma. The City of Leominster and the Town of Lancaster meet the heart attack vulnerable health definition. The Town of Sterling does not meet a community-level vulnerable health definition. One census tract in Sterling meets the low-birth-weight vulnerable health definition; however, that census tract does not contain an EJ block group. No other census tracts in the DGA meet a vulnerable health definition.

There are 66 potential sources of pollution within the DGA that are not transportation-related, and 44 transportation-related potential sources of pollution.

Additionally, the Project was found to be at high risk for three RMAT parameters: Extreme Precipitation - Stormwater Flooding, Extreme Precipitation - Riverine Flooding, and Extreme Heat.

6.3.1 Analysis of Project Impacts to Determine Any Disproportionate Adverse Effect

As presented in the EENF, the Project generally minimizes impacts by replacing the Line within the existing transmission corridor. Temporary and permanent impacts from construction and operation will be mitigated through BMPs and will not exacerbate existing environmental or public health burdens.

The EENF assessment considered potential impacts on land use, water resources, climate resiliency, transportation, air quality, and noise and vibration. Permanent land use will remain within the existing ROW, with temporary construction areas and minor, temporary vegetation alteration mitigated through restoration and revegetation post-construction. No permanent impacts to water resources or water quality are anticipated, and construction-related impacts are expected to be minimal and temporary. Temporary impacts from construction matting and work within the ROW will be minimized through implementation of BMPs, proper material handling, stormwater controls, and adherence to MECO’s VMPs, particularly within the Zone II Wellhead Protection Area in Leominster. Approximately 13 acres of vegetative cover type conversion will occur within the ROW, with approximately 26% of the vegetative cover type conversion occurring within a hot spot and EJ block group. Refer to Section 6.3.1.1 below for the hot spot analysis. Due to the greater share of vegetative cover type conversion occurring within non-EJ block groups, there is no disproportionate adverse effect on EJ populations due to vegetative cover type conversion. While no EJ-specific mitigation is triggered under the protocol, MECO will provide general mitigation for vegetative cover type conversion as requested in the Certificate on the EENF and will work with the Massachusetts Department of Conservation and Recreation (“DCR”) Greening the Gateway Cities

Program (“GGCP”) to identify and prioritize tree planting areas in Leominster within EJ block groups.

Following implementation of minimization measures, no significant temporary transportation, air quality, or noise impacts are anticipated during construction, and therefore no disproportionate adverse effects on EJ communities are expected. Because impacts are expected to be minimal, shared by both non-EJ and EJ populations, and effectively mitigated, no disproportionate adverse effects to EJ populations are anticipated. The Project will improve climate and storm resilience through vegetation conversion, improved access, and upgraded structures. The Project will provide reliability and resilience benefits that are shared by all communities, improving electricity transmission safety and reducing outage risks during extreme weather events.

6.3.1.1 Hot Spot Analysis

As requested in the Scope (C-9), BSC Group Inc. (“BSC”), on behalf of MECO, conducted analyses of existing hot spot locations within or adjacent to areas where MECO is planning to remove trees to accommodate the re-aligned Line. Hot spots are defined as areas with a land surface temperature (“LST”) index over 0.5.⁹ It is important to note that the LST data layer provides conservative boundaries in a grid cell format at a resolution of 30-m and is developed at the Regional Planning Agency level; therefore, values cannot be compared across regions.

The analysis identified approximately 289.0 acres of existing LST hot spots within 500-ft and inclusive of the Project ROW and fee-owned parcels, with approximately 90.6 acres of LST hot spots falling within the Project ROW and fee-owned parcels. Approximately 0.3 acres of residential areas occur within the Project ROW, of which only 0.05 acres of LST hot spots fall within overlapping residential areas and EJ populations. No vegetative cover type conversion is proposed within these areas.

Approximately 3.4 acres of vegetative cover type conversion proposed within the ROW and fee-owned parcels in Leominster overlaps LST hot spots and EJ populations (there are no EJ areas defined in Sterling). However, no portion of this area is identified as a residential area. See **Appendix F** for a visual representation of the hot spot analysis for vegetative cover type conversion in Leominster.

The conversion of vegetative cover type due to tree removals along the Project ROW (13.0 acres) represents a relatively small portion (14%) of the overall Project ROW (92.5 acres). Conversion of vegetative cover will generally occur evenly along the entire edge of ROW, both within areas identified as LST hot spots and outside of these areas. Since much of the land adjacent to the ROW is forested, the conversion of vegetative cover along the edge of the ROW will result in localized impacts only (typically within 40-ft of the existing cleared edge of ROW) and is not expected to have a significant impact on wider canopy cover outside of the ROW. Furthermore, tree removal activities will not result in complete loss of vegetation, but rather the conversion of vegetation cover type; understory and groundcover species will remain, and the regrowth of vegetation that is compatible with the overhead transmission lines will be allowed. As such, this activity will not result in the more notable temperature increases associated with conversion of land to pavement and buildings.

Based on these findings, no adverse impact to an EJ population is anticipated, and no EJ-specific mitigation is planned at this time. However, recognizing the importance of canopy cover and in

⁹ LST data can be accessed online at:
<https://www.arcgis.com/home/item.html?id=51b49dc713414166bcff399292c11fb7>.

response to [C-9](#), MECO proposes collaboration with DCR on a mitigation package to address vegetative cover type conversion in hot spot areas. MECO is committed to funding a mitigation package that includes supporting the GGCP specifically within communities in Leominster. The GGCP hires Forestry crews that work with residents to plant trees and increase tree canopy cover for environmental and energy efficiency benefits. MECO is excited to partner with DCR and will continue coordination with DCR following the MEPA review process on specific details and mechanisms for a successful implementation of the mitigation package. While no EJ-specific mitigation is proposed, MECO will work with DCR to identify and prioritize tree planting locations within EJ block groups in Leominster, proximal to the ROW, specifically areas that are currently vulnerable to the heat island effect (i.e., heat burden as identified in the assessment of existing unfair or inequitable environmental burden).

Additionally, approximately 6.5 acres of tree removal will occur within MECO and NEP fee-owned parcels. MECO is reviewing opportunities to donate wood from these parcels for use as firewood and milled lumber. The amount of wood ultimately available for donation will depend on wood bank capacity and municipality interest. MECO will coordinate directly with local wood banks closer to the start of construction to confirm their needs at that time. In addition, abutters and residents will have the opportunity to keep downed wood on their own properties for personal use.

Additional information about overall mitigation methods is provided in *Section 9* of this SEIR.

6.3.1.2 Truck Traffic Analysis

Intermittent construction-related traffic will occur over the entire construction period. Construction equipment will typically access the ROW from public roadways, which cross the ROW in various locations. Traffic will consist of vehicles ranging from pick-up trucks to heavy construction equipment and large trailers delivering materials. As access at any given location along the ROW will be intermittent, existing traffic volumes will not be significantly impacted, the work will not adversely impact the ability of existing traffic to safely navigate the roadway, nor will the work exacerbate existing environmental or public health impacts. Thus, no disproportionate adverse effects on EJ populations will occur. MECO will coordinate with Massachusetts Department of Transportation (“MassDOT”) and local authorities to ensure that construction-related traffic is safely and effectively managed. This will include mitigation measures outlined in *Section 9* of this SEIR, such as anti-idling measures and limiting construction traffic to certain times of day.

Due to the intermittent nature of the Project and with work occurring at different times along the entire 3-mile Project length, it is not possible to accurately calculate the number of truck trips in a specific area over any given period of time ([C-8](#)). However, traffic volumes at any given location will fall well below the threshold of 150 average daily trips (“ADT”) of net new diesel vehicle traffic over the duration of a year.

6.3.2 Statement of Existing Unfair or Inequitable Environmental Burden and Related Health Consequences.

This SEIR reaffirms that the Project activities will not exacerbate existing environmental burdens nor health consequences within the DGA, will not result in any disproportionate adverse effects on EJ populations, and will provide all residents with benefits including safer and more reliable electricity transmission.

6.4 Public Involvement

Public involvement is an essential part of the MEPA review process. MECO has continued and enhanced its outreach and engagement efforts since the filing of the EENF. Outreach activities have included targeted communication, information distribution, and opportunities for direct engagement with residents in these communities. MECO considered and incorporated best practices outlined in the MEPA EJ Public Involvement Protocol to the extent practicable. Below is a detailed description of these ongoing and planned outreach efforts, documenting the methods employed and the results of engagement with EJ populations.

Additionally, MECO gave careful consideration to door-to-door education efforts, however, given the linear nature of the Project, which spans multiple communities and distances along the corridor, a door-to-door approach presents significant logistical challenges and may not be the most effective or feasible method for reaching abutters and residents in a consistent and timely manner ([C-6](#)). In lieu of door-to-door efforts, we have enhanced our outreach approach to ensure that both EJ populations and nearby residents receive accessible and meaningful information about the Project. Please refer to *Section 6.4.3* of this SEIR for details on targeted mailer distribution.

6.4.1 Environmental Justice Reference List

In response to [C-7](#), an updated MEPA EJ Reference List was obtained from MEPA on February 16, 2026, which included 37 contacts that included Federal Tribes, Indigenous organizations, statewide community-based organizations (“CBOs”), and local CBOs. MECO expanded upon the MEPA EJ Reference List by adding 20 supplemental contacts (henceforth referred to in full as the EJ Reference List). The supplemental contacts are unchanged from the EENF. However, MECO has re-verified that all remain active, and any contacts that have changed since the filing of the EENF have been updated. These contacts include places of worship and local CBOs that focus on community, culture, and uplifting diverse voices. The EJ Reference List contacts are provided in the Distribution List (**Appendix B**).

6.4.2 Public Involvement for the EENF

MECO has undertaken additional public involvement measures during the MEPA process. These strategies were determined based upon existing MECO stakeholder outreach methods and engagement strategies identified in the MEPA Public Involvement Protocol for Environmental Justice Populations.

A summary of the public involvement activities conducted for the EENF are as follows:

- Advance Notification of the Project was sent via electronic mail on August 4, 2025, to the contacts on the EJ Reference List (provided by the MEPA Office on July 16, 2025).
 - The EJ Screening Form was translated into Spanish for distribution.
 - The EJ Screening Form contained information on how to request a meeting or additional Project materials.
 - Efforts were made to ensure that the language used in the EJ Screening Form was understandable to the reader (i.e., “technical” language was replaced with plain language, and legal jargon was omitted to the extent feasible).
- MECO hosted a virtual community meeting on August 19, 2025.

- Information pertaining to the meeting was advertised in the Worcester Telegram & Gazette and the Sentinel & Enterprise in English and Spanish and was also provided to the EJ Reference List via electronic mail. Two reminder emails were also sent to the EJ Reference List.
- A publicly accessible website was created, which provides details of the Project, Project documents, and contact information. The website address (<https://www.nationalgridus.com/construction-projects/Community-Projects/J136S-Tap-Replacement/J136S-Tap-Line>) was provided on the EJ Screening Form. A Project fact sheet and contact information will be available on the website.
- MECO maintained a Distribution List of contacts from the EJ Reference List and any additional contacts that were identified during the virtual meetings and the public engagement process.
 - Contacts received notifications of the virtual community meeting, and other relevant notices and materials issued during MEPA review.

6.4.3 Public Involvement for the SEIR

MECO continued public involvement strategies from the EENF and expanded upon those strategies prior to filing the SEIR. A summary of the public involvement activities conducted prior to filing the SEIR are as follows:

- A “mailer” was sent to abutters along the entire Project corridor ON March, 2026, with materials translated into Spanish to reach linguistically isolated households.
 - The flyer was also shared with community organizations, including the Spanish-American Center.
 - The mailer included information on how the public can request interpretation or translation services, ensuring language access is available throughout the Project's outreach efforts.
- The SEIR Distribution List is actively maintained for continued engagement.
 - An updated EJ Reference List was provided to MEPA EJ office on 02/23/2026.
- A targeted notice of the SEIR filing was sent to the Distribution List, which includes the updated EJ Reference List (refer to **Appendix B**), including mention of where the SEIR can be reviewed as an online Portable Document Format (“PDF”) or how to request a hard copy. The website address (<https://www.nationalgridus.com/construction-projects/Community-Projects/J136S-Tap-Replacement/J136S-Tap-Line>) has been updated and will be maintained throughout the MEPA review process.
 - Once the SEIR is filed and submitted to the MEPA Office, a PDF of the SEIR will be uploaded to the website.
- MECO continues to engage and meet with landowners.
- Outreach to the public continues to be communicated in clear, understandable language and in a user-friendly format.

6.4.4 Planned Public Involvement

MECO plans to maintain the same level of meaningful outreach and community engagement throughout the MEPA process. A summary of these continued public involvement strategies

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include:

- Should there be any request for additional meetings, MECO will make reasonable efforts to accommodate the request.
 - MECO will evaluate and implement the best communication practices to inform the public about any additional meetings. For instance, similar to the EENF, MECO will publish information about the meeting in local newspapers within municipalities with EJ populations.
 - Should individuals request interpretation services in advance of meeting dates, MECO will make best efforts to translate the documents provided to EJ populations and provide any requested interpretation.
- As part of the local review process, MECO will file an NOI within each municipality for review under the WPA and local wetland protection Bylaws.
 - As part of the NOI process, abutters of the Project shall be notified prior to the public hearing and will be provided with contact information on who to submit questions to as well as how to attend/participate in the public hearing.
 - Abutters and members of the public will be able to participate in those local hearings.
 - MECO shall publish a legal notice in the newspaper of local circulation prior to the public hearing, and the Conservation Commission shall post the agenda of the meetings in advance.
- To maximize reach and create alignment with local information sharing processes, MECO shall encourage various municipalities to share about the Project through their own websites and channels.

7. Climate Change Adaptation and Resiliency

This section addresses elements of the Scope related to climate change and resiliency.

MECO is committed to improving the resiliency of its transmission system to the impacts of climate change. The Project is aligned with priorities in the Massachusetts State Hazard Mitigation and Climate Adaptation Plan (“SHMCAP”) and the Massachusetts Climate Change Assessment (“MCCA”) to ensure that MECO continues to provide safe and reliable electricity to its customers.

7.1 From the Secretary’s Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 7:

C-18: Where impervious/semi-pervious area is created and stormwater management is required, the Single EIR should address the recommendations from the MA Resilience Design Tool, including whether the stormwater management designs will be resilient to future climate conditions including the 50-year (2% chance) storm as of 2070 (9.1 inches). The Single EIR should include a Stormwater Management Report.

7.2 Summary of Climate Resilience Design Standards Output Report

The following section summarizes climate change adaptation and resiliency standards applicable to the Project.

7.2.1 Watershed-Scale Climate Change Projections

The Massachusetts Climate and Hydrologic Risk Project¹⁰ provides climate projections for temperature and precipitation. This work was led by the EEA, in partnership with the USGS, Cornell University, and Tufts University. These projections are downscaled for Massachusetts at the Hydrologic Unit Code (“HUC”) 8 watershed scale using Global Climate Models and a Stochastic Weather Generator developed at Cornell University. The temperature and precipitation projections reflect a warming scenario linked to the Representative Concentration Pathway (“RCP”) 8.5, a comparatively high greenhouse gas (“GHG”) emissions scenario.

The watershed scale climate projections presented in **Table 7-1** below have been prepared using the data accessed through the Resilient Mass Climate Change Projections Dashboard for the watersheds traversed by the Lines. The table identifies 2070 climate projections (for the annual season), correlating with the end of useful life of the Project assets, compared to a baseline period (1971 to 2000).

10 Accessed online at: <https://resilientma-mapcenter-mass-eoeaa.hub.arcgis.com/>.

Table 7-1: 2070 Annual Climate Projections by Watershed

Watershed	Nashua Watershed	
Project Municipalities	Leominster, Sterling	
Variable	Observed Value 1971 to 2000 Average	2070
Annual Maximum temperature (degrees Fahrenheit [°F])	85.2	93.3
Days above 95 (°F)	0	14
Days above 100 (°F)	0	2
Annual Minimum temperature (°F)	-4.7	3.4
Days below 32 (°F)	154	94
Annual Average temperature (°F)	47.4	55.5
Heating degree-days per year	6,884	4,805
Cooling degree-days per year	449	1,321
Total precipitation per year (inches)	45	55.3

Source: EEA, *ResilientMass Climate Change Projections Dashboard*. 2026. <https://resilientma-mapcenter-mass-eoea.hub.arcgis.com/>.

7.2.2 Preliminary Climate Risk & Climate Resilience Design Standards Summary

MECO consulted the RMA Climate Resilience Design Standards Tool for the Project. A copy of the Output Report was provided in the EENF and has been summarized in **Table 7-2** below.

The Tool was utilized to assess the Project areas within two municipalities. The Output Report assigns preliminary climate risk along three variables: sea level rise and storm surge, extreme precipitation (including urban flooding and riverine flooding), and extreme heat. The Project received a high-risk rating for both extreme precipitation and extreme heat, and it is not exposed to sea level rise/storm surge. **Table 7-2** provides climate resilience design standards and guidance by tiers, as shown in the Output Report.

Table 7-2: RMA Climate Resilience Design Standards Tool Project Output Report

Climate Variable	Risk Rating	Target Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge	Not exposed	N/A – Not exposed			
Extreme Precipitation – Riverine Flooding	High	2070	N/A	50-yr (2%)	Tier 3
Extreme Heat	High	2070	90th	N/A	Tier 3

Source: EEA, *RMA Climate Resilience Design Standards Tool Output Report*. 2024. Note: The extreme precipitation climate variable accounts for both urban flooding and riverine flooding.

Additionally, the MCCA identifies the most urgent climate impacts that will affect the Commonwealth given projected changes in temperature, precipitation, and sea level rise. Aside from the Project area's risk of extreme precipitation and extreme heat, as identified by the Climate Resilience Design Standards Tool, the MCCA describes extreme weather as a natural hazard which

is expected to be exacerbated by future climate change due to temperature change and the moisture holding capacity of the atmosphere. This includes hurricanes, severe winter storms, and strong windstorms¹¹. The MCCA identifies “damage to electric transmission and utility distribution infrastructure” associated with heat stress and extreme events as an “urgent impact” for the infrastructure sector. By 2070, the annual economic impact of climate change to electric grid infrastructure, primarily additional repair costs; capital costs; and operating costs, is expected to be \$17 million for the Greater Connecticut River Valley and \$19.4 million for the central region of Massachusetts¹². The Project’s approach to addressing resilience (including both design and execution) is noted in *Section 7.3* of this SEIR.

7.3 Climate Change Adaptation and Resiliency Strategies

This Project is part of MECO’s efforts to ensure the longevity and reliability of the region’s electrical infrastructure in the face of growing demand for electricity and the changing climate. The Project will result in a more climate-ready and resilient transmission system that can withstand more extreme weather events; address existing system capacity shortages and increased demand; and support future interconnections from renewable energy projects.

MECO is committed to improving the resiliency of its transmission line system to the impacts of climate change. The Project is aligned with priorities in the *2023 Massachusetts State Hazard Mitigation and Climate Adaptation Plan* (“ResilientMass Plan”) and the MCCA to ensure that MECO continues to provide safe and reliable electricity to its customers.

The approximate lifespan of the proposed utility assets (e.g., structures) is 50 years. Therefore, analysis of climate change impacts and proposed adaptation and resilience measures, as described in the following sections, will primarily focus on mid- to late-century climate change projections.

7.3.1 Resilience to Extreme Precipitation and Riverine Flooding

As noted previously, the Output Report assigned a high exposure score for extreme precipitation due to a history of riverine flooding along portions of the Project ROW. Further, portions of the Project are within 100-ft of a waterbody and intersect with mapped Federal Emergency Management Agency (“FEMA”) floodplains in multiple locations.

Consistent with the design guidance from the Output Report, the Project will improve resilience to riverine flooding from a 2070 50-year (2%) storm event through design and material selection of foundations and structures that can withstand the effects of flooding along the entire ROW ([C-18](#)).

First, the replacement of wooden and steel structures with engineered steel structures will harden the infrastructure, making it more resilient to water damage and decay. The installation of structures reinforced with caisson foundations will also increase infrastructure resiliency, particularly in wetland resource areas increasingly susceptible to inundation. This foundation type - designed for wet environments - coupled with engineered structures, eliminates the need to elevate foundations above any particular base flood elevation as they can withstand inundation.

11 EEA (2022). Massachusetts Climate Change Assessment. p.15. <https://www.mass.gov/doc/2022-massachusetts-climate-change-assessment-december-2022-volume-ii-statewide-report/download>.

12 EEA (2022). Massachusetts Climate Change Assessment. p.65. <https://www.mass.gov/doc/2022-massachusetts-climate-change-assessment-december-2022-volume-ii-statewide-report/download>.

The Project also proposes installation of new conductors that are designed to withstand corrosion.

Proposed conversion of vegetative cover type is also intended to improve resiliency to future storm events. Some species of trees pose risks to the resiliency of the Lines; trees unable to withstand prolonged periods of flooding are more prone to instability and decay due to extended root and trunk submersion. Weakened and decayed trees then pose significant risks to utility assets because fallen trees and branches cause power outages, fires, and restrict access. Converting vegetative cover within and along the ROW improves storm resilience by reducing outage risk and improves storm restoration response times. Additionally, the proposed improvements to access and work pads will create a safer, more reliable network of travel surfaces that can better withstand flooding and associated erosion.

Further, MECO is proposing stormwater management features (e.g., stone check dams, water bars, and other similar measures) to be installed as necessary based on topography and field conditions along access. Civil engineering evaluation and design of the access has been provided for the Project specifically to evaluate drainage patterns following construction of the proposed gravel access in order to reduce potential for erosion and washouts during storm events. Please see the Stormwater Memo provided in **Appendix D** for more information.

Lastly, the refurbishment of the Lines will reduce the frequency at which future maintenance work and transmission line upgrades are needed. By reducing the likelihood of repeated impacts in environmentally sensitive areas, there will be less disturbance to vegetation and soil, thereby decreasing and avoiding repeated potential impacts associated with compaction, erosion, and use of temporary matting in environmentally sensitive resource areas.

7.3.2 Resilience to Extreme Heat

The Lines will be made more resilient to both gradually rising and extreme temperatures through the installation of state-of-the-art conductors which can operate at higher maximum operating temperatures. Additionally, the replacement Lines will have higher voltage ratings that can support higher volumes of currently active and forecasted renewable energy resources in this region during times of high usage, such as extreme heat events, which are anticipated to increase in frequency due to climate change.

7.3.2.1 Vegetative Cover Conversion Near Hot Spots

As requested in the Scope, BSC, on behalf of MECO, conducted analyses on existing hot spot locations within or near planned vegetative cover type conversion. As noted in *Section 6.3.1.1*, hot spots are defined as areas with a land surface temperature index over 0.5.¹³

The results of the analysis revealed that approximately 289.0 acres of existing LST hot spots are within 500-ft and inclusive of the Project ROW and fee-owned parcels, with approximately 90.6 acres falling within the Project ROW and fee-owned parcels. Approximately 0.3 acres of residential areas occur within the Project ROW, of which only 0.05 acres of LST hot spot falls within the overlapping residential areas and EJ populations. No vegetative cover type conversion is proposed within these areas. Approximately 3.4 acres of vegetative cover type conversion proposed within the ROW in Leominster overlaps LST hot spots and EJ populations. However, no portion of this area

13 LST data can be accessed online at:
<https://www.arcgis.com/home/item.html?id=51b49dc713414166bcff399292c11fb7>.

is identified as a residential area. Refer to **Section 6.3.1.1** for analysis specific to EJ populations.

While vegetative cover conversion areas overlap with existing high LST zones, the hot spot analysis demonstrates that impacts on residential areas experiencing elevated LSTs will be minimal, with negligible effects on ambient temperatures for nearby populations. Additionally, since much of the land adjacent to the Project ROW is forested, the extent of cover conversion represents an overall negligible impact on canopy cover. The land will remain vegetated and therefore will not experience the notable temperature increases that pavement and buildings can generate. Impacts are expected to be localized, generally within 40 feet of the cleared ROW, and do not disproportionately affect residential areas or existing heat hot spots. Based on these findings, no adverse impact to an EJ population is anticipated and no EJ-specific mitigation is proposed at this time. However, in response to the Certificate on the EENF, MECO proposes collaborating with DCR to develop a mitigation package addressing vegetative cover type conversion in hot spot areas. Refer to **Section 9.5** of this SEIR for further discussion.

7.3.3 Resilience to Extreme Weather Events

The Project's engineering design used the structure loading criteria required by the National Electric Safety Code ("NESC") and MECO Design Loads for Overhead Transmission Structures. The NESC load criteria require consideration of combined ice and wind district loading, extreme wind conditions, and extreme ice with concurrent wind conditions. MECO's standards also include consideration and contingency for heavy load imbalances and heavy ice conditions. By installing improved foundations, more robust structures with improved lightning protection, and higher strength conductor and OPGW, the proposed infrastructure will be better suited to withstand strong winds and storm events. The installation of OPGW will also allow better communication between substations, resulting in improved response time during storm-related emergencies and outages, which will increase public safety.

Additionally, conversion of vegetative cover type in select areas improves storm resilience by reducing outage risk and improves storm restoration response time. Access improvements drastically improve storm restoration response times. It can take days to locate a single tree responsible for an outage, clear the tree off the wires, and restore the Lines when there is no safe equipment access during an emergency; this is currently the case for most of the Project ROW. Adding gravel and widening access surfaces will provide greater support for maneuverability of equipment.

7.3.4 Design Considerations

Proposed structures and foundations are designed to withstand extreme regional weather in accordance with the most recent version of the NESC and the Title 220 Code of Massachusetts Regulations. In addition to these requirements, the structure heights and wire tensions are selected intentionally such that all desired electrical clearances will be maintained under a variety of weather conditions, including ice buildup on the wires, or continuous operation with a high conductor temperature due to high unexpected electrical demands.

7.3.5 Alignment with the Municipal Vulnerability Preparedness Program

The Massachusetts Municipal Vulnerability Preparedness ("MVP") Grant Program provides support for municipalities to plan for climate change and implement priority projects to enhance local resiliency. Grant funding allows communities to conduct vulnerability assessments and implement

priority resilience building actions. Vulnerability assessments include analyses of climate related hazards, vulnerabilities and strengths, and opportunities to enhance resiliency via action. Communities become certified as “MVP communities” after completing the original MVP Planning Program and are eligible for MVP Action Grant funding. Additionally, an updated “MVP 2.0” Planning program was piloted in 2023 with additional communities awarded funding for the MVP 2.0 process in 2025.

MECO has been involved in the MVP Program across the state where MECO’s electric transmission lines are located. By working with communities, MECO has developed key strategies for improving the resiliency of its electrical system to the impacts of climate change. Both towns¹⁴ along the Project ROW have achieved the MVP community designation, and both the towns identified power outages as vulnerabilities in their communities so that they can identify ways to improve power utility resilience. Both municipalities also highlighted the importance of transitioning to clean energy sources.

As the Project will increase reliability and decrease likelihood of outages during extreme weather events, this Project supports the goals of the MVP Program and its participating municipalities. While this Project does not address local distribution, system-wide improvements result in a more reliable and resilient transmission system that supports these communities.

¹⁴ The EENF reported both Sterling and Leominster along the Project ROW have achieved the MVP community designation.

8. Construction

Section 3 of the EENF provided construction methods, the general construction sequence, and activities completed in each stage of construction. MECO proposes to construct the Project using conventional transmission line maintenance and construction procedures and in compliance with permit conditions. MECO has established procedures that employees accessing and performing construction and maintenance activities on distribution and transmission ROWs must follow. These are collectively referred to as BMPs and are discussed in Environmental Guidance documents such as MECO's Environmental Guidance Document (EG-303NE) in **Appendix C**. Consistent implementation ensures that projects are completed in accordance with applicable environmental laws and regulations as well as company policies and compliance objectives.

8.1 From the Secretary's Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 8:

C-19: The Single EIR should provide an update on construction staging and timing. All construction activities should be managed in accordance with applicable MassDEP regulations regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The project should include measures to reduce construction period impacts (e.g., noise, dust, odor, solid waste management, etc.) and emissions of air pollutants from equipment, including anti-idling measures in accordance with the Air Quality regulations (310 CMR 7.11).

C-20: I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards, or select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment. Off-road vehicles are required to use ultra-low sulfur diesel fuel (ULSD). All construction activities should be undertaken in compliance with the conditions of all State and local permits. I encourage the Proponent to reuse or recycle C&D debris to the maximum extent. Proposed construction-period mitigation measures are listed below. The Single EIR should include updated commitments reflecting construction best practices.

8.2 Construction Sequence

As stated in the EENF, once initiated, work will generally follow the sequence listed below. However, certain activities may occur simultaneously within one or more areas of the Project. Project activities will generally proceed in the following order:

- Re-flag wetland resource areas across the ROW;

- ROW vegetation management and tree removal;
- Install sediment and erosion controls (where applicable);
- Access re-establishment/improvement and establishment;
- Construction matting installation;
- Foundation installation (for caisson supported structures);
- Install new structures/structure replacements;
- Install new conductor and OPGW along the entire Line;
- Remove existing conductor and OPGW;
- Remove old structures;
- Remove temporary access and work areas in wetlands;
- Restore temporary access and work areas in uplands;
- Restore the ROW (grading, mulching, seeding etc.); and
- Once ROW is fully stabilized, remove sediment and erosion controls.

During each sequence of construction within the ROW there is a potential for impacts to the sensitive environmental resources discussed in previous sections of this SEIR. These potential impacts are described in *Section 4* through *Section 6* of this SEIR, and the implementation of BMPS to avoid, minimize, or mitigate impacts are described in *Section 9* of this SEIR. The description of construction sequence and methods presumes that all required permits and authorizations will have been issued prior to construction, and that throughout construction, crews will complete each stage of construction in a manner consistent with MECO's Environmental Guidance Document (EG-303NE) and with the conditions of permits/authorizations and approved mitigation measures.

In response to [C-19](#), Project construction is anticipated to commence in the first quarter (Q1) 2027, with completion anticipated by the fourth quarter (Q4) 2027, and ROW restoration and associated monitoring continuing through Spring 2028. Construction timing will depend on the completion of engineering design, procurement, contractor selection, and receipt of all required regulatory approvals, and while it is premature to identify detailed segment-by-segment timing at this stage, MECO will refine and finalize construction staging as the Project advances and will coordinate with applicable agencies and municipalities prior to commencement of construction.

8.3 Construction Equipment

A list of the construction equipment likely to be required to perform the Project was provided in **Table 3-2** of the EENF. Any diesel-powered non-access construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of construction will either be EPA Tier 4-compliant, or will be retrofitted with EPA-verified (or equivalent) emission control devices such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) and installed on the exhaust system side of the diesel combustion engine ([C-20](#)). MECO requires the use of ultra-low sulfur diesel ("ULSD") fuel in its diesel-powered construction equipment and limits idling time to five minutes except when engine power is necessary for the delivery of materials or to operate accessories to the vehicle such as power lifts. Vehicle idling is to be minimized during construction activities, in compliance with Massachusetts Anti-idling Law, M.G.L. c. 90 § 16A, c. 111 §§ 142A – 142M, and 310 CMR 7.11. Construction

activities shall be undertaken in compliance with the conditions of all state and local permits, as applicable.

8.4 Solid Waste and Recycling

Proposed Project activities will generate solid waste, primarily from the removal of wood structures and sediment and erosion controls ([C-19](#)). Wood and metal will be segregated from other construction debris and recycled; other debris will be disposed of as non-banned construction waste in accordance with waste facility management regulations at 310 CMR 19.017. Where tree removals are proposed, MECO will employ forestry best practices for disposal; provided, however, that in cases where MECO has easement/access rights but is not the landowner, MECO will abide by the terms of the easement document or as MECO may be directed by the landowner.

8.5 Construction and Demolition Air/Noise Pollution

8.5.1 Air Quality

All demolition and construction work will be performed in accordance with applicable sections of the MassDEP Air Pollution Control Regulations at 310 CMR 7.02 and 310 CMR 7.09 ([C-19](#)). Specific air quality mitigation measures include:

- Use of appropriately designed construction entrances and wheel wash facilities as necessary to prevent off-site migration of soils;
- Mechanical street sweeping of construction areas and surrounding streets and sidewalks;
- Removal of demolition and construction waste in covered or enclosed trailers;
- Wetting of exposed soils and stockpiles to prevent dust generation;
- Minimizing stockpiling of materials on site;
- Turning off construction equipment when not in use and minimizing idling times;
- Minimizing the storage of demolition and construction wastes on site; and
- Minimizing the duration that soils are left exposed.

Many of these measures are intended to minimize potential impacts associated with construction activities that may generate fugitive dust, which will result in localized increases in airborne particulate levels. Fugitive dust emissions from construction activities will depend on such factors as the properties of the emitting surfaces (e.g., moisture content and volume of spoils), meteorological variables, and construction practices employed.

Although fugitive dust may be generated during demolition and construction activities, the distance to off-site receptors makes it unlikely that the migration of dust will result in off-site impacts. Nonetheless, the contractor will implement dust control measures during active demolition and construction that will primarily consist of using wetting agents regularly to control and suppress dust that may come from the structure being demolished or the construction materials. The contractor will comply with the National Emission Standards for Hazardous Pollutants (“NESHAP”) throughout the duration of the Project.

Site preparations involving construction haul roads, soil stockpiles, and vehicles exiting the Project

site have the greatest potential to create fugitive dust. As necessary, haul roads will be routinely misted to suppress dust generation. Soil stockpiles can either be covered or vegetated, depending on how long the stockpile will remain. Dust from construction traffic exiting the Project site onto public roads will be controlled with the use of vehicle tracking pads, which remove soil from the tires of construction vehicles. Paved construction entrances will also be routinely swept by street sweepers to remove accumulated soils. At no time will visible soils be permitted on public streets that could result in fugitive dust issues.

MECO will prepare a SWPPP to comply with the EPA's CGP for stormwater discharges. The SWPPP will implement EPA and MassDEP BMPs for controlling and reducing sediments and dust in stormwater discharges.

In addition, MECO will investigate compliance with MassDEP's Diesel Retrofit Program and the use of ULSD in off-road engines. The Diesel Retrofit Program, formerly called the Clear Air Construction Initiative or the Clean Construction Equipment Initiative, originated as an air quality mitigation measure for the Central Artery/Tunnel Project. The program encourages users of diesel construction equipment to install exhaust emission controls such as oxidation catalysts or particulate filters on their diesel engines. While MassDEP requires participation in the Diesel Retrofit Program by municipalities applying for funding under the State Revolving Fund for water and wastewater projects, there is no requirement for participation by other project Proponents. Proper emission controls, use of clean fuels, control of truck and equipment idling times, and conducting operations without affect to neighbors' clean air are MECO priorities. The Company requires the use of ULSD fuels exclusively in its diesel-powered construction equipment. Contractors will be directed to retrofit any diesel-powered non-road construction equipment rated 50 horsepower or above to be used for 30 or more days over the course of the Project with EPA-verified (or equivalent) emission control devices (e.g., oxidation catalysts or other comparable technologies).

8.5.2 Noise and Vibration

While intermittent increases in noise levels are expected during demolition and construction activities, MECO is committed to minimizing these impacts. Construction-related noise levels will comply with applicable sections of MassDEP's Air Quality Regulations at 310 CMR 7.10, and every reasonable effort will be made to minimize noise impacts from construction activities ([C-19](#)). Noise mitigation measures include:

- Minimizing the amount of work conducted outside of typical construction hours;
- Ensuring that appropriate mufflers are installed and maintained on construction equipment;
- Ensuring appropriate maintenance and lubrication of construction equipment to provide the quietest performance;
- Turning off construction equipment when not in use and minimizing idling times; and
- Mitigating the impact of noisy equipment on sensitive locations by using shielding or buffering distance to the extent practical.

Excavation activities may create noticeable vibrations in the immediate vicinity; however, it is unlikely that these activities will have off-site impacts.

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If needed, certain construction practices such as rock hammering may result in some vibrations extending beyond demarcated construction zones. Vibration mitigation measures include:

- Implementation of a proactive system of notification to potentially-affected abutters prior to the start of vibration-causing construction practices;
- Monitoring vibration levels at the limits of construction and, if necessary, beyond the construction zone; and
- Using alternative construction methods that do not produce as much vibration whenever reasonably possible.

9. Avoidance, Minimization and Mitigation

This section addresses elements of the Scope related to mitigation and includes draft Section 61 Findings. This section summarizes all proposed mitigation measures, a comprehensive list of all commitments made to avoid, minimize, and mitigate environmental and related public health impacts of the Project ([C-2](#), [C-21](#)).

9.1 From the Secretary's Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within Section 9:

C-2: *It should clearly demonstrate that the Proponent will avoid, minimize, and mitigate Damage to the Environment to the maximum extent practicable through project alternatives and design.*

C-14: *The Single EIR should provide further detail about the mitigation plan for unavoidable impacts to wetland areas and include a commitment to provide wetland replication, including identification of approximately locations if available. The Single EIR should evaluate offsite mitigation and/or restoration of onsite degraded areas to mitigate impacts.*

C-15: *The Single EIR should indicate whether mitigation for tree removal will be provided, whether through wetlands replication, in lieu payment, or other contribution, and provide a firm commitment in the filing.*

C-21: *The Single EIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations.*

C-22: *The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact.*

C-24: *The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase.*

9.2 Summary of Proposed Avoidance and Minimization Measures

As stated in Section 8 of the EENF, MECO has incorporated an approach to the siting, design, and construction means and methods that avoid and minimize impacts wherever practicable.

MECO considers and implements avoidance and minimization measures throughout all phases of the Project including Project design, in consultations with regulatory agencies, and during and after construction. MECO proposes implementing a suite of construction-phase BMPs to further avoid and minimize environmental impacts. These measures include:

Planning and Design Phase: MECO implemented avoidance and minimization measures early in the Project by conducting a detailed alternatives analysis to select a route and design that meets Project needs while minimizing environmental impacts. Replacement structures were relocated outside of BVW where feasible, and agency consultations are ongoing to identify additional site-specific avoidance measures. The Project design also incorporates temporary construction mats, use of existing ROW, and other BMPs to limit land disturbance.

Construction Phase: During construction, BMPs guide all access, maintenance, and installation activities. Environmental Monitors supervise construction, conduct pre-, during-, and post-construction inspections, and ensure compliance with permits. Erosion and sediment controls, dust suppression, dewatering, and concrete washouts are implemented to reduce impacts on wetlands, waterways, and surrounding land. Work Pads are designed to minimize disturbance, and access through sensitive areas is carefully managed using temporary mats and previously disturbed paths.

Post Construction Restoration: Following construction, temporary mats are removed, soil graded, and any rutting or compaction corrected. Disturbed wetlands and upland areas are allowed to revegetate naturally or are seeded with appropriate conservation mixes. Removed structures are backfilled, capped, or stabilized as needed, and all debris and materials are disposed of or salvaged in compliance with regulations. Restoration is monitored until at least 75% native vegetation cover is achieved, and permanent access controls may be installed where authorized to protect the ROW.

These procedures outlined in detail in Section 8 of the EENF and **Appendix C** of this SEIR strive to ensure that the Project will be completed in accordance with applicable environmental laws and regulations, as well as with MECO policies and compliance objectives. Impact avoidance and minimization measures that MECO will implement throughout construction are summarized in **Table 9-1** ([C-22](#), [C-24](#)).

Table 9-1: Avoidance and Minimization Measures, BMPs and Schedule Matrix

Parameter	Avoidance and Minimization Measures and BMPs	Construction Activity						
		ROW Vegetation Management	Erosion & Sediment Controls	Access Improvement	Structure Removal / Disposal	Structure Installation	Wire Replacement	ROW Restoration
General	An Environmental Field Issue (“EFI”) document will be developed for the Project and used for training contractors and environmental monitors. The EFI is a comprehensive document that outlines permit conditions, includes Massachusetts Electric Company (“MECO”) Best Management Practices (“BMPs”) and specifies the expectations and requirements that MECO will hold construction personnel responsible for compliance with. A copy of the EFI is kept on file at the MECO office, at the site trailer and/or site supervisor’s vehicle. Contractor training will be an ongoing process, as needed, when new personnel arrive on site.	X	X	X	X	X	X	X
Land Disturbance and Stormwater	Erosion and sediment controls will be installed and maintained. The Stormwater Pollution Prevention Plan (“SWPPP”) will be implemented to ensure that BMPs are utilized during construction to address potential impacts from erosion and stormwater runoff. Stormwater management and pollution prevention will be accomplished through stabilization and structural control BMPs, as well as good housekeeping practices. A component of the SWPPP will include requirements for spill control, clean up and reporting.	X	X	X	X	X	X	X
	Disturbed areas on the site will be stabilized using standard BMPs, which can include seeding and mulching, hydroseeding, water bars, slope breakers, amongst others, to be presented in the EFI document.	X	X	X	X	X	X	X
	Tree removal will be conducted using methods and equipment which minimize ground disturbance, such as feller bunchers or other tree handling equipment (where possible). To the extent feasible, MECO forestry crews will preserve understory scrub-shrub and herbaceous vegetation to avoid and minimize creating areas of bare soil surfaces.	X						
	Where tree removal and/or new access is proposed in areas of steep slopes or high erosive potential, additional precautions will be taken to ensure soil stability is maintained. These may include installation of water bars, plunge pools, diversion channels, and/or check dams, as appropriate to site specific conditions.	X	X	X				X
	Dust controls will be implemented as needed throughout the duration of the Project, on disturbed soils that are subject to surface dust movement and dust blowing.	X	X	X	X	X	X	X
Tree removal	Where tree removal is proposed within the right-of-way (“ROW”) (i.e., in areas which will be permanently maintained as low growing, herbaceous or scrub-shrub communities), appropriate conservation seed mixes will be applied in areas of bare soil surfaces, to promote biodiversity, provide pollinator habitat, and replace lost forest habitats with alternative ecologically valuable community types.	X						X
	Where conditions are suitable, a portion of the wood generated during tree removal activities might remain on site as standing snags, brush piles, log piles, and decaying large woody debris. Optimal locations for these habitat features will be determined in coordination with Natural Heritage and Endangered Species Program (“NHESP”) (in the case of rare species habitat), and by professional ecologists and wildlife biologists (BSC Group, Inc. [“BSC”])), for areas outside of designated rare species habitat.	X						X
	Within MECO and New England Power Company (“NEP”) fee-owned parcels, MECO is reviewing opportunities to reuse and/or donate wood collected to wood banks in Massachusetts. The amount of wood ultimately available for donation will depend on wood bank capacity and municipality interest. MECO will coordinate directly with local wood banks closer to the start of construction to confirm their needs at that time. Outside of MECO and NEP fee-owned parcels, the trees within the ROW belong to the respective private landowners. As such, it will not be possible to provide a detailed break-down of how all wood is distributed/disposed of by parties other than MECO.	X						

		Construction Activity						
Parameter	Avoidance and Minimization Measures and BMPs	ROW Vegetation Management	Erosion & Sediment Controls	Access Improvement	Structure Removal / Disposal	Structure Installation	Wire Replacement	ROW Restoration
Wetlands and Waterways	Install, inspect, and maintain temporary erosion and sediment controls, and other applicable construction BMPs, around work sites in or near wetlands. These will minimize the potential for erosion and sedimentation, mark the limits of wetlands, and restrict crew access, as appropriate.		X	X	X	X	X	X
	Within jurisdictional resource areas, limit grading for access and work areas to the extent necessary to provide a safe workspace.			X		X		X
	Avoid or minimize access through wetlands to the extent practicable. Where access must be improved or developed outside of vegetated wetlands, the access would be designed (where practical), so as not to interfere with surface water flow or the functions of the wetland.	X	X	X	X	X	X	X
	Once construction is complete, restore wetlands to pre-construction configurations and contours, to the extent practicable. Riverfront Area (“RFA”) will be allowed to return to shrub habitat.							X
	Comply with the conditions of local, state, and federal permit conditions related to wetlands.	X	X	X	X	X	X	X
	Store petroleum products more than 100 feet (“ft”) from a wetland.	X	X	X	X	X	X	X
	Proposed stream crossings with be temporary in nature and will be bridged using construction mats laid to not impact the hydrology or the bed of the stream.	X	X	X	X	X	X	X
	Limit disturbance for structure foundations in wetlands to the amount necessary to perform the installations.					X		
	Do not pile cut woody wetland vegetation to block surface water flows or otherwise to adversely affect the integrity of the wetland.	X						
	Attempt to schedule activities located near waterways during low-flow periods, to the extent practicable. Some crossings may have to be installed outside of typical low-flow periods to adhere to Project construction schedules and to conform to any transmission line outage windows that must be coordinated to maintain the reliability of the transmission grid.	X		X				
	Overhead crossings are designed to avoid conflicts.					X	X	
Water Supply Protection	Where dewatering is necessary during excavations for structures within or adjacent to Surface Water Protection Zone (“SWPZ”), water will be pumped into appropriate dewatering basins.					X		
	Where drilling is necessary for the installation of caisson foundations, the mud boxes or similar containment BMPs used to contain the drilling mud and excess soil will be removed regularly from the work site.					X		
	Post-construction restoration and stabilization will be implemented.							X
Rare Species Contractor Education and Awareness	Contractors working in state-listed species habitat will be trained in species identification and general life history/behavioral notes.	X	X	X	X	X	X	X
	If a state-listed species is encountered, contractors will be instructed to notify MECO and the approved wildlife monitor.	X	X	X	X	X	X	X
	Contractors will be required to practice good housekeeping and securely dispose of food wrappers and waste to discourage any increase in the predator population.	X	X	X	X	X	X	X
Construction Timing and Restrictions for Rare Species	Per the Operation and Maintenance Plan (“OMP”), any maintenance activities resulting in an open excavation during the active reptile season must be completed or filled in by the end of the workday. Alternatively, exclusion fencing can be installed.					X		
	If permanent access upgrades are unavoidable within protected reptile habitat areas during the active season, full-time monitoring will be provided by an approved wildlife biologist. If OMP activities occur during the reptile active season, visual inspections must be performed by trained personnel (see below).			X				
	Per the OMP, a Wetland Work Form must be submitted to NHESP within 1 month of maintenance-related work activities commencing in wetland habitat for state-listed reptile #1. Construction mats must be used for equipment access.	X	X	X	X	X	X	X
	Important habitat areas for the protected species will be delineated/identified on the Project construction plans provided with the EFI. These features will also be flagged or demarcated in the field.	X	X	X	X	X	X	X

		Construction Activity						
Parameter	Avoidance and Minimization Measures and BMPs	ROW Vegetation Management	Erosion & Sediment Controls	Access Improvement	Structure Removal / Disposal	Structure Installation	Wire Replacement	ROW Restoration
	An approved wildlife monitor will perform daily sweeps of the area/be present on site whenever construction activities or equipment access occur in mapped polygons of state-listed reptile habitat during the active season (April 1 st - October 31 st). For maintenance activities, this may be performed by trained personnel. For new access construction/upgrades, monitoring will be performed by qualified biologists.	X	X	X	X	X	X	X
	If a state-listed species is encountered, the monitor will: Record observations on NHESP "animal observation form"; Photo-document the species; If outside of nesting season, move reptiles in the direction they are traveling (not across paved roads); or if during nesting season, not disturb the nest site and identify nest location with flagging.	X	X	X	X	X	X	X
Monitoring for Rare Species	Weather forecasts will also be monitored carefully during the inactive season, as instances of unseasonably warm weather can trigger early activity. MECO will assume and prepare for the potential of protected reptiles entering work areas during certain weather conditions. Monitors will be available to sweep during sunny days, warmer than 50 degrees Fahrenheit (“ ° F”) when snow cover is absent.	X	X	X	X	X	X	X
	During the breeding/dispersal seasons for state-listed amphibians, sediment-control barriers located in mapped habitat polygons will be checked daily for trapped individuals. If any amphibians are found, these will be relocated by an approved wildlife monitor to the closest suitable area that is free from work disturbance.	X	X	X	X	X	X	X
	Per the OMP, NHESP will provide specific management requirements where cutting is required for maintenance activities in wetland resources areas located within mapped state-listed species habitat.	X	X	X	X	X	X	X
	Per the OMP, areas dominated by low-growing shrub species (lowbush blueberry, huckleberry, sheep laurel, New Jersey tea, sweet fern and scrub oak) should be encouraged and restored if disturbance is necessary for maintenance-related activities.							X
Vegetation Management for Rare Species	NHESP mapped habitats within the ROW are subject to the special conditions established in MECO’s Vegetation Management Plan (“VMP”).	X						
	Mechanical clearing/mowing related to permanent access upgrades will be avoided during sensitive breeding/dispersal period(s) in state-listed amphibian habitat.	X		X				
	As practicable, mechanical clearing/mowing will be avoided during the active season for state-protected reptile species in mapped habitat. When vegetative management is unavoidable during the active season, blades should be set no lower than 7 inches off the ground (preferably 12 inches). Mowing will occur in low gear or at slow speeds to allow individuals time to react. Visual sweeps will occur as described in the monitoring subsection.	X		X				
	As practicable, a minimum 50-ft-wide vegetated buffer strip (of ROW-compatible species), will be left undisturbed around the edge of vernal pools in mapped habitat for state-listed amphibians and invertebrate species #1. This will provide habitat for protected amphibian species and further reduce the risk of surface run-off into sensitive vernal pool habitats.	X						
	Construction mats will be used for wetland access. This practice retains the root systems and seed stock and facilitates revegetation post-construction.	X	X	X	X	X	X	X
	Erosion and sediment controls will be installed and regularly maintained to protect water quality in wetland resource areas, vernal pools, and other waterbodies. During the breeding/dispersal and active seasons, the barriers deployed in state-listed species habitat will be checked daily for trapped amphibians and reptiles, respectively. If individuals are found, they will be relocated by an approved wildlife monitor to the closest suitable area that is free from work disturbance.		X	X	X	X	X	X
	Per the OMP, monofilament encased barriers/controls will not be used in state-listed amphibian habitat. Refer to MECO’s Environmental Guidance document EG-303NE details AA-22, AA-24, & AA-25. Details also provide guidance for wood chip ramps and overlapping controls to avoid complete barriers to and from breeding pools.		X	X	X	X	X	X

		Construction Activity						
Parameter	Avoidance and Minimization Measures and BMPs	ROW Vegetation Management	Erosion & Sediment Controls	Access Improvement	Structure Removal / Disposal	Structure Installation	Wire Replacement	ROW Restoration
<i>BMP's for Rare Species</i>	Exclusion fencing will be installed around work areas and staging areas in state-listed reptile habitat, when open excavation activities cannot be completed in 1 day during the active season.					X		
	Dewatering discharge will be pumped into a straw bale or silt fence settling basin to be located in an upland area (preferably well-vegetated whenever practicable).					X		
	Foundation excavations will be covered when left unattended.					X		
	Per the OMP, materials will not be stockpiled in Certified Vernal Pool (“CVP”) or wetland resource areas.	X	X	X	X	X	X	X
	Parking of contractor vehicles will be limited or avoided, when practicable, in specified areas within the ROW.	X	X	X	X	X	X	X
	Equipment will be monitored regularly for leaks and secondary containment will be used under equipment that will be parked in habitat areas during construction. Refueling will not occur within 100 ft of wetlands or waterways.	X	X	X	X	X	X	X
	Per the OMP, silt fence placed in state-listed reptile habitat will be removed immediately following site stabilization to prevent barriers to movement.		X					X
	Where tree removal is proposed within NHESP habitat, MECO will coordinate with NHESP to provide a comprehensive mitigation plan for tree removal activities. This may include species-specific habitat enhancement and creation measures, both on and off-ROW.	X						X
	Access improvements within protected amphibian and/or reptile habitat areas will include appropriate contouring and reduced “curb/shoulder” slopes, to facilitate migration across access routes.			X				
	Upon completion of the Project activities, work areas for maintenance activities will be restored to existing conditions. These areas will be allowed to progressively vegetate with typical regular management.							X
<i>Specialized Construction and Restoration Measures for Rare Species</i>	Per the OMP, areas dominated by low-growing shrub species should be restored in-kind if disturbance is necessary for maintenance-related activities.							X
	Native vegetation should be preserved in and adjacent to wetlands whenever practicable. Use of construction mats allows for the preservation of root stock by tamping down existing vegetation. Construction matting within wetlands in Priority/Estimated Habitat (for either protected invertebrate species), will be removed immediately after completion of work, to reduce impacts to emergent vegetation and facilitate revegetation.	X	X	X	X	X	X	X
	In compliance with the VMP and OMP, vegetation and maintenance activities will continue to be managed regularly in NHESP habitat using restrictions and measures that avoid adverse impacts to protected species.	X	X	X	X	X	X	X
<i>Invasive Species</i>	Identification of the wetlands containing invasive species will be shown on Project plans provided to contractors.	X	X	X	X	X	X	X
	Environmental training of workers so that BMPs are implemented consistently.	X	X	X	X	X	X	X
	Requiring Contractors check that construction equipment, vehicles, and materials (e.g., equipment mats) be clean and free of excess soil, debris, and vegetation before being mobilized to the Project ROWs.	X	X	X	X	X	X	X
	Cleaning any equipment working in or traversing a wetland containing invasive plant species prior to relocating to another work site. Cleaning of vehicles and other equipment (including the tracks and tires) will involve removal of visible dirt, debris and vegetation using brooms, shovels, and, if needed, compressed air.	X		X	X	X	X	X
	Use of construction mats at wetland crossings so construction vehicles that frequently travel along on-ROW access routes, such as pick-up trucks carrying personnel or material delivery trucks, can avoid direct wetland interaction.	X	X	X	X	X	X	X
	Use of straw, or alternative BMP erosion and sedimentation controls will be used in and near wetlands.		X	X		X		X
	Mats used in wetlands containing invasive species will be cleaned prior relocation to other work areas or wetlands. Cleaning of matting will involve dropping mats one on top of another to loosen any	X	X	X	X	X	X	X

		Construction Activity						
Parameter	Avoidance and Minimization Measures and BMPs	ROW Vegetation Management	Erosion & Sediment Controls	Access Improvement	Structure Removal / Disposal	Structure Installation	Wire Replacement	ROW Restoration
	sediment and debris. The matting will then be swept to remove loose soil and any plant material.							
	Construction equipment and excavated soil material will be contained within the approved limits of work areas within the ROW; these limits of work will be defined on Project Plans.	X	X	X	X	X	X	X
	Soils excavated from wetlands or riparian areas containing a predominance of invasive plants will be stockpiled separately (to the extent that there is sufficient workspace) and contained within staked bales, silt fence or other approved erosion and sedimentation control BMPs to minimize the potential of spreading these soils elsewhere onto the ROW.					X		
	Final restoration of the ROW will be performed in accordance with MECO’s Environmental Guidance document EG-303NE.							X
	MECO field monitors will perform site inspections and oversee the contractors’ compliance with applicable federal, state, and local permit conditions, Project Plans (e.g., SWPPP), and MECO policies.	X	X	X	X	X	X	X
	Soil and vegetation disturbance will be minimized to the extent practicable.	X	X	X	X	X	X	X
	Erosion and sedimentation controls will be installed and maintained, per the SWPPP.		X	X	X	X	X	X
	Prior to moving to other work areas, remove plant matter, soil, or other deleterious material from equipment and construction matting when working at the sites containing invasive species.	X		X	X	X	X	X
<i>Hazardous Waste</i>	Work will be completed in accordance with EG-303NE, EG-501, EG-502, and EG-1707 which describe MECO’s procedures for managing hazardous waste and contaminated soils, and MECO’s spill response and reporting procedures.	X	X	X	X	X	X	X
	If oil and/or hazardous material are identified during the implementation of this Project, notification will be made to Massachusetts Department of Environmental Protection (“MassDEP”), per reporting requirements, and the necessary precautions outlined in MECOs BMPs and relevant permits will be followed.	X	X	X	X	X	X	X
	Develop a Spill Prevention and Response Plan with procedures to be used during construction to minimize the potential for a fuel spill and, if a spill occurs, to control and minimize potential effects.	X	X	X	X	X	X	X
	If refueling and maintenance in the field are necessary, vehicles and equipment will be brought to an area greater than 100 ft away from sensitive environmental features, and reasonable environmental precautions will be taken.	X	X	X	X	X	X	X
<i>General Decarbonization Benefits</i>	Improved transmission system infrastructure will provide improved electric transmission reliability, increased line capacity, and more opportunities for the interconnection of renewable energy generating facilities. Additionally, since the Project supports the transition to utilization renewable energy resources, the Project promotes public health with regard to future reduction of air pollution, as well as water and soil contamination. Generating energy from renewable sources reduces the amount of energy generated from fossil fuels, the latter of which is associated with harmful gases that contribute to respiratory diseases such as emphysema and asthma.					X	X	
<i>Climate Change Adaptation & Resiliency</i>	Precipitation Resiliency: Replacement steel structures and caisson foundations are more resilient to weather extremes than the existing structures. Generally, the aging structures along the Line pose a threat to the reliability of the transmission system supplying the Leominster area. Additionally, the condition of the wood structures poses a risk to personnel and public safety and will incur greater costs if the aging infrastructure issues are not addressed. In light of these concerns, the Lines will be designed with upgrades through increased system reliability and anticipated future requirements. Access improvements will better withstand flood conditions and will reduce the potential for erosion impacts during future maintenance. Improved line clearances (tree removal) will reduce the risk of outages due to trees falling on the lines, which is likely to become more frequent with climate change (due to both temperature stress and increased precipitation destabilizing upland trees). Mitigation measures for work within Bordering Land Subject to Flooding (“BLSF”) and wetlands			X		X	X	

		Construction Activity						
Parameter	Avoidance and Minimization Measures and BMPs	ROW Vegetation Management	Erosion & Sediment Controls	Access Improvement	Structure Removal / Disposal	Structure Installation	Wire Replacement	ROW Restoration
	(described below) also facilitates precipitation resiliency.							
	Temperature Resiliency: Upgrades to infrastructure, e.g., insulators and conductors, will allow the system to handle greater electrical loads during heat waves.					X	X	
	Inland Flooding Resiliency: Replacement steel structures and caisson foundations are more resilient to inundation. Structures within the floodplain are not expected to restrict flows or cause an increase in flood stage or velocity. Impacts to peak runoff rates (from tree removal and increases in impervious surface area), will be mitigated through a combination of hard and soft engineering techniques.					X		X
Traffic	Plans proposed for overhead crossings (including the use of guard structures for safety).			X			X	
Emissions	Diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will have EPA-verified (or equivalent) emission control BMPs, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine. Vehicle idling will be minimized in accordance with Massachusetts’ Anti-idling Law, M.G.L. c. 90, § 16A, c. 111, §§ 142A – 142M, and 310 CMR 7.11. MECO requires the use of ultra-low sulfur diesel (“ULSD”) fuel in its diesel-powered construction equipment and limits idling time to 5 minutes except when engine power is necessary for the delivery of materials or to operate accessories to the vehicle such as power lifts.	X	X	X	X	X	X	X
	Dust controls will be evaluated and implemented as needed throughout the duration of the Project on disturbed soils that are subject to surface dust movement and dust blowing.	X	X	X	X	X	X	X

9.3 Compensatory Wetland Mitigation

After practicable measures to avoid or minimize Project impacts have been implemented (as summarized in **Table 9-1**), MECO will provide appropriate compensatory mitigation for Project impacts, in line with the requirements of the various regulatory programs under which the Project is being permitted. MECO proposes *in situ* restoration as the primary means of mitigation for temporarily altered wetlands. ([C-14](#)).

MECO will work with the appropriate regulatory agencies during permitting to finalize mitigation proposals as required by federal, state, and local regulations. Under most regulatory programs, MECO proposes *in situ* restoration as the primary means of providing 1:1 restoration of impacts associated with construction matting and soil disturbance at structure installation/removal sites. No wetland replication is proposed, as no permanent fill or loss of wetlands is occurring. Where required by statute or permit condition, and in areas of permanent impact (such as where structures will be installed in resource areas), MECO will provide compensatory mitigation. Compensatory mitigation may include off-site preservation of forested land or wetlands, and culvert and stream enhancements, or other replication, restoration, or preservation packages, as approved in consultation with regulatory agencies.

9.3.1 Compensatory Mitigation Requirements

The Project is subject to a variety of environmental permits and authorizations that may require compensatory mitigation for unavoidable impacts to jurisdictional/regulated areas. During consultation and permitting with regulatory agencies, MECO will provide compensatory mitigation for unavoidable impacts to jurisdictional areas, in compliance with all permit programs applicable to the Project. MECO is working with federal, state, and local agencies to determine appropriate mitigation required by each permit program. These include:

- Clean Water Act (“CWA”) Section 401 Water Quality Certification (MassDEP) – *No compensatory mitigation anticipated. Fill within WOTUS is limited to the use of construction matting for utility maintenance activities.*
- Wetlands Protection Act (WPA), and Local Wetland Regulations (MassDEP and Local Conservation Commissions) – *No compensatory mitigation anticipated. Fill within BVW is limited to the use of construction matting for utility maintenance activities.*
- CWA Section 404 (USACE)¹⁵ – *Potential compensation requirements for secondary or indirect impacts to Waters of the United States.*
- Local Wetland Regulations

Under the CWA Section 401, MassDEP requires at least a 1:1 ratio of wetland restoration or replication for discharge of fill into vegetated wetlands. The WPA allows certain limited projects if they minimize adverse impacts and include appropriate mitigation. Up to 5,000 sf of wetland loss may be permitted if fully replaced, and any loss of flood storage must be compensated. For RFA, mitigation must be provided in 2:1 ratio or demonstrate an equivalent environmental benefit.

¹⁵ While MEPA Review is primarily concerned with state regulatory requirements, some federal and/or local regulatory requirements overlap with those promulgated by the state. These are included in this table, for reference.

At the federal level, CWA Section 404 (administered by the USACE), allows compensatory mitigation through wetland restoration, enhancement, creation, or preservation. There are three mechanisms for providing compensatory mitigation: permittee responsible compensatory methods, mitigation banks, and *In-Lieu* Fee Program mitigation. Although Section 404 authorization and Section 401 Certificate are both regulated under CWA, the *In-Lieu* Fee Program is typically not accepted by MassDEP under its Section 401 program.

For Projects that are likely to adversely impact historic properties, the State Historic Preservation Act and NHPA Section 106 require consultation with the MHC and tribal representatives to avoid, minimize, or mitigate any adverse effects.

Finally, at the local level, some Municipal Ordinances and Bylaws require a greater ratio of wetland replacement area to loss area. Local Ordinances and Bylaws may regulate additional resource areas (such as the Buffer Zone) or implement additional requirements for wetland replacement areas. MECO will work with each town's Conservation Commission during later stages of permitting to ensure the mitigation meets all local, as well as state requirements.

At this stage of Project planning, design, and permitting, exact details of the anticipated mitigation packages have not been finalized. Currently, MECO is in consultation with regulatory agencies to ensure that the final Project design, construction methods, and anticipated mitigation measures will meet applicable mitigation criteria.

9.3.2 Conversion of Vegetative Cover Types - Compensatory Mitigation Requirements

Within wetlands, conversion of vegetative cover types, while defined as an "alteration" or a "secondary impact" under state and federal regulation, does not constitute a loss of BVW or a discharge of fill material into WOTUS. There is no requirement in the WPA or the 401 WQC regulations to compensate for conversion of wetlands from one vegetation cover type to another, as no BVW or WOTUS within the Commonwealth is "lost" following vegetation removal. The WPA regulations require MECO to mitigate for the reduction or loss of the capacity of a wetland to provide for any of the Statutory Interests for specific regulated resource areas. As described in *Section 4*, of this SEIR, MECO has documented existing conditions within jurisdictional wetlands along the Project ROW and assessed potential impacts from Project construction. Per this analysis, the Project will not impair the integrity of the wetland or ability of the wetland to provide for the statutory interests as provided in M.G.L. c. 131, §40.

While conversion of vegetative cover types will not result in permanent loss of BVW, this activity is considered permanent wetland alteration and will result in a change in community type from PFO wetland to PSS or PEM. Conversion of vegetative cover types will be selective and will only remove tall-growing species which have the potential to interfere with the overhead transmission lines, or trees which are directly obstructing access to the ROW. Trees will be cut near the ground surface, and root balls left intact to maintain soil stability. Cut stumps will be treated with herbicide during the next routine maintenance cycle, reducing regrowth and the need for future tree cutting. Understory shrub and emergent wetland vegetation will be left intact and maintained under long term vegetation management cycles as PSS or transitional PFO/PSS systems. As mentioned in *Section 4*, these transitional systems can be a beneficial natural resource as they provide wetland functional diversity in an otherwise forested area and provide valuable and important wildlife habitat as PSS/PEM wetland types. Accordingly, MECO does not anticipate providing compensatory BVW mitigation under the WPA or 401 WQC regulatory programs for conversion of vegetative cover types within wetlands along the existing ROW edge.

Some conversion of vegetative cover types will take place within RFA. MECO recognizes that maintaining/re-establishing vegetation within the RFA is critical to protecting water supplies, providing flood control, preventing pollution, and protecting wildlife and fisheries habitat. Therefore, MECO is proposing *in situ* restoration of disturbed soil surface to promote soil stabilization and rapid revegetation. Additionally, MECO will loam and seed work areas with native grass and herbaceous species following construction to reestablish vegetative cover.

Under federal Section 404 regulation, conversion of vegetative cover types, more specifically defined as a conversion of wetland vegetation cover type, is a “Secondary Impact.” Secondary impacts are effects on wetlands that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material (refer to 40 CFR 230.11(h)). MECO will coordinate with the USACE to ensure all mitigation requirements are met.

9.4 Proposed Mitigation for Wetland Impacts

As stated in the EENF (Section 8.2), the Project is subject to environmental permits and authorizations that may require compensatory mitigation for “impacts” to jurisdictional/regulated areas that cannot be avoided or minimized. The definition and categorization of “impact” varies between these regulatory programs. Under most environmental regulatory programs, compensatory mitigation is required for unavoidable and/or permanent impacts that result in the loss of a resource area.

The Project will not result in any permanent fill or loss of wetlands or waterways. Permanent alterations will be limited to upland areas regulated under the WPA, primarily related to access improvements and the replacement of utility structures.

To address temporary construction impacts within wetlands associated with construction matting and work areas involving soil disturbance, around the base of structure installation and/removal sites, MECO proposes *in situ* restoration to restore impacted areas on a one-to-one basis. Because the Project will not cause permanent wetland loss, additional compensatory wetland mitigation beyond *in situ* restoration is not anticipated.

Proposed mitigation measures will be reviewed by the Conservation Commission in each town, MassDEP, MHC, and the USACE, and ultimately will be incorporated into the permits and OOCs issued for the Project. The Draft Section 61 Findings in *Section 10* include proposed mitigation measures.

9.4.1 Wetland Restoration for Temporary Impacts

MECO anticipates *in situ* restoration will be the primary means of mitigation for temporary (or “temporal”) impacts associated with construction matting within wetlands under both Section 404 and the WPA. A detailed description of MECO’s standard procedure is presented in *Section 4* of this SEIR and summarized below.

As construction mats are removed, wetlands will be inspected for sediment deposited from work and access areas. If rutting or soil compaction is observed following construction mat removal, the area shall be returned to pre-existing conditions consistent with the surrounding area, by light hand raking or by back-blading with machinery. Deep ruts (greater than 12 inches) shall be graded using available, loose soil from the work area. Depending on vegetation conditions, disturbed wetland areas will either be allowed to revegetate naturally or will be seeded with an appropriate wetland

conservation seed mix.

Restored areas will be monitored until at least 75% revegetation cover of native species is achieved. Where appropriate, native species plantings, and creation of woody debris and log piles, will be implemented. Any additional site-specific mitigation will be determined during future permitting, in coordination with the local Conservation Commissions.

Construction debris will be removed from the Project Area and disposed of in accordance with applicable laws and regulations. Siltation fencing, strings and stakes shall be removed and disposed of as ordinary waste.

9.4.2 Impact and Mitigation Summary

Impacts to the environment, including land, stormwater, wetlands, and historic and archeological resources, are discussed in detail in *Section 3* through *Section 5* of this SEIR. **Table 9-2** (below) presents a summary of anticipated Project impacts, and the proposed mitigation, where required.

Table 9-2: Summary of Project Impacts and Proposed Mitigation

Resource Area	Impact Type	Impact Area	Potential Mitigation
Bordering Vegetated Wetland ("BVW")	Permanent Discharge of Fill Material / Loss of Resource Areas (Structure Foundations)	0 square feet ("sf")	N/A
	Temporary Discharge of Fill Material / Temporal Loss (Construction Matting)	~0.8 acre	<i>In Lieu Fee</i> (USACE) and 1:1 <i>in situ</i> restoration. See also Avoidance & Minimization sections for details on the use of construction matting.
Riverfront Area ("RFA")	Secondary Impacts (conversion of vegetative cover types)	~1.13 acres	<i>In situ</i> restoration of understory vegetation, including loam and seed as applicable. The habitat will remain vegetated and continue to function as wildlife habitat.
	Temporary Fill (Construction Matting, Gravel Work Areas and Access to be Removed Post Construction)	1.33 acres	<i>In situ</i> restoration, including loam and seed as applicable. The habitat will remain vegetated and continue to function as wildlife habitat.
Inland Bank ("Bank")	Temporary Fill (Construction Matting)	0 linear feet ("lf")	N/A

9.5 Proposed Mitigation for Tree Removals

MECO has designed the Project and all associated mitigation and restoration measures in compliance with applicable federal, state, and local requirements as described in *Section 2* of this SEIR. While no regulatory mandate exists for tree removal mitigation, the Certificate on the EENF requested that MECO compensate for unavoidable tree loss within heat hot spots along the Project corridor. In response, MECO proposes a mitigation package to address vegetative cover type conversion in hot spot areas (C-15).

MECO plans to support DCR's GGCP, an environmental and energy efficiency initiative aimed at

increasing tree canopy cover in urban residential areas across Massachusetts's Gateway Cities, with efforts focused specifically within the Leominster community. The GGCP deploys forestry crews to work directly with residents to plant trees and expand canopy cover for environmental and energy efficiency benefits. MECO looks forward to continuing its partnership with DCR to finalize the specific details and implementation mechanisms for this mitigation package as the Project advances through design and permitting. While no EJ-specific mitigation is proposed, MECO shall work with DCR to identify and prioritize tree planting locations within EJ block groups in Leominster proximal to the ROW, with particular focus on areas currently vulnerable to the heat island effect.

Additionally, approximately 6.5 acres of tree removal will occur within MECO and NEP fee-owned parcels. MECO is reviewing opportunities to donate wood from these parcels for use as firewood and milled lumber. The amount of wood ultimately available for donation will depend on wood bank capacity and municipality interest. MECO will coordinate directly with local wood banks closer to the start of construction to confirm their needs at that time. In addition, abutters and residents will have the opportunity to keep downed wood on their own properties for personal use.

9.6 Environmental Justice Populations

Refer to *Section 6* of this SEIR for analysis of EJ populations and potential impacts along the Project route. Overall, Project impacts to EJ populations will be minimal, and limited to construction-period activities (ROW access causing minor traffic disturbance and noise from work activities). Impacts will be distributed across EJ and non-EJ communities and will not disproportionately affect EJ populations.

Mitigation for Project impacts, including impacts within EJ communities/populations, are described throughout this SEIR. No mitigation measures specific to EJ populations are proposed, as no disproportionate Project impacts to EJ populations will occur.

9.7 Mitigation Costs and Responsible Parties

As requested in the Secretary's Certificate on the SEIR, a summary of avoidance and minimization measures is provided in **Table 9-1**, above. **Table 9-2** below provides mitigation measures, clear commitments to implementation, individual costs for each measure, parties responsible, schedule for implementation, and identifies Agency Action/Permit for each measure ([C-22](#)).

At this early stage in Project permitting, MECO has not yet developed comprehensive compensatory mitigation proposals. Detailed mitigation packages will be developed in coordination with federal, state, and local permitting authorities, and will be designed to satisfy applicable permitting requirements. MECO will be responsible for funding and land acquisition (if required). MECO and their contractor will be mutually responsible for overseeing the implementation of all required mitigation measures. Some generalized costs and responsible parties for broad-scale Project mitigation are listed below. These are pre-construction estimates based on available information and experience with other recent projects.

Table 9-3: Summary of Mitigation Measures Cost, Schedule and Responsible Parties

Resource Area	Mitigation Measures	Estimated Cost	Responsible Parties	Timeline	Agency Action/Permit
Land Disturbance and Stormwater	Erosion and sediment controls will be installed and maintained. The Stormwater Pollution Prevention Plan (“SWPPP”) will be implemented to ensure that Best Management Practices (“BMPs”) are utilized during construction to address potential impacts from erosion and stormwater runoff. Stormwater management and pollution prevention will be accomplished through stabilization and structural control BMPs, as well as good housekeeping practices. These measures will be enforced through regular construction monitoring. A component of the SWPPP will include requirements for spill control, clean up, and reporting.	SWPPP Preparation: Approximately \$10k Implementation: ~\$400,000 per linear mile	SWPPP Preparation: MECO, BSC Group, Inc. (“BSC”) Implementation: Contractor(s)	Prior to construction/during construction.	United States Environmental Protection Agency (“EPA”)/SWPPP Massachusetts Department of Environmental Protection (“MassDEP”) 401 WQC USACE/ Pre-Construction Notification (“PCN”) Conservation Commissions/ Order of Conditions (“OOC”)
Tree Removal	In response to the Certificate on the Expanded Environmental Notification Form (“EENF”), Massachusetts Electric Company (“MECO”) is committed to funding a comprehensive mitigation package that includes supporting the Department of Conservation and Recreation’s (“DCR’s”) Greening the Gateway Cities Program (“GGCP”), an urban forestry initiative designed to increase tree canopy cover in urban residential areas across Massachusetts’s Gateway Cities, as well as funding one or more of a suite of DCR programs that either directly enhance carbon storage, rates of sequestration, or support the resiliency of forest carbon storage. Many of these programs support the Resilient Lands Initiative, Healthy Soils Action Plan, Forests as Climate Solutions, and other Commonwealth initiatives. The total mitigation contribution will be determined through coordination and consultation with DCR as the Project progresses through the permitting process.	TBD	MECO	During/following construction.	
	Within MECO fee-owned parcels, MECO is reviewing opportunities to reuse or donate wood collected during tree removal to affordable housing projects or wood banks in Massachusetts. The amount of wood ultimately available for donation will depend on wood bank capacity and municipality interest. Outside of MECO fee-owned parcels, the trees within the right-of-way (“ROW”) belong to the respective private landowners. As such, it will not be possible to provide a detailed breakdown of how all wood is distributed/disposed of by parties other than MECO.	N/A	MECO	During/following construction.	
Wetland and Waterways	Wetland protection and <i>in situ</i> restoration, including sediment and erosion controls, mitigation for wetlands, waterbodies, and ROW restoration (adjacent upland & wetland). Once construction is complete, restore wetlands to pre-construction configurations and contours, to the extent practicable. Conduct post-wetland restoration monitoring. The Riverfront Area (“RFA”) will be allowed to return to scrub-shrub habitat or another non-forested habitat.	Approximately \$230,000/mile.	MECO is responsible for the cost, and MECO Contractor(s) are responsible for installation and implementation.	Following construction.	MassDEP/401 Water Quality Certification/Certificate (“WQC”) USACE /PCN Conservation Commissions/OOC

	United States Army Corps of Engineers (“USACE”) <i>In-Lieu Fee</i> mitigation (for impacts to wetlands/ Waters of the United States (“WOTUS”) will be provided at the appropriate percentage of the standard ratio dependent upon the impact category.	Cost per square foot (“sf”) of impact as determined based on mitigation ratios and watershed area.	MECO Implementation: Contractor(s)	During/following construction.	USACE/404 PCN
Sensitive Areas	Construction mats for access and work areas within sensitive resource areas (including wetlands, and select areas of rare species Priority Habitats, agricultural land, and archaeologically sensitive sites).	Approximately \$57.5/linear foot (“ft”).	MECO is responsible for the cost, and MECO Contractor(s) are responsible for installation and implementation.	During construction.	MassDEP / 401 WQC USACE / PCN Massachusetts Endangered Species Act (“MESA”) Checklist/Conservation & Management Permit (“CMP”) Conservation Commissions / OOC
Climate Change Adaptation and Resiliency	Precipitation Resiliency: ▪ Replacement steel structures and caisson foundations are more resilient to weather extremes than the existing structures. ▪ Access improvements will better withstand flood conditions and will reduce the potential for erosion impacts during future maintenance. ▪ Improved line clearances (tree removal) will reduce the risk of outages due to trees falling on the lines, which is likely to become more frequent with climate change (due to both temperature stress and increased precipitation destabilizing upland trees). ▪ Mitigation measures for work within wetlands also facilitate precipitation resiliency.		MECO/ BSC	Prior, during, and following construction.	
	Temperature Resiliency: Upgrades to infrastructure (e.g., insulators and conductors) will allow the system to handle greater electrical loads during heat waves.	N/A	N/A	N/A	
	Inland Flooding Resiliency: ▪ Replacement steel structures and caisson foundations are more resilient to inundation. ▪ Structures within the floodplain are not expected to restrict flows or cause an increase in flood stage or velocity. ▪ Impacts to peak runoff rates (from tree removal and increases in impervious surface area), will be mitigated through a combination of hard and soft engineering techniques.	N/A	MECO	Prior to construction.	
EJ/ Public Health	Temporary impacts from pre- and post-construction will be mitigated through BMPs.	Implementation: ~\$375,000 per linear mile*	N/A	Prior, during, and following construction.	
	Additional outreach will be conducted in EJ populations to facilitate additional information and coordination.	N/A	N/A	Prior, during, and following construction.	

*Note – This figure is an estimation for BMPs for the entire Project, and not specific to EJ populations.

10. Draft Section 61 Findings

MEPA requires state agencies to make findings on environmental damage and mitigation measures before issuing a state permit for a project requiring an **Environmental Impact Report** (“EIR”) (301 CMR 11.07 (so-called Section 61 Findings). The MEPA regulations at 301 CMR 11.07(6)(k) require that the EIR contain the proposed Section 61 Findings.

While MECO will continue to consult with certain agencies concerning mitigation, this SEIR contains the most up-to-date information on the Project’s mitigation measures, including those to which MECO has committed to and those under discussion with agencies. Each Section 61 Finding is essentially a stand-alone document, so it does not incorporate previously defined acronyms.

Proposed Section 61 Findings for Massachusetts Department of Environmental Protection (“MassDEP”)**DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61****Project Name:** J136S Tap Line Rebuild Project**Project Location:** Leominster and Sterling.**Project Proponent:** Massachusetts Electric Company (“MECO”)**EOEA Number:** 17004**Agency Actions:** Massachusetts Department of Environmental Protection Section 401 Individual Water Quality Certification (“WQC”)

Intent of These Section 61 Findings: MEPA regulations 301 CMR 11.12(5) stipulate that in “accordance with G.L. c.30, §61, any Agency that takes Agency Action on a Project for which the Secretary required an EIR shall determine whether the Project is likely, directly or indirectly, to cause any damage to the environment and make a finding describing the damage to the environment and confirming that all feasible measures have been taken to avoid or minimize the damage to the environment.” The Section 61 Findings are incorporated into the conditions or restrictions to the relevant permit or authorization. The following proposed Section 61 Findings have been prepared by the Project Proponent and are intended to assist the state permit-issuing agency in fulfilling its obligations in accordance with G.L. c. 30, §61. These Findings are limited to the subject matter jurisdiction of the Section 401 Water Quality Certification (“WQC”) sought from the Massachusetts Department of Environmental Protection (“MassDEP”).

Project Description: The Project includes the rebuild of the existing Tap Line in a new alignment along the Tap Line. The new alignment is offset approximately 40 feet east of the existing alignment. The offset is necessary so that the existing line can remain in service during construction. The rebuild will include the removal of 42 structures and replacement with 40 new steel H-frame or single pole structures, access upgrades and work pad construction, and tree removal. The refurbishment activities will include:

- Replacing the existing (mostly wooden) structures with a combination of steel single pole davit arm and steel H-frame structures (as shown in **Figure 3 - Cross Sections** in **Appendix A**). Two wood structures will be removed and not replaced. Replacement suspension type structures will be supported by both caisson foundations¹⁶ (15) and direct embed¹⁷ (25).
- Performing tree removals along the eastern edge of the ROW to accommodate the new centerline of the Tap Line and the required conductor clearance. Tree removal will extend approximately 40 feet (“ft”) into the existing forested edge. Additional conversion of vegetative cover type will occur where needed for proposed workspaces. Vegetation management (mowing and trimming) along the existing managed corridor is required to provide access to the proposed structure locations, to facilitate safe vehicular and equipment passage, and to provide safe work sites for personnel.

¹⁶ A caisson foundation is a watertight, box-like deep foundation which is typically made up of steel or reinforced concrete that is installed by sinking into the ground.

¹⁷ A direct embed is a type of foundation technique used primarily in utility and pole construction, where the pole is installed directly into the ground without the use of a concrete foundation like caisson.

- Performing access improvements and construction, including grading and the addition of stone to existing access. MECO is proposing access upgrades in alignment with previously utilized routes and pathways where feasible.
- Replacing the existing copper conductor with a composite conductor made of a steel core and aluminum strands, which will improve system reliability and increase capacity without increasing the voltage of the line.
- Replacement of the shieldwire with optical ground wire (“OPGW”). OPGW is both a shieldwire and a telecommunication line between substations.
- Installation of additional infrastructure at Litchfield Street Substation to accommodate the OPGW and upgraded conductor.

This Project requires an Individual Section 401 WQC, primarily due to the discharge of fill material in Waters of the United States (“WOTUS”) within the Commonwealth. Applications will be filed with MassDEP for review under 314 CMR 9.00. MassDEP evaluation criteria for applications are the incorporation of all appropriate and practicable measures for avoiding and minimizing impacts to wetland resource areas. The Project’s design avoids, minimizes, and mitigates adverse impacts, as described in this section.

MEPA History: Pursuant to G.L. c. 30, §61- §62A-H, of the Massachusetts Environmental Policy Act (“MEPA”) and its implementing regulations at 301 CMR 11.00, the Proponent (“MECO”) has prepared and submitted this Single Environmental Impact Report (“SEIR”) to the MEPA office. The Project is subject to MEPA review as it requires one or more state permits and exceeds the following thresholds requiring the filing of an:

- Environmental Impact Report (“EIR”) for Wetlands, Waterways and Tidelands: Alteration of one or more acres of Bordering Vegetated Wetlands (“BVW”). (301 CMR 11.03(3)(a)(1)(a))
- EIR for Environmental Justice (“EJ”) Populations as the Project is located within a Designated Geographic Area (“DGA”) around an Environmental Justice Population (301 CMR 11.06(7)(b)).
- ENF for direct alteration of 25 or more acres of land, unless the Project is consistent with an approved conservation farm plan or forest cutting plan or other similar generally accepted agricultural or forestry practices. (301 CMR 11.03(1)(b)(1))
- ENF for alteration of 5,000 or more square feet (“sf”) of BVW. (301 CMR 11.03(3)(b)(1)(d))

Project Impacts: The Project will result in minimal and/or temporary environmental impacts because the Project will take place primarily within an existing utility ROW corridor. There is no proposed permanent discharge of fill material or loss of wetlands. Wetland impacts from the Project that are subject to Section 401 jurisdiction include:

- Temporary disturbance of wetland resource areas, including wetlands and waterways, associated with the placement of construction mats for construction equipment access and work pads (local, state and federal)

Impact calculations relative to the Section 401 WQC include the placement of approximately 35,948 sf of temporary fill material in wetlands consisting of construction mats.

Project Mitigation: MECO considered avoidance, minimization and mitigation measures as a matter of course during the planning and design process as an overall approach to avoiding impacts whenever possible. MECO completed field investigations and a constructability review along the

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J136S Tap Line Rebuild Project

Project route to determine access routes and construction techniques to be implemented during construction of the Project to provide an accurate impact assessment and to design work to avoid and minimize impacts within wetlands and other sensitive resources (e.g., cultural resources) to the greatest extent practicable. In terms of avoidance and minimization during construction, MECO has established BMPs that are to be followed by MECO employees and its contractors for accessing sites and performing construction activities on transmission ROWs. These BMPs ensure that this Project will be completed in accordance with applicable environmental laws and regulations, as well as with MECO policies and compliance objectives. **Table 10-1** below, lists commitments to be carried out by MECO to ensure that proposed wetlands and waterways mitigation strategies will be implemented as the Project proceeds.

Table 10-1: Wetlands and Waterways Mitigation Strategies for the Project

Wetland Resource Area	Impact	Mitigation Measures	Responsible Party/ Implementation
Bordering Vegetated Wetlands (“BVW”)	Temporary alterations during construction from construction matting.	Use construction mats for access through wetlands, across streams and other sensitive areas to minimize compression of soils, rutting, and disturbance of vegetation; <i>in situ</i> restoration	Contractor/Construction
		Implement Stormwater Pollution Prevention Plan (“SWPPP”).	Contractor/Construction

Findings: After the draft findings herein have been reviewed by MassDEP and revised by the Proponent, as appropriate, MassDEP will make a finding that the foregoing information adequately describes the environmental impacts associated with the Project, and that with the implementation of the mitigation measures described above, practicable means will have been taken to avoid or minimize adverse environmental impacts subject to MassDEP authority. Implementation of avoidance, minimization, and mitigation measures will occur in accordance with the terms and conditions set forth in the 401 WQC.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

WATER QUALITY CERTIFICATION

BY _____

DATE _____

11. Response to Comments

This section presents the responses to the Scope of the Certificate, and each comment received, per 301 CMR 11.07(6)(1). The Secretary's Certificate for the EENF, along with the comment letters from state agencies, municipal officials, and other interested parties, have been annotated for ease of reference and are presented in **Appendix E: Secretary's Certificate and Comment Letters (Annotated)** ([C-25](#)). **Table 11-1**, beginning on the following page, presents the comments and the Proponent's direct responses, as well as references to sections or figures within the SEIR where additional information can be found ([C-26](#)).

Note: Each comment in Column 1 ("Comment ID/Links") has been bookmarked with direct links to the corresponding responses in the relevant sections of this SEIR for ease of reference.

11.1 From the Secretary's Certificate on the EENF

The following Scope items and comments from the Certificate on the EENF are addressed within **Section 10**:

***C-25:** The Single EIR should contain a copy of this Certificate and a copy of each comment letter received.*

***C-26:** To ensure that the issues raised by commenters are addressed, the Single EIR should also include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the Single EIR beyond what has been expressly identified in this certificate.*

The annotated comment letters are numbered on the Certificate (refer to **Appendix E**) as listed below for ease of reference:

Commenter	Annotated Abbreviation
Certificate of the Secretary of Energy and Environmental Affairs on the Expanded Environmental Notification Form ("EENF"), EEA #17004	C
Massachusetts Department of Environmental Protection ("MassDEP") Central Regional Office	DEP
MassDEP, Western & Central Regional Office Waterways Regional Program	WRP
Massachusetts Division of Fisheries and Wildlife ("DFW") Natural Heritage and Endangered Species Program ("NHESP")	NHESP

Table 11-1: Responses to Comments

Comment ID/ Links	Comment	Relevant Page #(s)	Response
Secretary’s Certificate on the EENF, EEA #17004, November 2025			
General			
C-1	The Single Environmental Impact Report (“EIR”) should follow Section 11.07 of the Massachusetts Environmental Protection Act (“MEPA”) regulations for outline and content and provide the information and analyses required in this Scope.	1-1	The Single Environmental Impact Report (“SEIR”) followed Section 11.07 of the MEPA regulations for outline and content, as modified by the Scope of the Certificate for the SEIR.
C-2	It should clearly demonstrate that the Proponent will avoid, minimize, and mitigate Damage to the Environment to the maximum extent practicable through project alternatives and design.	9-1	The Project has been designed to avoid, minimize, and mitigate damage to the environment to the extent possible. A comprehensive discussion of mitigation is provided in <i>Section 9</i> . Table 9-1 provides an updated, comprehensive list of all commitments made by Massachusetts Electric Company (“MECO”) to avoid, minimize, and mitigate the impacts of the Project.
Project Description and Permitting			
C-3	The Single EIR should include updated site plans for existing and post-development conditions at a legible scale and a detailed description of all project components.	1-2	MECO has made significant efforts to enhance the clarity and comprehensibility of the Plans for both existing and post-development conditions during the filling of the EENF. Conceptual Plans ensure legibility and have been provided at an appropriate scale. The Plans are provided in Appendix A: Project Figures and Plans .
C-4	It should identify any changes since the filing of the Expanded Environmental Notification Form (“EENF”). The Single EIR should identify and describe state, federal and local permitting and review requirements associated with the Project, provide an update on the status of each of these pending actions, analyze applicable statutory and regulatory standards and requirements, and provide a discussion of the Project’s consistency with those standards.	1-4, 2-2 to 2-3	Overall, the Project’s design standard parameters are largely unchanged since the EENF filing, therefore there are no substantial changes in the impact of the Project. Please refer to <i>Section 1.9</i> and <i>Section 1.10</i> for summary on Project changes since the EENF and potential Project impacts. Please refer to Table 2-1 in <i>Section 2</i> , for a detailed summary of the status of each pending actions, applicable statutory and regulatory standards and requirements, and discussion on the Project’s consistency with those standards.
C-5	The information and analyses identified in this Scope should be addressed within the main body of the Single EIR and not in appendices. In general, appendices should be used only to provide raw data, such as wetland delineations, that is otherwise adequately summarized with text, tables and figures within the main body of the Single EIR. Information provided in appendices should be indexed with page numbers and separated by tabs, or, if provided in electronic format, include links to individual sections. Any references in the Single EIR to materials provided in an appendix should include specific page numbers to facilitate review.	1-5	MECO notes this comment. The SEIR presents all required information and analyses identified in the Scope within the main body of the document.
Environmental Justice/ Public Health			
C-6	The Proponent should continue outreach and engagement efforts prior to the next filing, specifically augmenting outreach to EJ populations within Leominster and focusing on neighborhoods intersected by Project activities. The Single EIR should contain a description of these efforts, including a discussion of any of the best practices listed in the MEPA Environmental Justice (“EJ”) Public Involvement Protocol that the Project employed/intends to employ. Specifically, the Proponent should consider door-to-door education efforts within specific EJ neighborhoods closest to Project activities.	6-6 to 6-8	MECO has continued to update the EJ Reference List, maintain and update the Project website. A target notice of the SEIR filing will also be sent out to the EJ Reference List (translation for the document will also be offered, as requested). The SEIR will be posted on the Project website and community stakeholders will be encouraged to request additional public meetings, if desired, and will be provided with instructions for how to request them. Refer to <i>Section 6.4</i> for a description of outreach and engagement efforts made by MECO during Project planning, design, and permitting. MECO gave careful consideration to door-to-door education efforts, however, given the linear nature of the Project, that spans multiple communities and distances along the corridor, a door-to-door approach presents logistical challenges and may not be the most effective or feasible method for reaching abutters and residents in a consistent and timely manner. In lieu of door-to-door efforts, we have enhanced our outreach approach to ensure EJ populations and nearby residents receive accessible and meaningful information about the Project. Please refer to <i>Section 6.4.3</i> for details on targeted mailer distribution.
C-7	The Proponent should thoughtfully consider the extent of Project impacts when conducting these efforts to ensure that not only direct abutters are notified of the	6-6	An updated EJ Reference List was obtained from the MEPA Office on February 23, 2026, which included 37 contacts representing Federal Tribes, Indigenous organizations, statewide community-based organizations (“CBOs”), and local

	Project, but also those in proximity to construction activities, access routes, and/or planned tree clearing. The Single EIR, or a summary thereof, should be distributed to all CBOs and tribes included in an updated Project-specific “EJ Reference List.” An updated “EJ Reference List” should be obtained from the MEPA Office to ensure contacts are up to date, and the Project-specific EJ Reference List should be developed and returned to the MEPA Office.		CBOs. MECO had expanded upon the MEPA EJ Reference List by adding 20 supplemental contacts (collectively referred to as the EJ Reference List) during the filing of the EENF. While the supplemental contacts remain unchanged from the EENF, MECO has re-verified that all are still active, and any contacts with updated information since the EENF filing have been revised accordingly. These contacts include places of worship and local CBOs dedicated to community, culture, and amplifying diverse voices. The complete EJ Reference List is provided in the Distribution List included in Appendix B. A targeted notice of the SEIR filing was distributed to the full Distribution List, which includes the updated EJ Reference List. The notice included information on where the SEIR can be reviewed as an online Portable Document Format (“PDF”) and how to request a hard copy. A PDF of the SEIR has been uploaded to the Project website following submission to the MEPA Office.
C-8	The Single EIR should provide additional information regarding measures to mitigate any potential impacts to EJ populations during the construction period. Specifically, the Single EIR should provide more details regarding construction period activities, including the estimated number of construction period truck trips that are anticipated for the Project, and the potential for increased emissions within EJ populations near and within the ROW.	6-5	Due to the intermittent nature of the Project, with work occurring at different times along the entire 3-mile Project length, it is not possible to accurately calculate the number of truck trips in a specific area over any given period of time. However, traffic volumes at any given location will fall well below the threshold of 150 ADT of diesel vehicle traffic over the duration of a year. Intermittent construction-related traffic will occur over the entire construction period. Construction equipment will typically access the ROW from public roadways, which cross the ROW in various locations. Traffic will consist of vehicles ranging from pick-up trucks to heavy construction equipment and large trailers delivering materials. As access at any given location along the ROW will be intermittent, existing traffic volumes will not be significantly impacted, nor will the work adversely impact the ability of existing traffic to safely navigate the roadway or result in any significant environmental or public health impacts, or disproportionate impacts on EJ populations. MECO will coordinate with MassDOT and local authorities to ensure that construction-related traffic is safely and effectively managed.
C-9	The Single EIR should indicate whether any significant tree clearing/trimming or vegetation management will occur near EJ populations and/or identified hot spots, as indicated in the Climate Change section below. If hot spots are identified, the Project should propose mitigation to offset the effects of tree removal adjacent to those locations. The distance for this assessment should be extended to 500 feet (“ft”). Mitigation could take the form of tree plantings in the affected neighborhoods or within the larger EJ populations.	6-4 to 6-5	MECO has conducted a hot spot analysis and provided an analysis of the potential contribution of proposed conversion of the vegetative cover type in EJ populations within the Designated Geographic Area (“DGA”) in <i>Section 6.3.1.1 and Appendix F</i> .
Land Alteration			
C-10	The Single EIR should provide an update of total land alteration, distinguishing between temporary and permanent impacts.	3-1 to 3-5	Please refer to <i>Section 3.2</i> for the total including land alteration, distinguished between temporary and permanent impacts.
C-11	The Single EIR should identify the total existing and proposed gravel areas, including access roads and work pads.	3-2	Please refer to <i>Section 3.2</i> for the total existing and proposed gravel areas, including access and work pads.
C-12	It should describe any stormwater management that will be constructed as part of the project and include a copy of the Stormwater Report.	3-5 to 3-8	Refer to <i>Section 3.3</i> and Appendix D for a Stormwater Memo, for details of proposed stormwater management measures, and the Project's conformance with the Massachusetts Stormwater Management Standards.
Wetlands and Waterways			
C-13	The Single EIR should describe to what extent the construction matting would necessitate alteration of Inland Bank (“Bank”) or Land Under Water Bodies and Waterways (“LUWW”) and should detail the amount of Bank impact at each crossing location and further describe the restoration process.	4-1	The use of construction matting to span stream crossings will have minimal impacts on Bank and LUWW. Matting will be placed so as to completely span Bank and LUWW, minimizing disturbance to these areas. Impacts are anticipated to be temporary only, primarily associated with shading while matting is in place. If soil disturbance does occur as a result of the placement of matting across Banks, these areas will be restored and re-profiled, with replanting or seeding of native vegetation if necessary.
C-14	The Single EIR should provide further detail about the mitigation plan for unavoidable impacts to wetland areas and include a commitment to provide wetland replication, including identification of approximately locations if available. The Single EIR should evaluate offsite mitigation and/or restoration of onsite degraded areas to mitigate impacts.	9-9	Refer to <i>Section 9</i> for details of Project impacts and proposed mitigation within wetland resource areas. Impacts to vegetated wetlands will be limited to the temporary use of construction matting for access and work areas, and the permanent conversion of vegetative community as a result of tree removals. Neither activity will result in permanent fill or loss of wetlands, and as such no wetland replication is required under state or local regulations. Mitigation will involve <i>in situ</i> restoration of impacted wetlands.

C-15	The Single EIR should indicate whether mitigation for tree removal will be provided, whether through wetlands replication, in lieu payment, or other contribution, and provide a firm commitment in the filing.	9-12 to 9-13	MECO has designed the Project and associated mitigation and restoration measures in compliance with all federal, state and local requirements. While there is no federal or state regulatory mandate for providing restoration/mitigation for tree removals, MECO recognizes the importance of tree canopy cover. As such, MECO has minimized the extent of tree removals to the extent possible and has committed to making a funding contribution to compensate for unavoidable tree loss within hot spots along the Project corridor. Refer to <i>Section 9.5</i> for further details.
C-16	As discussed above, the Proponent should coordinate with Massachusetts Department of Environmental Protection (“MassDEP”) Waterways Regional Program (“WRP”) to ensure the project description includes adequate information about the scope of work as it relates to C.91, and that any necessary C.91 review and/or authorization is obtained. The Single EIR should contain an update on this discussion and whether C.91 review is required.	2-6 to 2-7	Refer to <i>Section 2.4.4</i> for details of the Project's compliance with Chapter (“C.91”). Specifically, the use of construction matting for utility maintenance work is covered under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1). The replacement of overhead electric cables will meet the conditions of 310 CMR 9.05(3)(g), as final Order of Conditions (“OOCs”) will be obtained from the Town of Sterling and City of Leominster for this (and all other) Project activities.
Historic and Archaeological Resources			
C-17	The Single EIR should provide an update on coordination with Massachusetts Historical Commission (“MHC”) and provide any additional documentation received in response to the viewshed analysis.	5-1 to 5-2	An update on coordination with the MHC is provided in <i>Section 5</i> of the SEIR.
Climate Change			
C-18	Where impervious/semi-pervious area is created and stormwater management is required, the Single EIR should address the recommendations from the Massachusetts Resilience Design Tool, including whether the stormwater management designs will be resilient to future climate conditions including the 50-year (2% chance) storm as of 2070 (9.1 inches).	7-3 to 7-6	Please refer to <i>Section 7.2</i> for the Resilient Massachusetts Action Team (“RMAT”) analysis of the existing exposure to riverine and urban flooding and extreme heat. Proposed structures and foundations are designed to withstand extreme regional weather in accordance with the most recent version of the National Electric Safety Code (“NESC”) and the Title 220 Code of Massachusetts Regulations. Structure resiliency considerations are further detailed in <i>Section 7.3</i> Additionally, no to minimal change to hydrology is anticipated for the watersheds within the Project right-of-way (“ROW”). The potential for impacts from stormwater along the Project ROW will be associated with the potential for erosion and/or washout of the gravel access during and following construction. MECO will employ construction-phase Best Management Practices (“BMPs”) for stormwater management including sediment and erosion controls. MECO will also construct stormwater management features such as swales, water bars, plunge pools, and/or check dams. These stormwater management features will promote stability of the constructed access improvements, reducing the potential for significant erosion and/or washout, and protecting sensitive resource areas. Further details on stormwater implications and compliance with Massachusetts Stormwater Management Standards are detailed in Appendix D.
Construction Period			
C-19	The Single EIR should provide an update on construction staging and timing. All construction activities should be managed in accordance with applicable MassDEP regulations regarding Air Pollution Control (310 Code of Massachusetts Regulations [“CMR”] 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The Project should include measures to reduce construction period impacts (e.g., noise, dust, odor, solid waste management, etc.) and emissions of air pollutants from equipment, including anti-idling measures in accordance with the Air Quality regulations (310 CMR 7.11).	8-2	At this stage of the Project development, it is premature to identify specific construction start dates or detailed segment-by-segment timing. The final schedule will depend on the completion of engineering design, procurement, contractor selection, and receipt of all required regulatory approvals. MECO will refine and finalize construction staging and timing as the Project advances and will coordinate with applicable agencies and municipalities prior to the commencement of construction. Please refer to the respective sections for details on measures to reduce construction period impacts: odor and solid waste management (<i>Section 8.4</i>), noise (<i>Section 8.5.2</i>), and emissions of air pollutants from equipment (<i>Section 8.5.1</i>). All construction activities will be managed in accordance with applicable MassDEP regulations, including those regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10) and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017), as well as anti-idling measures in accordance with 310 CMR 7.11.
C-20	I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards or	8-2 to 8-3	Please refer to <i>Section 8.3</i> for details on commitments related to construction equipment emissions, including the use of Tier 4 federal emission standards, retrofit emissions control devices, alternative fuels, and ULSD fuel for off-

	select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (“VOCs”), carbon monoxide (“CO”) and particulate matter (“PM”) from diesel-powered equipment. Off-road vehicles are required to use ultra-low sulfur diesel fuel (“ULSD”). All construction activities should be undertaken in compliance with the conditions of all State and local permits. I encourage the Proponent to reuse or recycle construction and demolition (“C&D”) debris to the maximum extent. Proposed construction-period mitigation measures are listed below. The Single EIR should include updated commitments reflecting construction best practices.		road vehicles. The Single EIR includes updated commitments reflecting these construction BMPs, as summarized in <i>Section 8</i> of this SEIR. A detailed description was also provided in Section 3 of the EENF.
Mitigation and Draft Section 61 Findings			
C-21	The Single EIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the Project, and should include a separate section outlining mitigation commitments relative to EJ populations.	9-1 to 9-15	The SEIR includes a separate section (<i>Section 9</i>), which summarizes all proposed mitigation measures, including construction-period measures. This section provides a comprehensive list of all commitments made to avoid, minimize, and mitigate environmental and related public health impacts of the Project.
C-22	The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, greenhouse gas (“GHG”), environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact.	9-3 to 9-8	Please refer to Table 9-1 in <i>Section 9</i> , which presents a comprehensive list of mitigation commitments in tabular format organized by subject matter (e.g., traffic, water/wastewater, GHG, EJ, etc.). For each commitment, the table identifies the associated Agency Action or Permit, the party responsible for implementation, an estimated cost, and a schedule for implementation, consistent with the requested level of detail.
C-23	Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project.	10-1 to 10-4	The SEIR includes separate Draft Section 61 Findings for each Agency Action associated with the Project. Please refer to <i>Section 10</i> of the SEIR.
C-24	The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase.	9-2 to 9-8	Please refer to Table 9-1 in <i>Section 9</i> , which identifies the proposed mitigation measures and indicates, where applicable, the Project phase during which each measure will be constructed or implemented. This approach is intended to ensure that adequate mitigation measures are in place to address impacts associated with each development phase.
Responses to Comments			
C-25	The Single EIR should contain a copy of this Certificate and a copy of each comment letter received.	11-1	An annotated copy of the Secretary’s Certificate on the SEIR and comment letters received are provided in Appendix E . Responses to comments are provided in this table.
C-26	To ensure that the issues raised by commenters are addressed, the Single EIR should also include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the Single EIR beyond what has been expressly identified in this certificate.	11-2 to 11-6	The SEIR addresses comments received to the extent they fall within MEPA jurisdiction. A summary of comments and direct responses is provided in this table, as well as under each relevant sections.
Circulation			
C-27	The Proponent should circulate the Single EIR to each Person or Agency who previously commented on the EENF, each Agency from which the Project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. The Proponent may circulate copies of the Single EIR to commenters other than Agencies in a digital format (e.g., CDROM, USB drive) or post to an online website. However, the Proponent should make available a reasonable number of hard copies to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. A copy of the Single EIR should be made available for review in the Sterling and Leominster Public Libraries.	N/A	As shown in the Distribution List provided in Appendix B, MECO’s distribution requirement of the SEIR complies with this comment and 301 CMR 11.06. Digital copies will be provided, with hard copies made available upon request. A copy will also be placed in public libraries within each municipality along the Project ROW for public review.
Massachusetts Department of Environmental Protection (“MassDEP”)			

DEP-1	The EIR should include the Stormwater Report.	2-6	Refer to Appendix D for a copy of the Project's Stormwater Memo that describes Project’s compliance with the Massachusetts Stormwater Management Standards.
DEP-2	The EENF does not make clear whether activities proposed in Bordering Vegetated Wetland (“BVW”) would result in permanent loss of more than 5,000 square feet (“sf”) such that an Individual 401 Water Quality Certification/Certificate (“WQC”) may be required under 314 CMR 9.04(1) or (11).		No permanent loss of BVW is proposed by the Project. Temporary impacts to BVW are limited to the placement of construction matting for access and work areas, which constitutes an exempt activity under the Wetlands Protection Act (“WPA”) and will be conducted in accordance with applicable performance standards under 310 CMR 10.00. Accordingly, the 5,000 sf threshold for permanent loss under 314 CMR 9.04(1) is not triggered. However, an Individual Water Quality Certification ("IWQC") is required pursuant to 314 CMR 9.04(4) to the extent the Project relies on the WPA maintenance exemption for applicable activities. The Comprehensive Water Quality Certification (“CWQC”) cannot be utilized for these activities due to the exclusion for tree removals associated with ROW widening. A pre-filing meeting with MassDEP was held on April 30, 2026, to discuss the IWQC requirements and confirm the appropriate approach for the Project. MECO shall submitting an IWQC following the filing of the SEIR.
DEP-3	If work is done in the Activity and Use Limitation (“AUL”), the Proponent must hire a Licensed Site Professional (“LSP”) to oversee the work.	N/A	MECO acknowledges this comment. MECO will hire a LSP to oversee the work.
DEP-4	Therefore, an LSP should be retained to determine if submittals to MassDEP are required to conduct the work or if notification is required. If oil and/or hazardous materials are identified during the implementation of the Project, notification to MassDEP may be required pursuant to M.G.L. c. 21E and the Massachusetts Contingency Plan (“MCP”).	N/A	MECO acknowledges this comment.
DEP-5	The Proponent is advised that excavating, removing and/or disposing of contaminated soil, pumping of contaminated groundwater, or working in contaminated media must be done under the provisions of Massachusetts General Laws (“M.G.L.”) c.21E (and, potentially, c.21C) and Occupational Safety and Health Administration (“OSHA”) and may require the submittal of a Release Abatement Measure (“RAM”) Plan. Excavating contaminated soil or pumping contaminated groundwater could be considered response actions under the MCP. Conducting response actions without MassDEP approval may result in a penalty.	N/A	MECO acknowledges this comment.
Chapter 91			
WRP-1	However, the Project description also includes the temporary placement of construction matting within jurisdictional waterways, contrary to the description in the EENF that, “No structure fill is proposed within any rivers or streams.” The EENF does not include details or an explanation to support that the temporary work within Chapter 91 jurisdiction is exempt from licensing or other Chapter 91 authorization. Therefore, it is recommended that the Proponent coordinate with the Department to ensure the Project description includes adequate information about the scope of work as it relates to Chapter 91, and that any necessary Chapter 91 review and/or authorization is obtained.	2-6 to 2-7	The temporary placement of construction matting within jurisdictional C.91 waterways, for the purpose of utility maintenance work, is covered under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1). Other than temporary construction matting, no other fill is proposed within Waters of the United States (“WOTUS”) (i.e., no structure fill associated with structure foundations or poles). Refer to <i>Section 2.4.4</i> for further discussion of the Project's conformance with the requirements of C.91, and details of the exemptions applicable to the use of construction matting within jurisdictional waterways.
Massachusetts Division of Fisheries & Wildlife, NHESP Program			
NHESP-1	Based on the information in the EENF and in our database, the proposed work is outside of Priority Habitat for rare species as currently mapped by the Division, therefore a Massachusetts Endangered Species Act (“MESA”) Project Review Checklist is not required. Regarding the use of an existing access roadway in Priority Habitat, provided that the Proponent implements all applicable Best Management Practices (“BMPs”) for that location as prescribed in the current Division-approved annual Operation and Maintenance Plan (“OMP”) (NHESP 25-19522), that portion of the Project is exempt from MESA Review, pursuant to 321 CMR 10.14(11).	N/A	MECO appreciates the confirmation that the proposed work is outside of Priority Habitat and that a MESA Project Review Checklist is not required. MECO will comply with all applicable requirements, including implementation of BMPs as prescribed in the current Division-approved annual Operation and Maintenance Plan (“OMP”) (NHESP 25-19522) for the access roadway portion of the project within Priority Habitat.

Appendix A: Project Figures

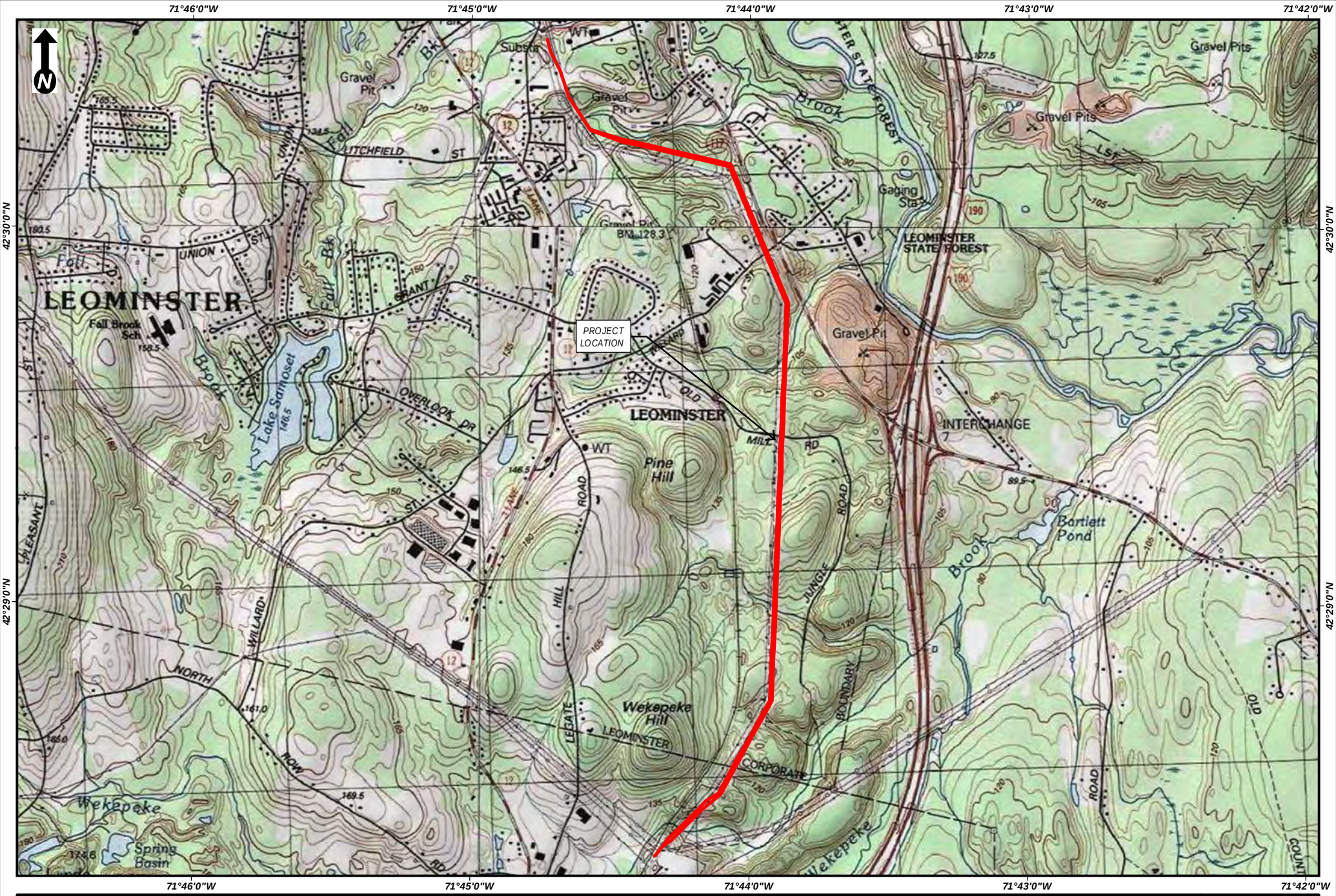
Single Environmental Impact Report (SEIR)
J136S Tap Line Rebuild Project

Figure 1 – United States Geological Survey Locus Map (“USGS Locus Map”)

Figure 2 - Environmental Resource Maps (“ER Maps”)

Figure 3 - Cross Sections

Figure 1 – United States Geological Survey Locus Map

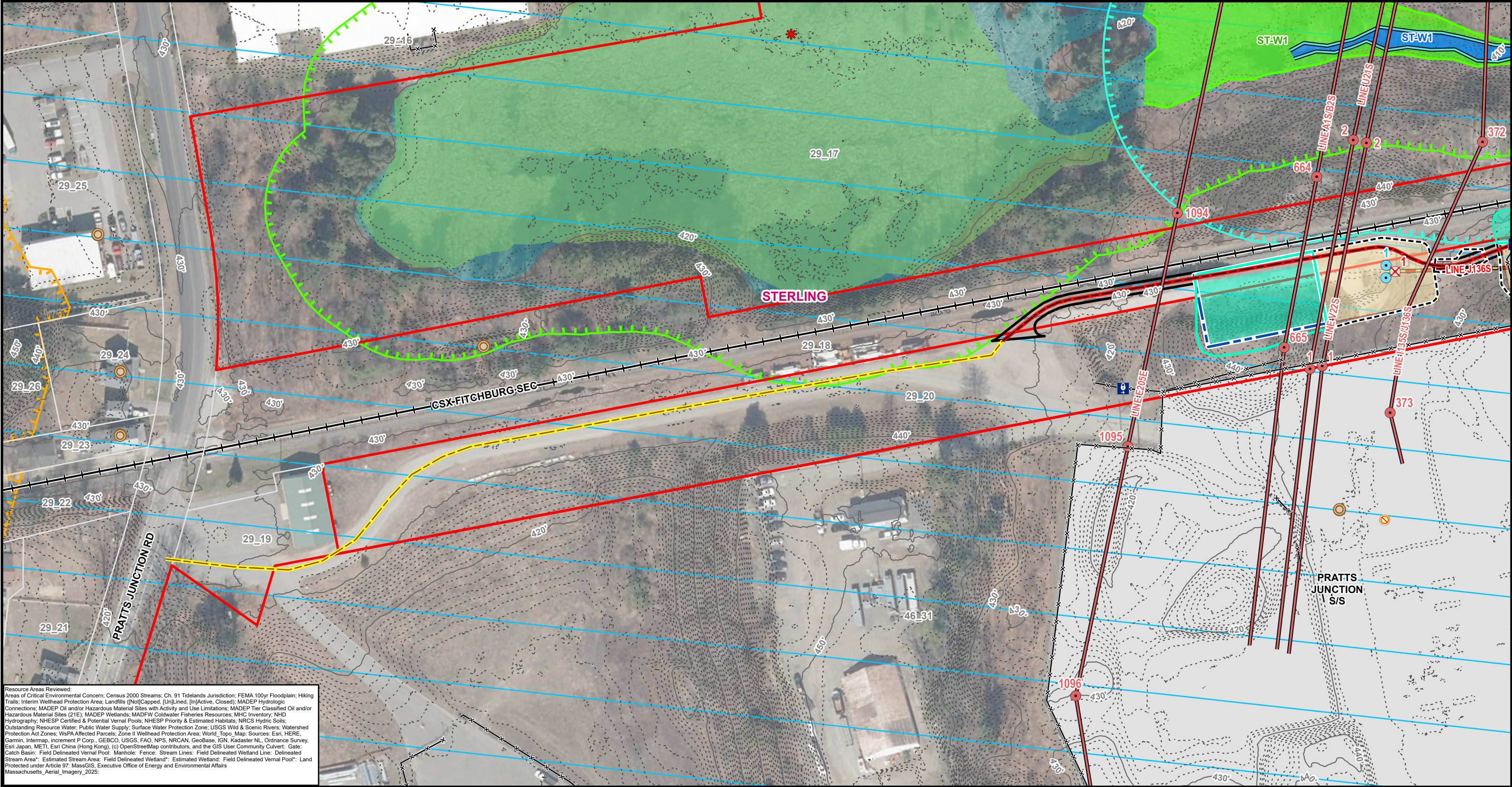


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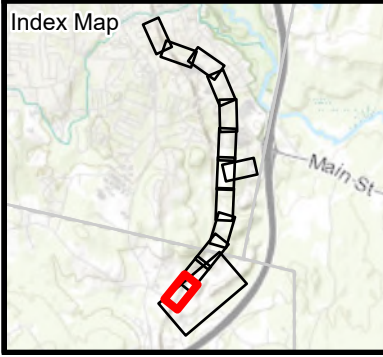
J136S Tap Line Rebuild Project
USGS Site Location Map
Leominster & Sterling, MA

Source: Copyright©
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Figure 2 - Environmental Resource Maps



Resource Areas Reviewed:
Areas of Critical Environmental Concern; Census 2000 Streams; Ch. 91 Tidelands Jurisdiction; FEMA 100yr Floodplain; Hiking Trails; Interim Wellhead Protection Area; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed); MADEP Hydrologic Connections; MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Wetlands; MADPW Coldwater Fisheries Resources; MHC Inventory; NHD Hydrography; NHESP Certified & Potential Vernal Pools; NHESP Priority & Estimated Habitats; NRCS Hydric Soils; Outstanding Resource Water; Public Water Supply; Surface Water Protection Zone; USGS Wild & Scenic Rivers; Watershed Protection Act Zones; WSPA Affected Parcels; Zone II Wellhead Protection Area; World Topo Map; Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri, Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community Culvert; Gate; Catch Basin; Field Delineated Vernal Pool; Manhole; Fence; Stream Lines; Field Delineated Wetland Line; Delineated Stream Area*; Estimated Stream Area; Field Delineated Wetland*; Estimated Wetland; Field Delineated Vernal Pool*; Land Protected under Article 97; MassGIS, Executive Office of Energy and Environmental Affairs
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Legend				
Existing Structure	Approx. Edge of ROW	Construction Matting	100ft Buffer to Wetlands & Streams	Railroad
Install Structure (Concrete Caisson)	Designed Access	Field Delineated Bank	200ft Riverfront Area	Parcel Boundary
Install Structure (2 Concrete Caissons)	Proposed Temporary Access	Estimated Bank	FEMA 100yr Floodplain*	National Grid Property
Install Structure - Direct Embed	Existing Off-ROW Access	Field Delineated Stream Centerline	MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations	Town Boundary
Structure Maintenance	Pull Pad	Delineated Stream Area*	Certified Vernal Pools	Approximate Tree Clearing Area
Remove Structure	Work Pad	Field Delineated Wetland Line	NHESP Priority & Estimated Habitats	Gate
Existing Overhead Line	Limit of Gravel/Graded Access	Field Delineated Wetland*	Zone II Wellhead Protection Area	Fence
Install Overhead Line	Limit of Disturbance	MADEP Hydrologic Connections		1ft Contour
Remove Overhead Line	Temporary Limit of Disturbance	MADEP Open Water*		10ft Contour
	Temporary Gravel to be Restored	MADEP Wetlands*		

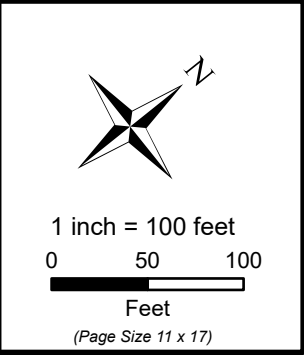
J136S Tap Line Rebuild Project

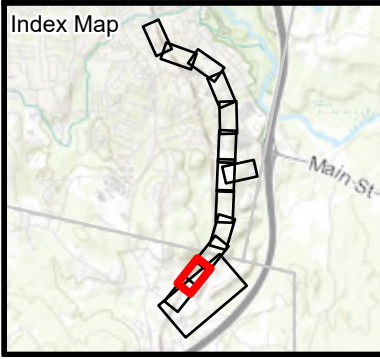
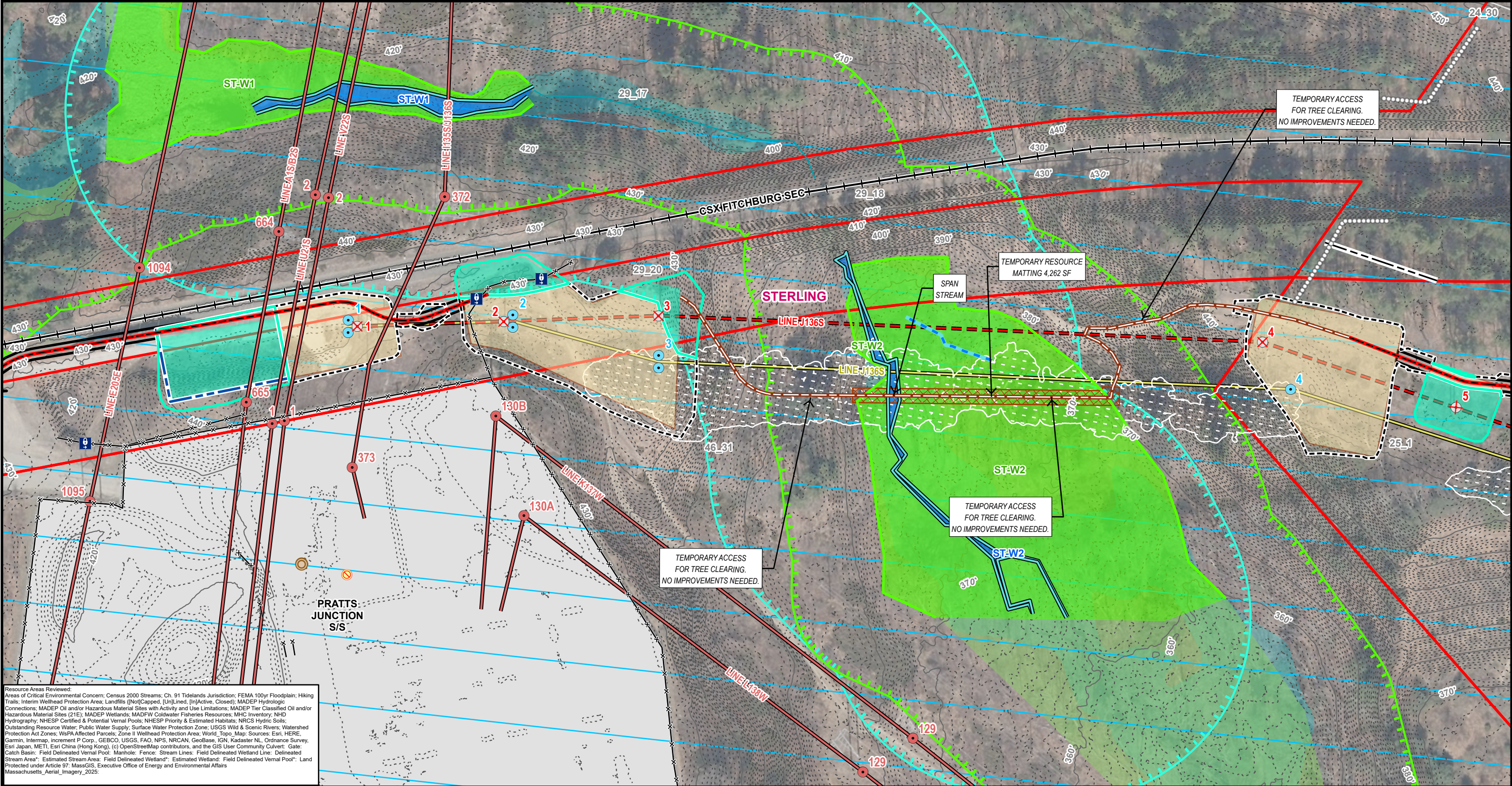
Environmental Resources Map

Sterling, MA
Page 1A of 14

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Legend				
● Existing Structure	— Approx. Edge of ROW	Temporary Gravel to be Restored	MADEP Open Water*	— Railroad
● Install Structure (Concrete Caisson)	— Designed Access	Construction Matting	MADEP Wetlands*	— Parcel Boundary
● Install Structure (2 Concrete Caissons)	— Proposed Temporary Access	Field Delineated Bank	100ft Buffer to Wetlands & Streams	— National Grid Property
● Install Structure - Direct Embed	— Existing Off-ROW Access	Estimated Bank	200ft Riverfront Area	— Town Boundary
● Structure Maintenance	— Pull Pad	Field Delineated Stream Centerline	FEMA 100yr Floodplain*	— Approximate Tree Clearing Area
✕ Remove Structure	— Work Pad	Delineated Stream Area*	MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations	— Gate
— Existing Overhead Line	— Limit of Gravel/Graded Access	Field Delineated Wetland Line	Zone II Wellhead Protection Area	— Fence
— Install Overhead Line	— Limit of Disturbance	Field Delineated Wetland*		— Stone Wall
— Remove Overhead Line	— Temporary Limit of Disturbance	MADEP Hydrologic Connections		— 1ft Contour
				— 10ft Contour
				*Indicates Layers Set to Transparency

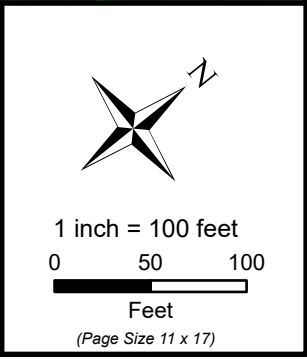
J136S Tap Line Rebuild Project

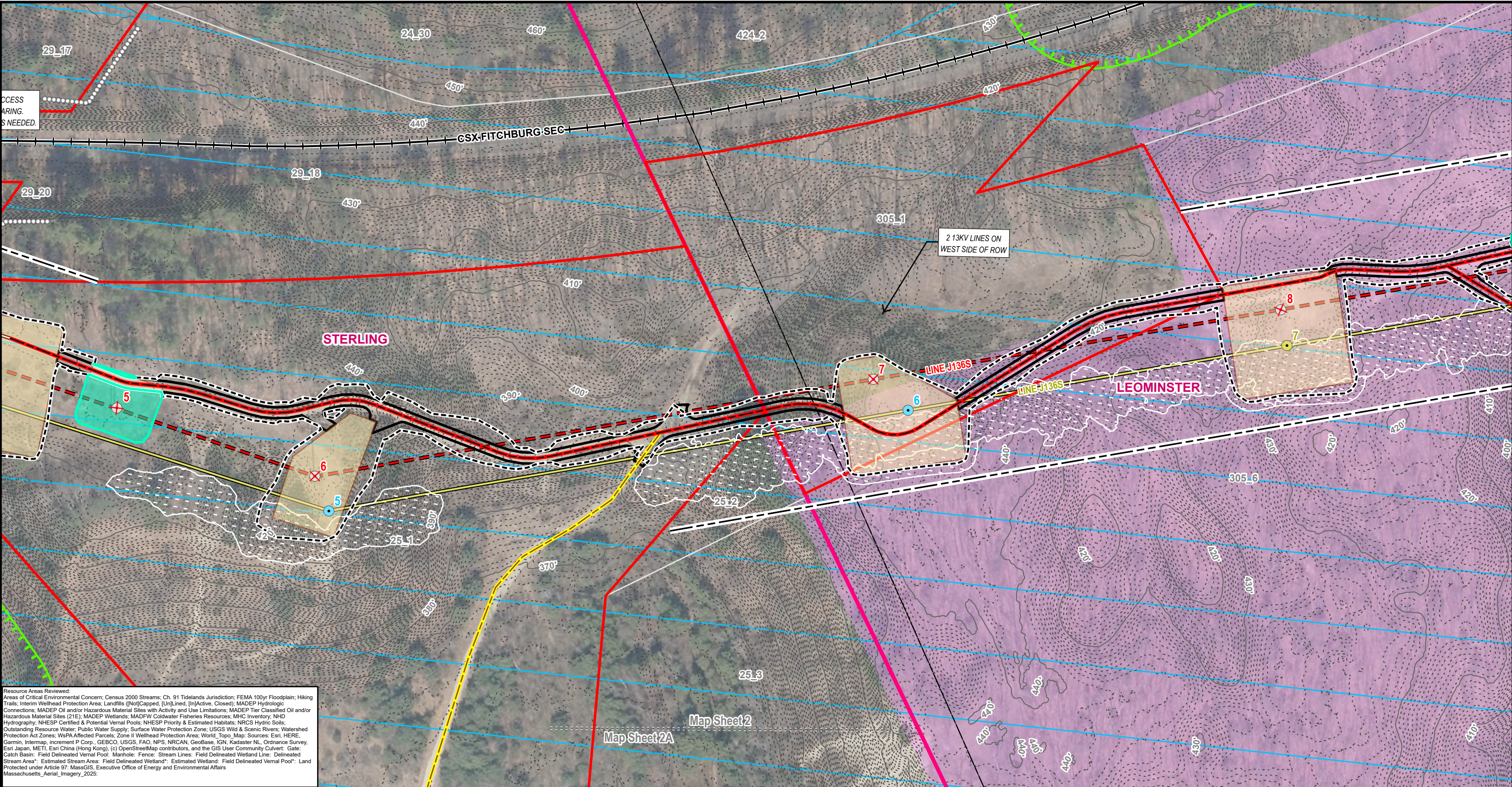
Environmental Resources Map

Sterling, MA
Page 1 of 14

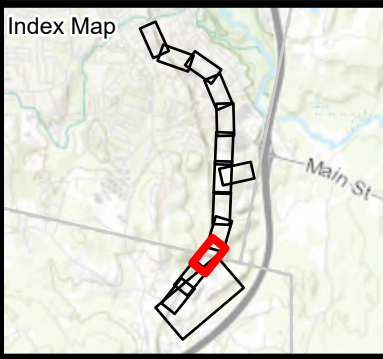
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Resource Areas Reviewed:
Areas of Critical Environmental Concern; Census 2000 Streams; Ch. 91 Tidelands Jurisdiction; FEMA 100yr Floodplain; Hiking Trails; Interim Wellhead Protection Area; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed); MADEP Hydrologic Connections; MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Wetlands; MADFW Coldwater Fisheries Resources; MHC Inventory; NHD Hydrography; NHESP Certified & Potential Vernal Pools; NHESP Priority & Estimated Habitats; NRCS Hydric Soils; Outstanding Resource Water; Public Water Supply; Surface Water Protection Zone; USGS Wild & Scenic Rivers; Watershed Protection Act Zones; WSPA Affected Parcels; Zone II Wellhead Protection Area; World_Topo_Map; Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri, Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Culvert: Gate; Catch Basin; Field Delineated Vernal Pool; Manhole; Fence; Stream Lines; Field Delineated Wetland Line; Delineated Stream Area*; Estimated Stream Area; Field Delineated Wetland*; Estimated Wetland; Field Delineated Vernal Pool*; Land Protected under Article 97; MassGIS, Executive Office of Energy and Environmental Affairs
Massachusetts_Aerial_imagery_2025.



Legend					
Existing Structure	Remove Overhead Line	Temporary Gravel to be Restored	MADEP Hydrologic Connections	Parcel Boundary	
Install Structure (Concrete Caisson)	Approx. Edge of ROW	Construction Matting	MADEP Open Water*	National Grid Property	
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Remove Structure	Pull Pad	Delineated Stream Area*	FEMA 100yr Floodplain*	Stone Wall	
Existing Overhead Line	Work Pad	Field Delineated Wetland Line	Zone II Wellhead Protection Area	1ft Contour	
Install Overhead Line	Limit of Gravel/Graded Access	Field Delineated Wetland*	Railroad	10ft Contour	
	Limit of Disturbance			Land Protected under Article 97	
	Temporary Limit of Disturbance			Municipalities	

J136S Tap Line Rebuild Project

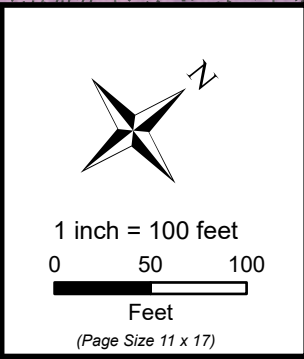
Environmental Resources Map

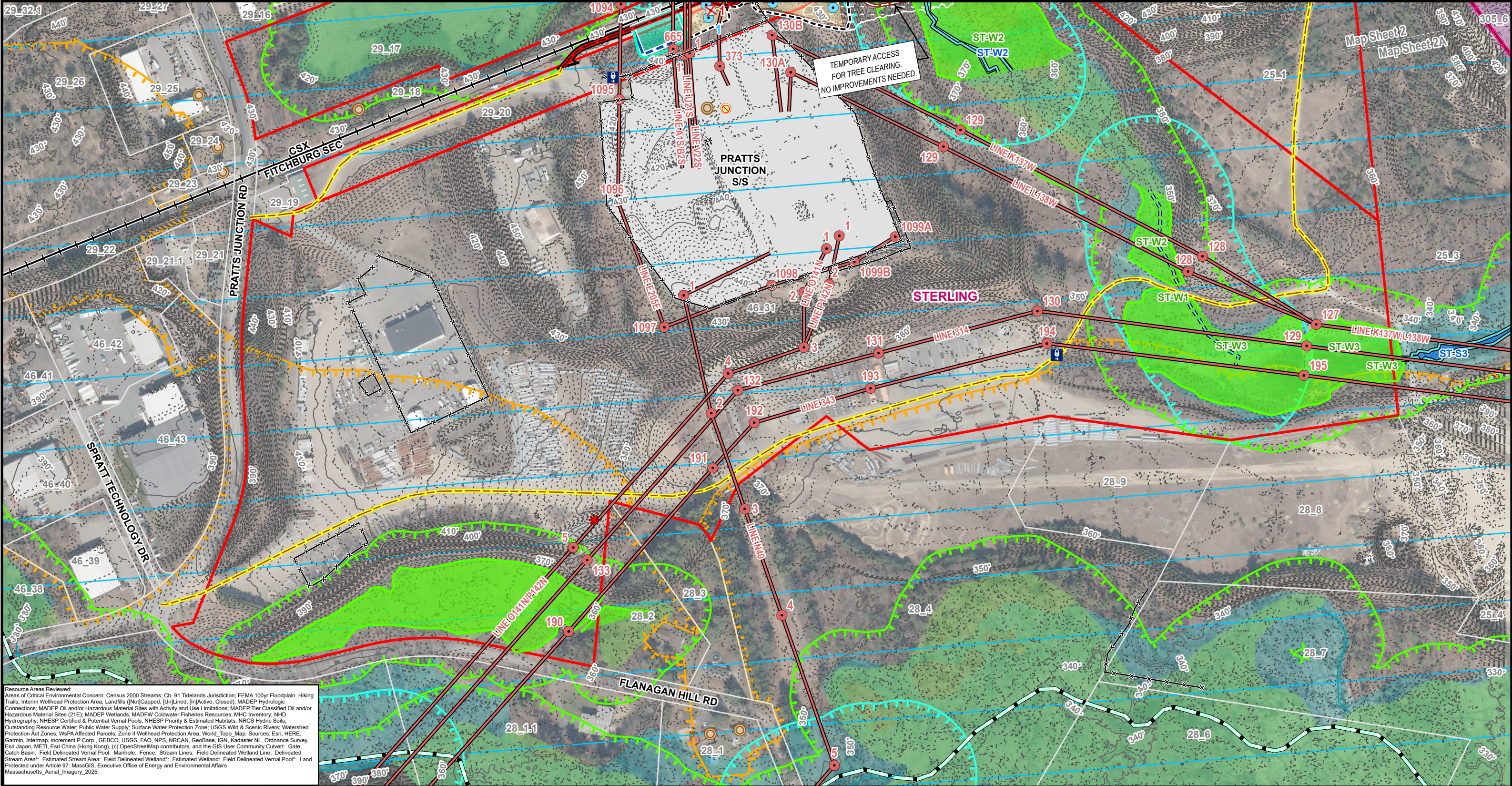
Leominster & Sterling, MA

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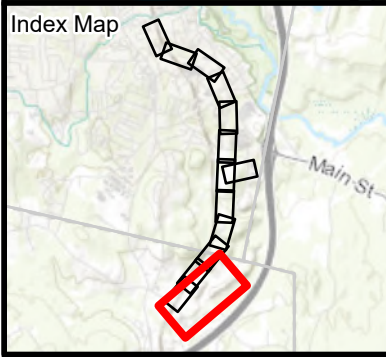
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Resource Areas Reviewed:
Areas of Critical Environmental Concern; Census 2000 Streams; Ch. 91 Tidelands Jurisdiction; FEMA 100yr Floodplain; Hiking Trails; Interim Wellhead Protection Area; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed); MADEP Hydrologic Connections; MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Wetlands; MADFW Coldwater Fisheries Resources; MHC Inventory; NHD Hydrography; NHESP Certified & Potential Vernal Pools; NHESP Priority & Estimated Habitats; NRCS Hydric Soils; Outstanding Resource Water; Public Water Supply; Surface Water Protection Zone; USGS Wild & Scenic Rivers; Watershed Protection Act Zones; WSPA Affected Parcels; Zone II Wellhead Protection Area; World Topo Map; Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri, Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox Contributors, and the GIS User Community Culture; Gate: Catch Basin; Field Delineated Vernal Pool; Manhole; Fence; Stream Lines; Field Delineated Wetland Line; Delineated Stream Area; Estimated Stream Area; Field Delineated Wetland; Estimated Wetland; Field Delineated Vernal Pool; Land Protected under Article 97; MassGIS, Executive Office of Energy and Environmental Affairs
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- Existing Structure - Install Structure (Concrete Caisson) - Install Structure (2 Concrete Caissons) - Install Structure - Direct Embed - Structure Maintenance - Remove Structure - Existing Overhead Line - Install Overhead Line	- Remove Overhead Line - Approx. Edge of ROW - Designed Access - Proposed Temporary Access - Existing Off-ROW Access - Pull Pad - Work Pad - Limit of Gravel/Graded Access - Limit of Disturbance	- Temporary Limit of Disturbance - Temporary Gravel to be Restored - Construction Matting - Field Delineated Bank - Estimated Bank - Field Delineated Stream Centerline - Delineated Stream Area* - Field Delineated Wetland Line	- Field Delineated Wetland* - MADEP Hydrologic Connections - MADEP Open Water* - MADEP Wetlands* 100ft Buffer to Wetlands & Streams 200ft Riverfront Area - FEMA 100yr Floodplain*	- MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations - Certified Vernal Pools - NHESP Priority & Estimated Habitats - Zone II Wellhead Protection Area - Railroad - Parcel Boundary	- National Grid - Town Boundary - Approximate Tree - Gate - Fence 1ft Contour 10ft Contour - Land Protected under Municipal
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J136S Tap Line Rebuild Project

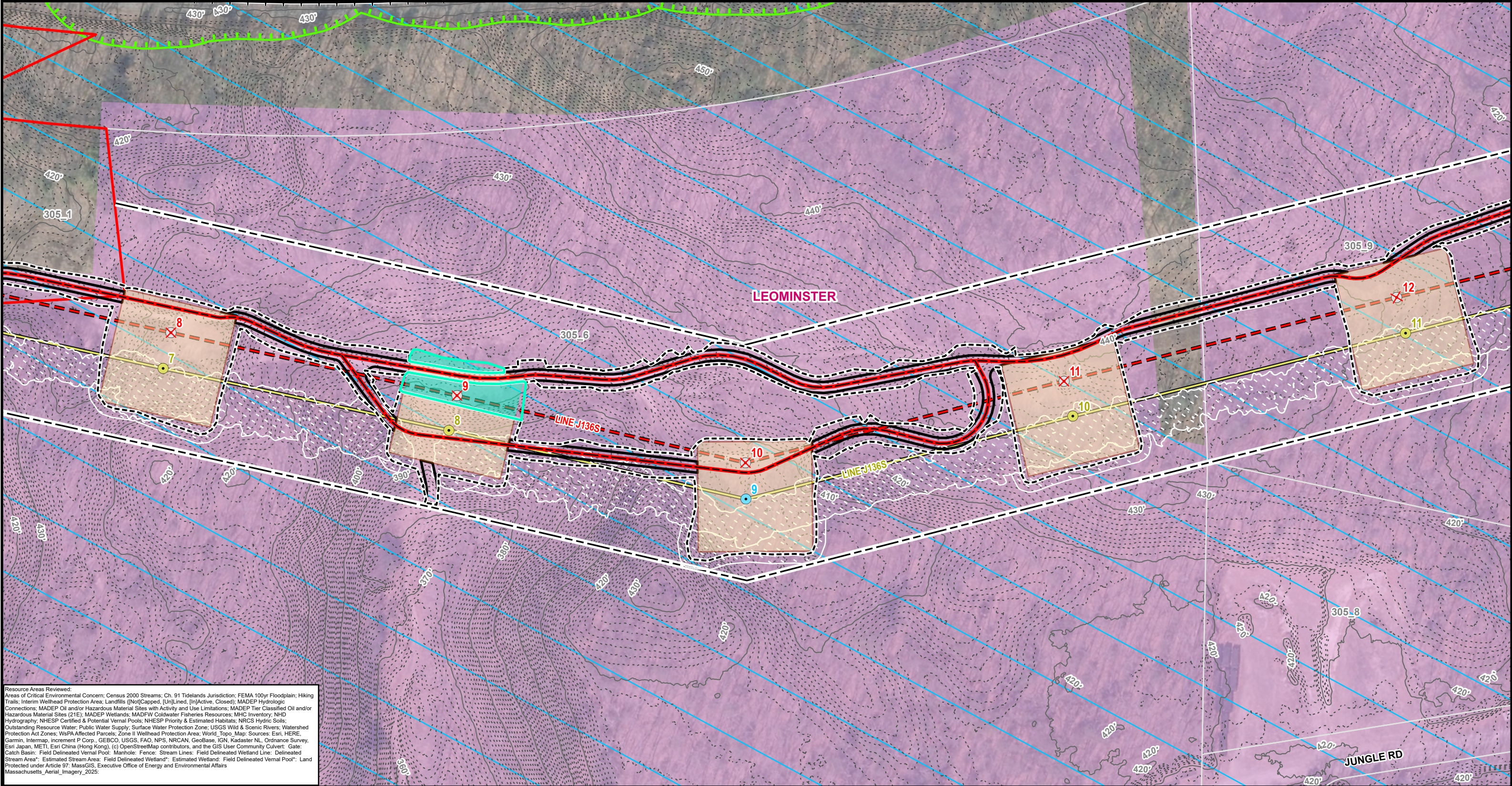
Environmental Resources Map

Sterling, MA
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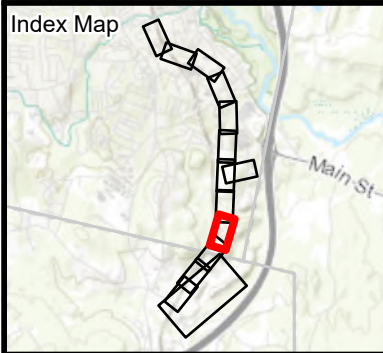
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Legend					
Existing Structure	Remove Overhead Line	Temporary Limit of Disturbance	Field Delineated Wetland*	Railroad	
Install Structure (Concrete Caisson)	Approx. Edge of ROW	Temporary Gravel to be Restored	MADEP Hydrologic Connections	Parcel Boundary	
Install Structure (2 Concrete Caissons)	Designed Access	Construction Matting	MADEP Open Water*	National Grid Property	
Install Structure - Direct Embed	Proposed Temporary Access	Field Delineated Bank	MADEP Wetlands*	Approximate Tree Clearing Area	
Structure Maintenance	Existing Off-ROW Access	Estimated Bank	100ft Buffer to Wetlands & Streams	1ft Contour	
Remove Structure	Pull Pad	Field Delineated Stream Centerline	200ft Riverfront Area	10ft Contour	
Existing Overhead Line	Work Pad	Delineated Stream Area*	FEMA 100yr Floodplain*	Land Protected under Article 97	
Install Overhead Line	Limit of Gravel/Graded Access	Field Delineated Wetland Line	Zone II Wellhead Protection Area	Municipal	
	Limit of Disturbance				

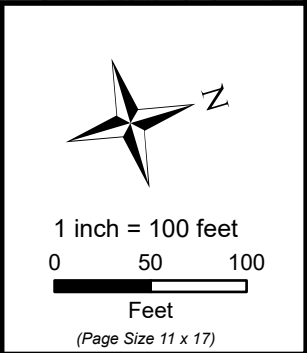
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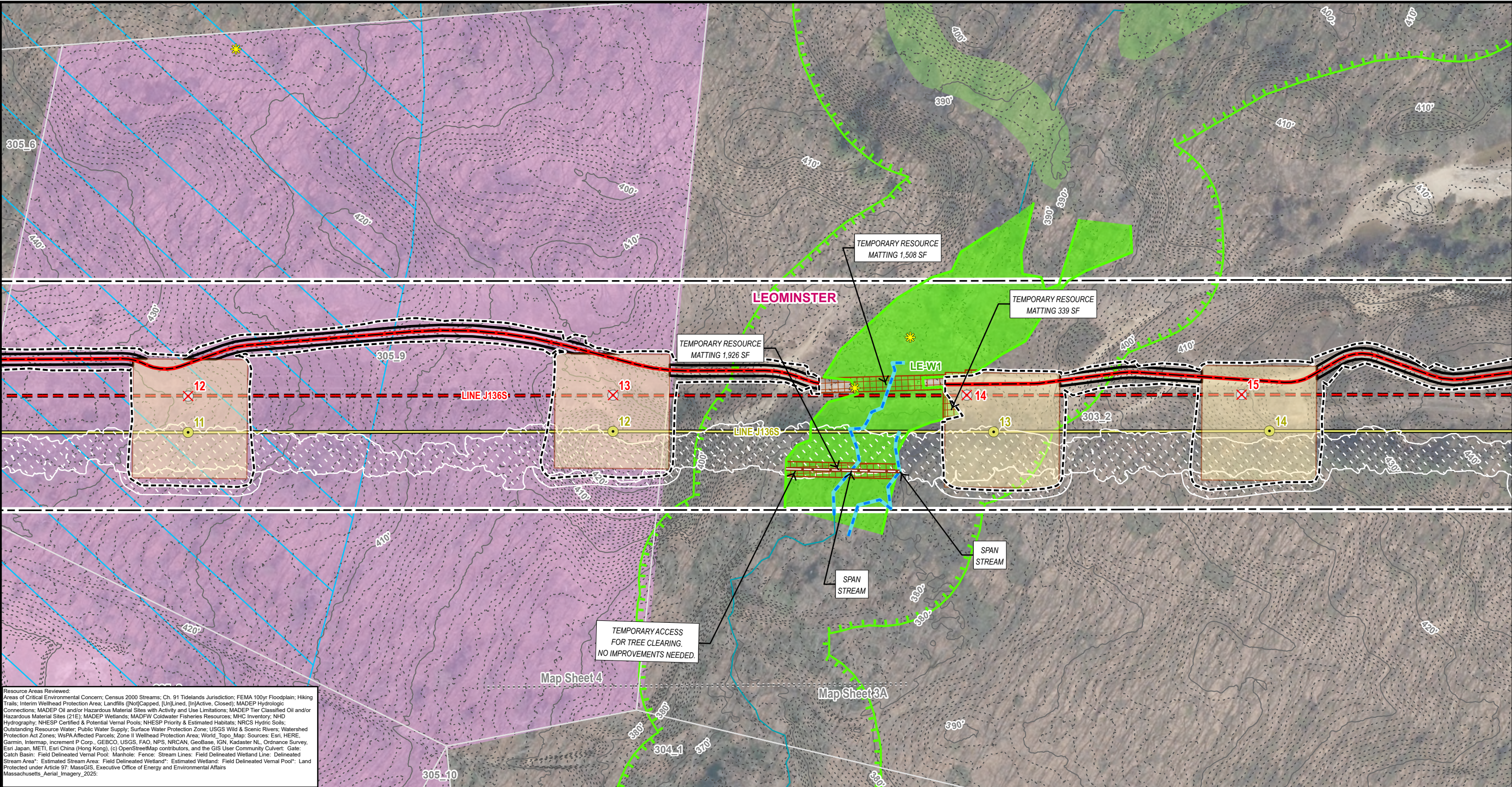
Environmental Resources Map

Leominster, MA
Page 3 of 14

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Culvert: Gate: Catch Basin: Field Delineated Vernal Pool: Manhole: Fence: Stream Lines: Field Delineated Wetland Line: Delineated Stream Area*: Estimated Stream Area: Field Delineated Wetland*: Estimated Wetland: Field Delineated Vernal Pool*: Land Protected under Article 97: MassGIS, Executive Office of Energy and Environmental Affairs
Massachusetts_Aerial_imagery_2025.

Index Map

Legend

● Existing Structure

● Install Structure (Concrete Caisson)

● Install Structure (2 Concrete Caissons)

● Install Structure - Direct Embed

● Structure Maintenance

✕ Remove Structure

— Existing Overhead Line

— Install Overhead Line

— Remove Overhead Line

— Approx. Edge of ROW

— Designed Access

— Proposed Temporary Access

— Existing Off-ROW Access

— Pull Pad

— Work Pad

— Limit of Gravel/Graded Access

— Limit of Disturbance

— Temporary Limit of Disturbance

— Temporary Gravel to be Restored

— Construction Matting

— Field Delineated Bank

— Estimated Bank

— Field Delineated Stream Centerline

— Delineated Stream Area*

— Field Delineated Wetland Line

— Field Delineated Wetland*

— MADEP Hydrologic Connections

— MADEP Open Water*

— MADEP Wetlands*

— 100ft Buffer to Wetlands & Streams

— 200ft Riverfront Area

— FEMA 100yr Floodplain*

☀ Potential Vernal Pools

— Zone II Wellhead Protection Area

— Parcel Boundary

— National Grid Property

— Town Boundary

— Approximate Tree Clearing Area

— 1ft Contour

— 10ft Contour

Land Protected under Article 97

Municipal

*Indicates Layers Set to Transparency

J136S Tap Line Rebuild Project

Environmental Resources Map

Leominster, MA

Page 4 of 14

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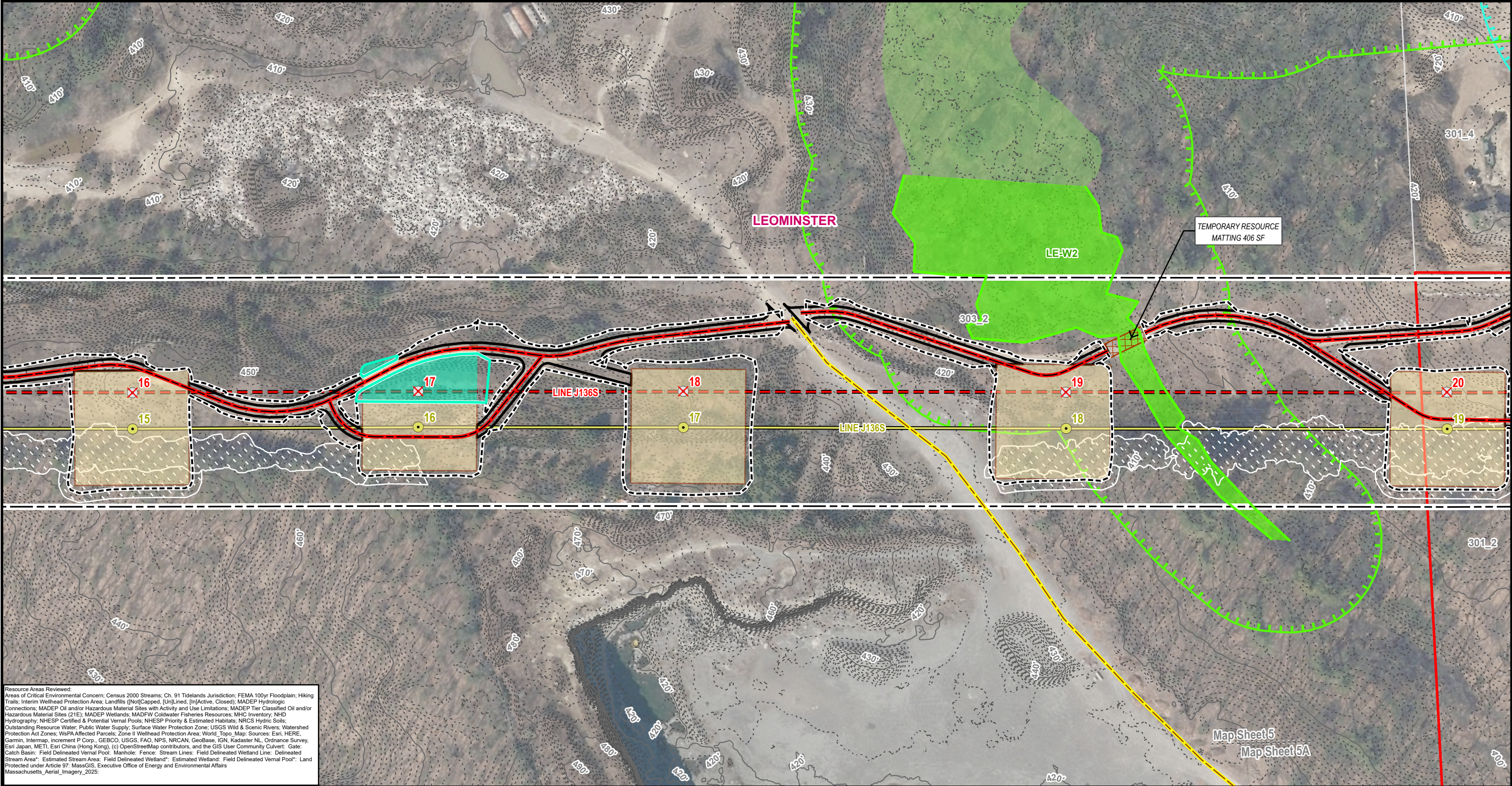
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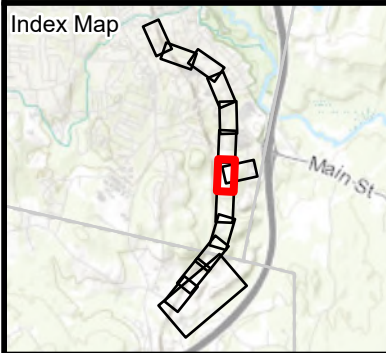
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Legend					
Existing Structure	Install Overhead Line	Limit of Disturbance	Delineated Stream Area*	FEMA 100yr Floodplain*	
Install Structure (Concrete Caisson)	Remove Overhead Line	Temporary Limit of Disturbance	Field Delineated Wetland Line	Parcel Boundary	
Install Structure (2 Concrete Caissons)	Approx. Edge of ROW	Temporary Gravel to be Restored	Field Delineated Wetland*	National Grid Property	
Install Structure - Direct Embed	Designed Access	Construction Matting	MADEP Hydrologic Connections	Town Boundary	
Structure Maintenance	Proposed Temporary Access	Field Delineated Bank	MADEP Open Water*	Approximate Tree Clearing Area	
Remove Structure	Existing Off-ROW Access	Estimated Bank	MADEP Wetlands*	1ft Contour	
Existing Overhead Line	Pull Pad	Field Delineated Stream Centerline	100ft Buffer to Wetlands & Streams	10ft Contour	
	Work Pad		200ft Riverfront Area		
	Limit of Gravel/Graded Access				

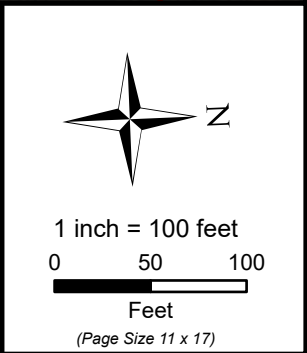
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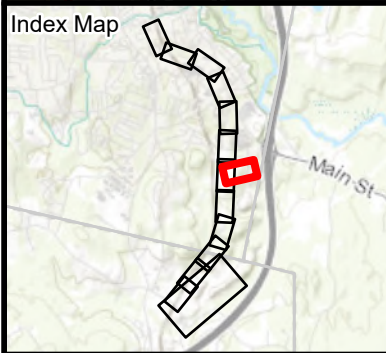
Environmental Resources Map

Leominster, MA
Page 5 of 14

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Legend					
Existing Structure	Install Overhead Line	Limit of Disturbance	Delineated Stream Area*	FEMA 100yr Floodplain*	
Install Structure (Concrete Caisson)	Remove Overhead Line	Temporary Limit of Disturbance	Field Delineated Wetland Line	Parcel Boundary	
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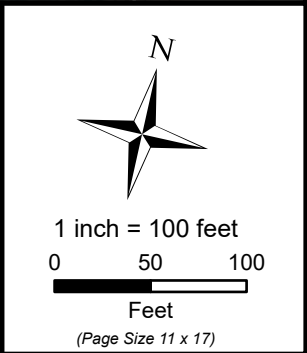
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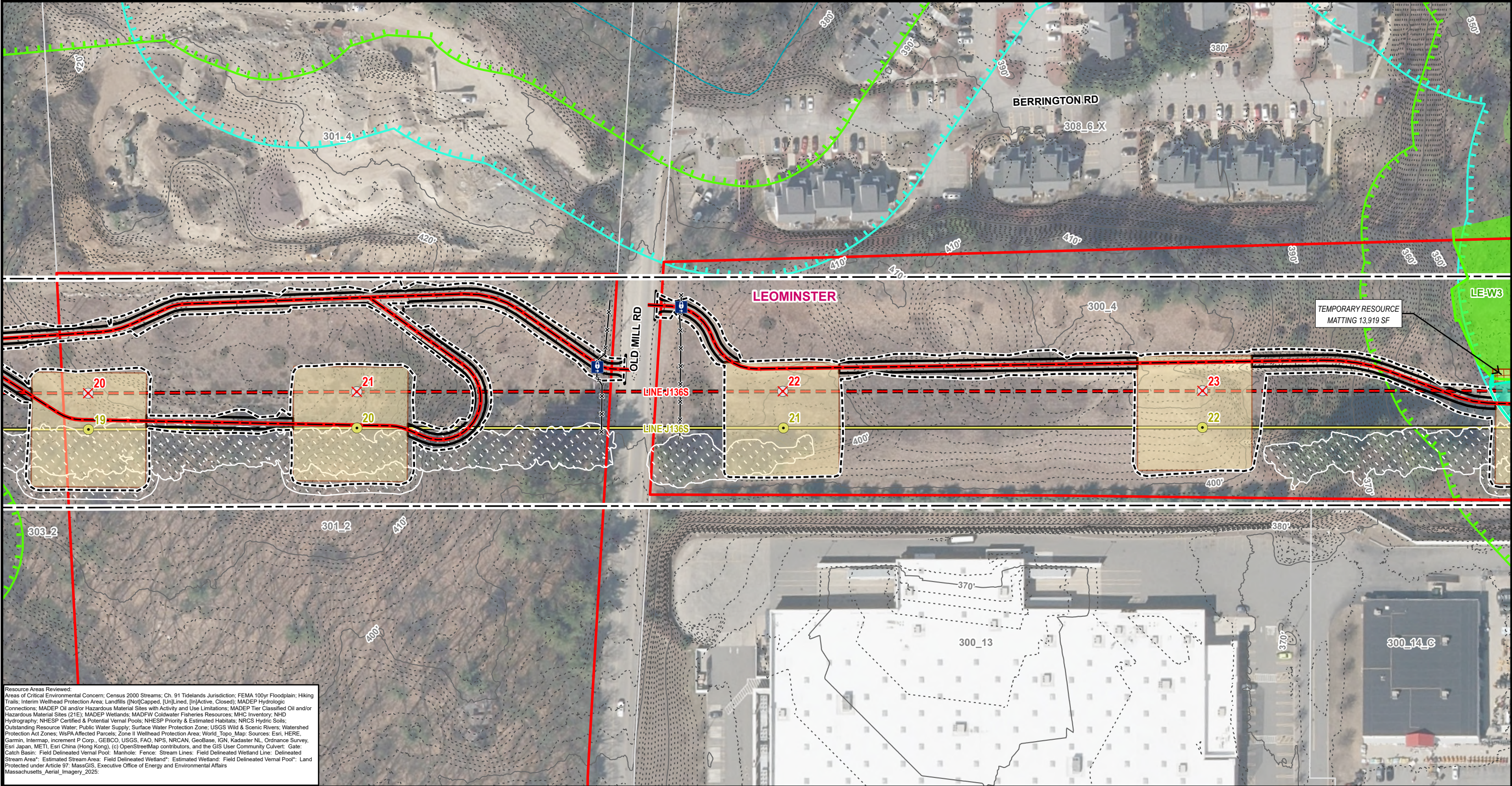
Environmental Resources Map

Leominster, MA
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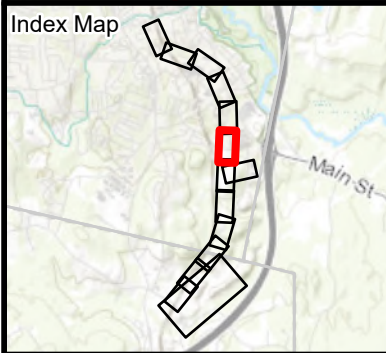
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Legend

Existing Structure

Install Structure (Concrete Caisson)

Install Structure (2 Concrete Caissons)

Install Structure - Direct Embed

Structure Maintenance

Remove Structure

Existing Overhead Line

Install Overhead Line

Remove Overhead Line

Approx. Edge of ROW

Designed Access

Proposed Temporary Access

Existing Off-ROW Access

Pull Pad

Work Pad

Limit of Gravel/Graded Access

Limit of Disturbance

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Construction Matting

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Estimated Bank

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MADEP Open Water*

MADEP Wetlands*

100ft Buffer to Wetlands & Streams

200ft Riverfront Area

FEMA 100yr Floodplain*

Parcel Boundary

National Grid Property

Town Boundary

Approximate Tree Clearing Area

Gate

Fence

1ft Contour

10ft Contour

*Indicates Layers Set to Transparency

J136S Tap Line Rebuild Project

Environmental Resources Map

Leominster, MA

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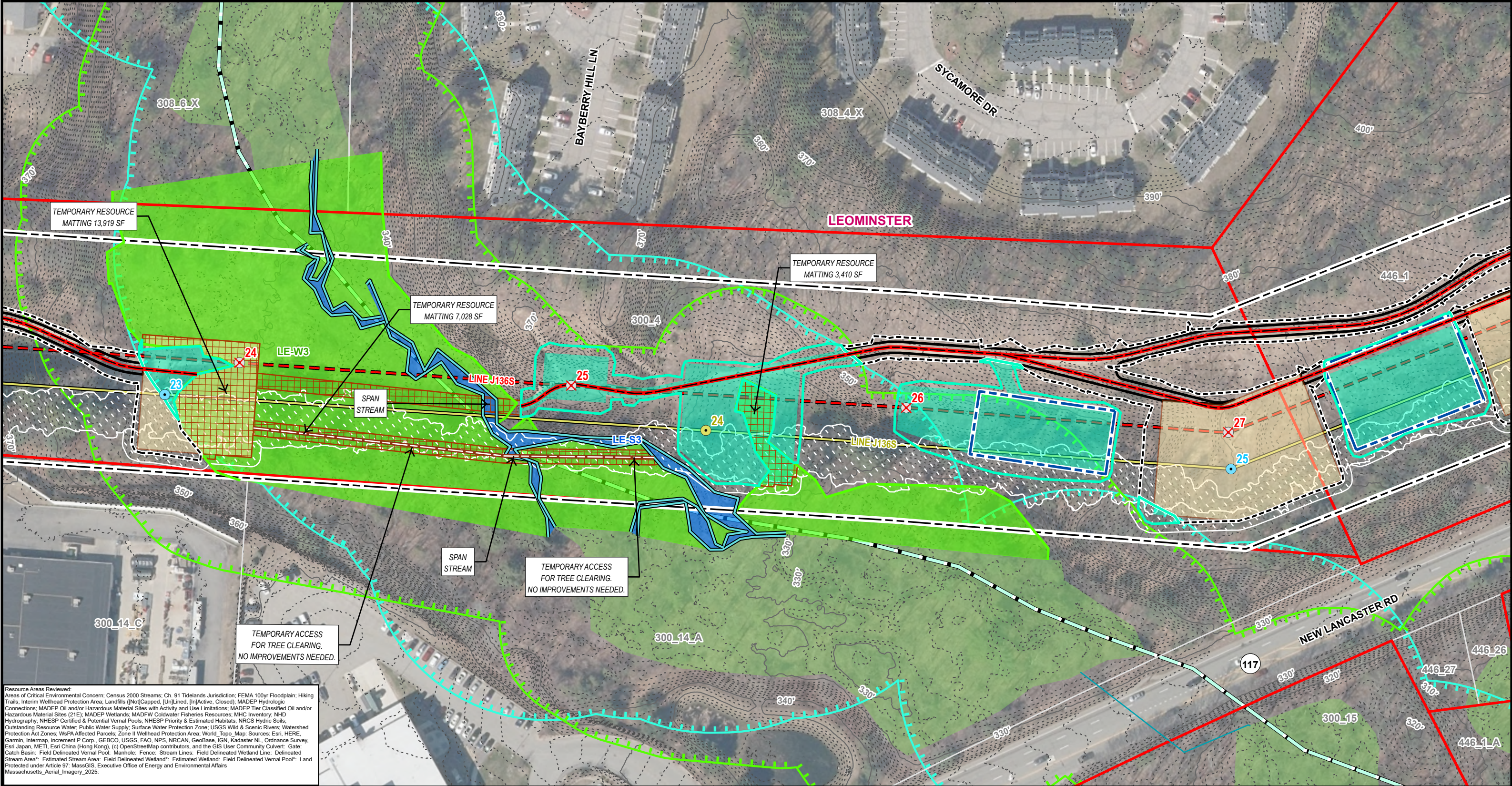
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Index Map

Legend

● Existing Structure

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○ Structure Maintenance

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— Town Boundary

— Approximate Tree Clearing Area

— 1ft Contour

— 10ft Contour

J136S Tap Line Rebuild Project

Environmental Resources Map

Leominster, MA

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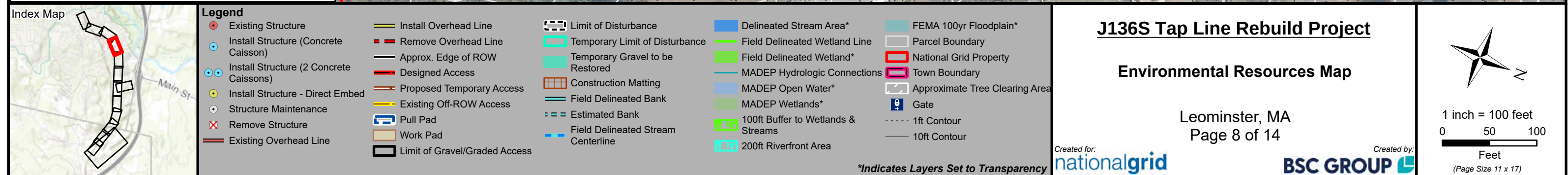
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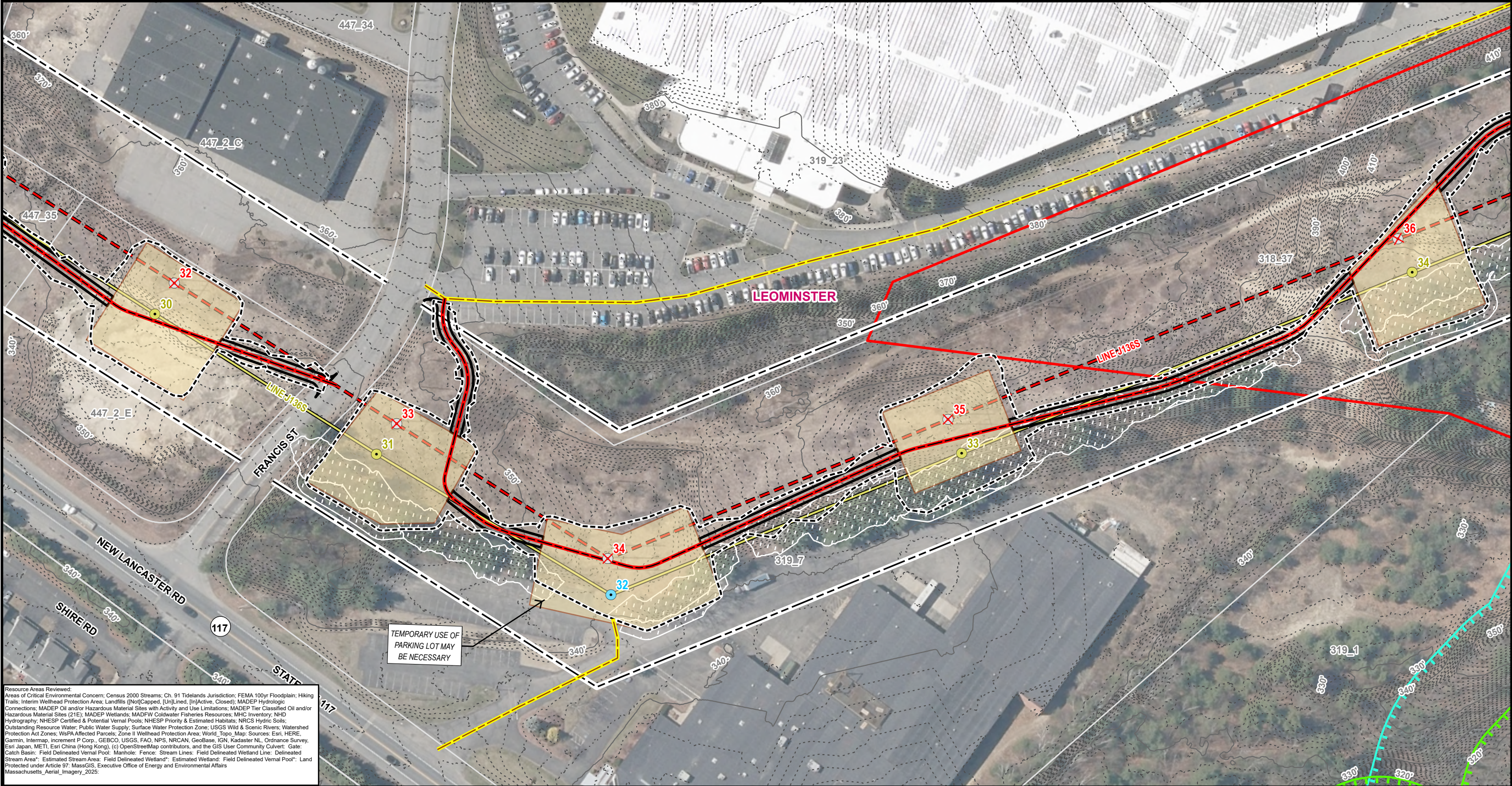
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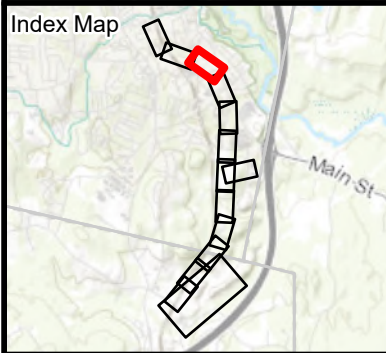
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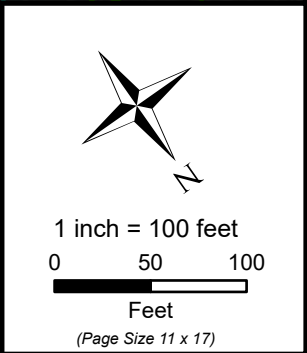
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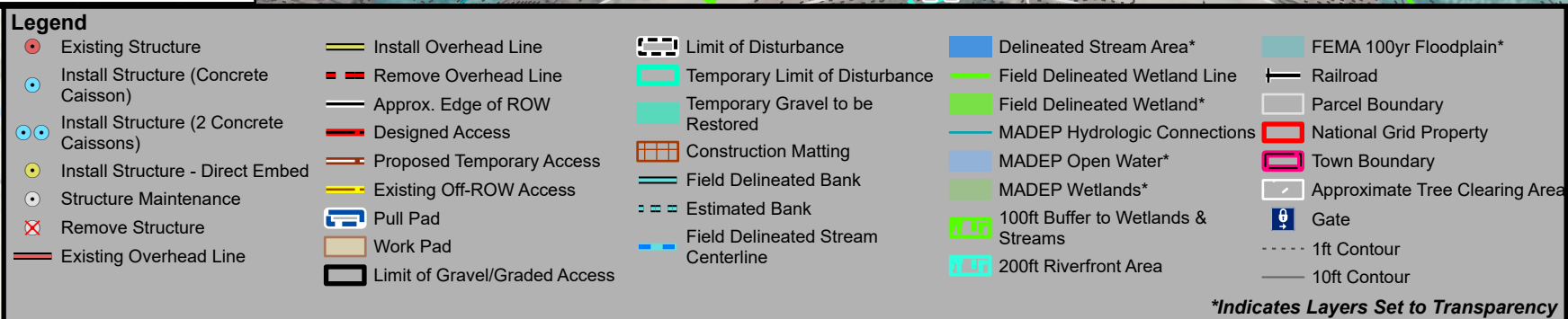
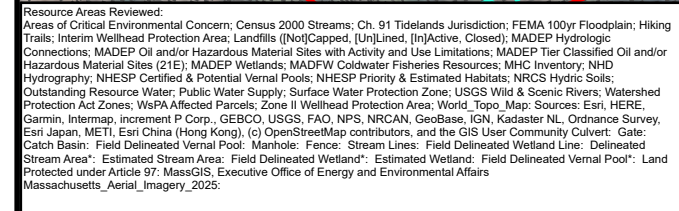
Environmental Resources Map

Leominster, MA
Page 9 of 14

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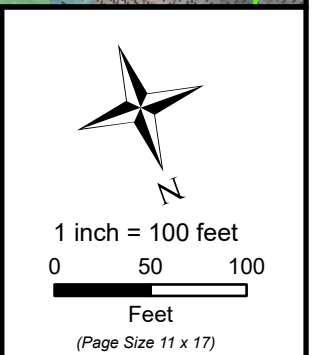
J136S Tap Line Rebuild Project

Environmental Resources Map

Leominster, MA
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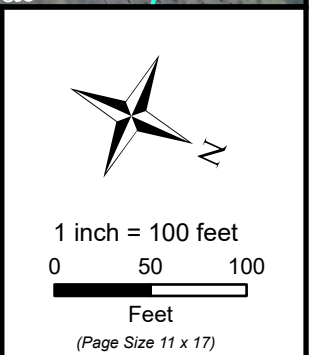
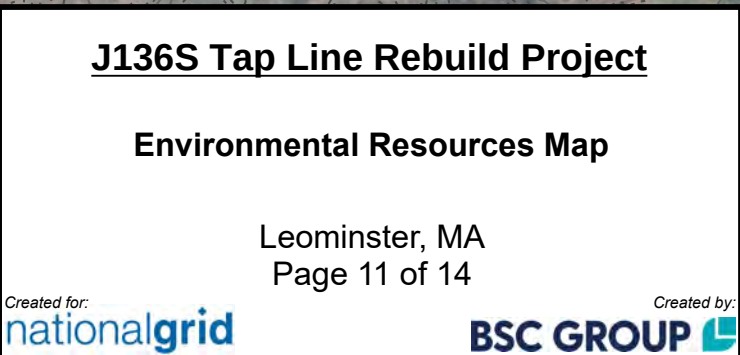
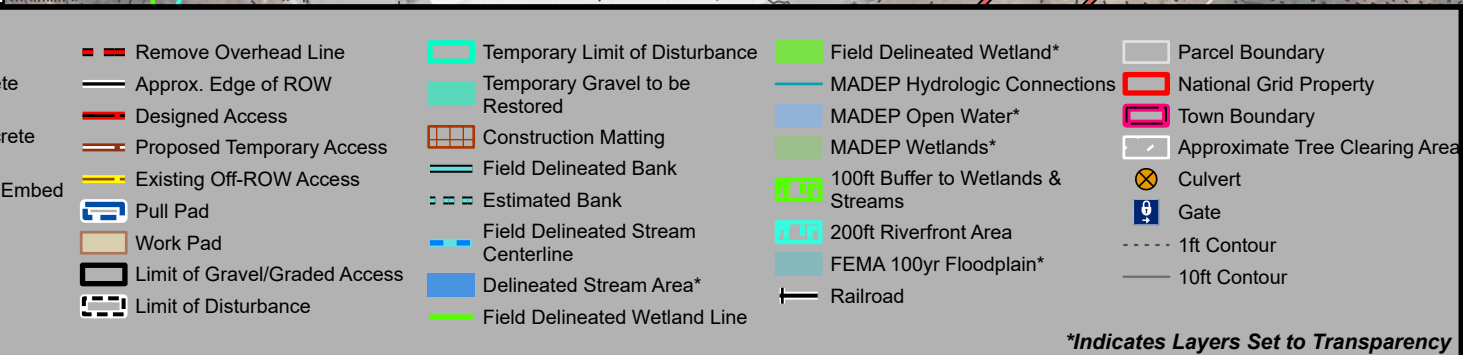
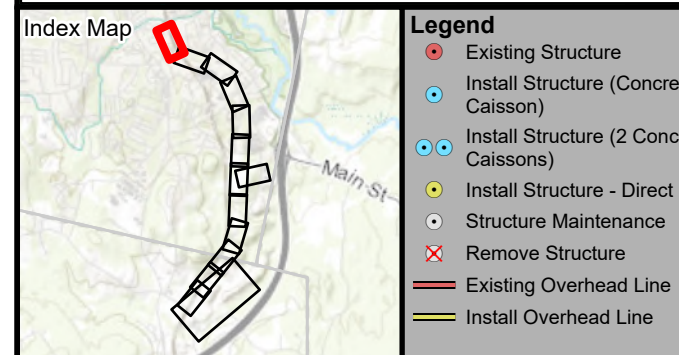
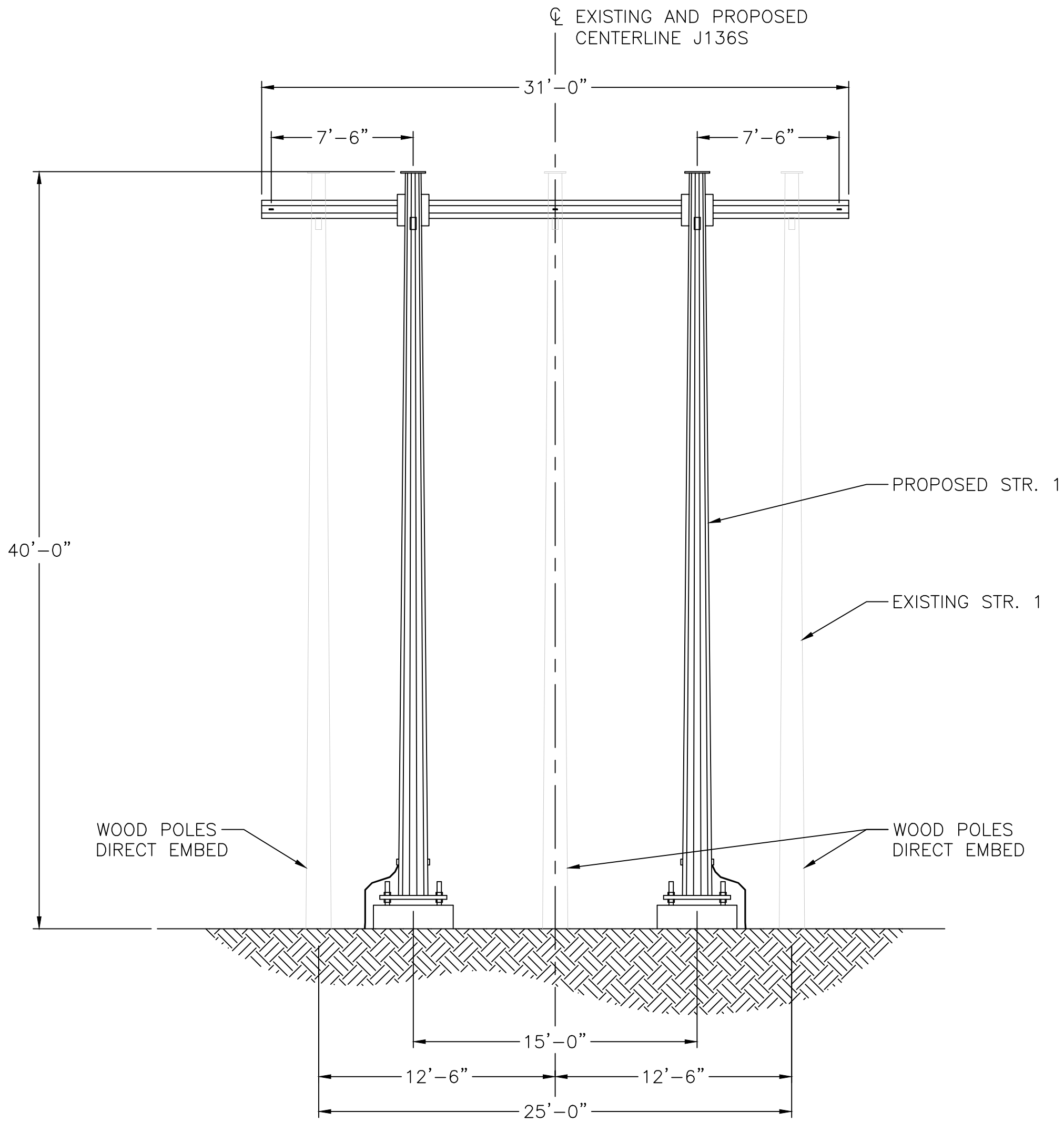


Figure 3 - Cross Sections

PROPOSED X-SECTION OVERLAY



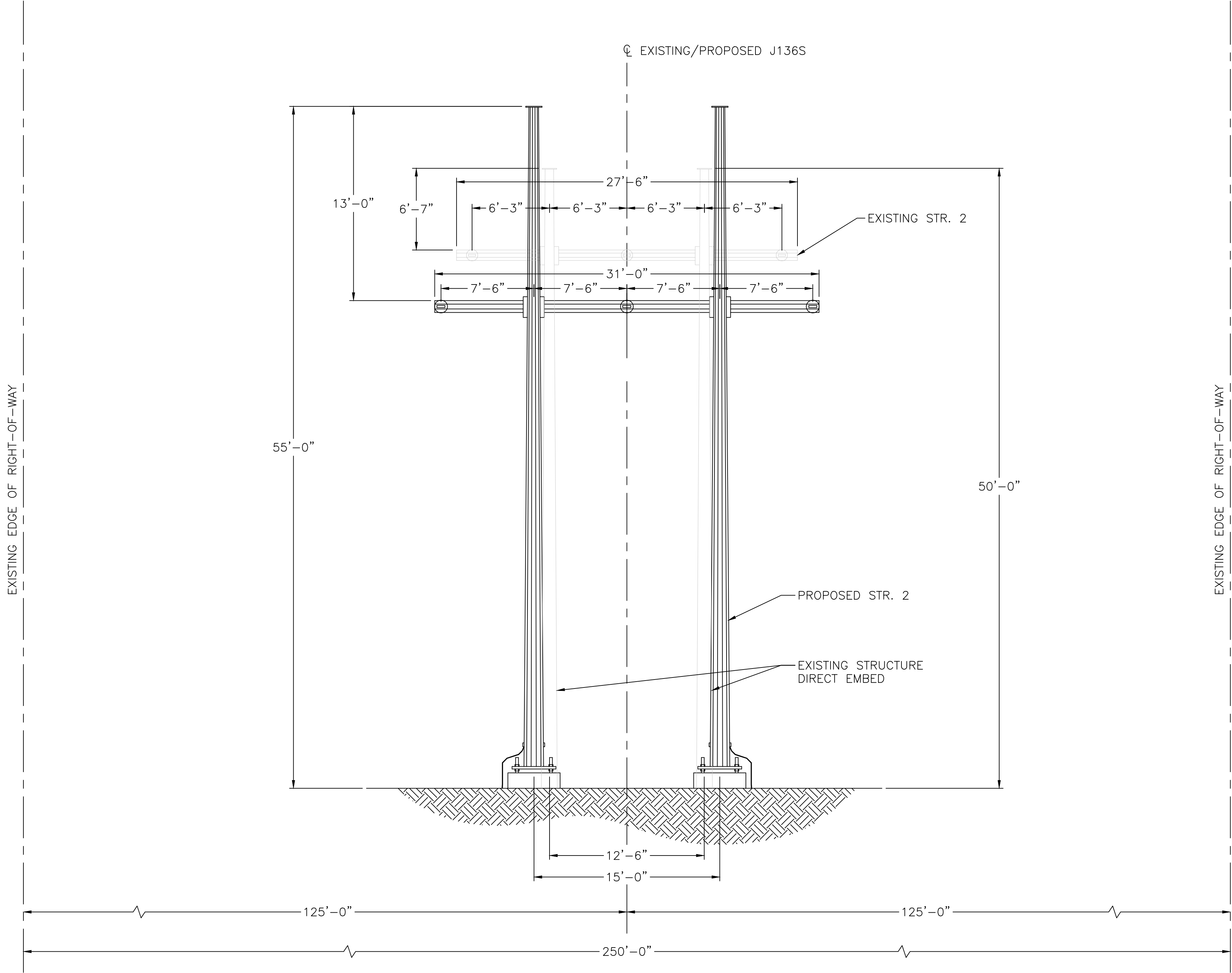
INCHES ON ORIGINAL

PROPOSED X-SECTION OVERLAY

nationalgrid

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PROPOSED X-SECTION OVERLAY



OVERLAID CROSS SECTION
LOOKING TOWARDS LITCHFIELD STREET SUBSTATION
PRATTS JUNCTION – LEOMINSTER
RIGHT OF WAY
EXISTING 250' WIDE CORRIDOR
LEOMINSTER, MASSACHUSETTS
WORCESTER COUNTY
MILE 0 TO MILE 0.03

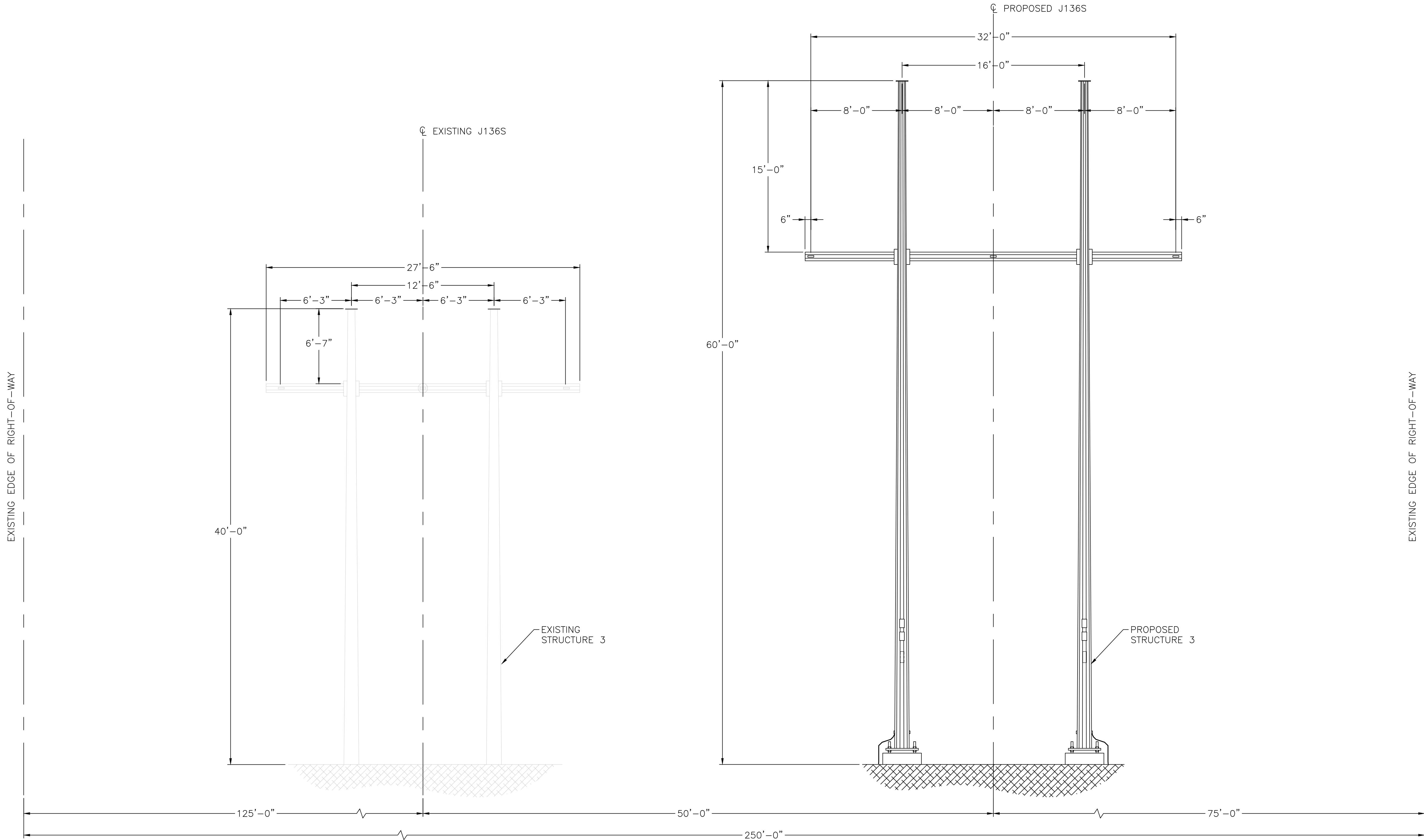
INCHES ON ORIGINAL

J136S TAP LINE STR. 1 TO LITCHFIELD ST. SS										nationalgrid										O											
115KV TRANSMISSION LINE CROSS SECTION OVERLAY MILE 0 TO MILE 0.03										PREPARED BY		KWL		VER		DATE		INITIAL RELEASE						PREPARED BY		KWL		ZK		GEB	
										REVIEWED BY		ZK		1																	
										APPROVED BY		GEB		2																	
										SCALE		NTS		3																	
										SHEET		2 OF 4		4																	
										INDEX		400852		5																	
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PROPOSED X-SECTION OVERLAY

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PORPOSED X-SECTION OVERLAY



OVERLAID CROSS SECTION
LOOKING TOWARDS LITCHFIELD STREET SUBSTATION
PRATTS JUNCTION – LEOMINSTER
RIGHT OF WAY
EXISTING 250' WIDE CORRIDOR
LEOMINSTER, MASSACHUSETTS
WORCESTER COUNTY
MILE 0.03 TO MILE 0.07

INCHES ON ORIGINAL

PROPOSED X-SECTION OVERLAY

J136S TAP LINE STR. 1 TO LITCHFIELD ST. SS

115KV TRANSMISSION LINE
CROSS SECTION OVERLAY
MILE 0.03 TO MILE 0.07

PREPARED BY	JJA	04-14-25
REVIEWED BY	ZK	04-14-25
APPROVED BY	GEB	04-14-25
SCALE	NTS	
SHEET	3	OF 4
INDEX		400852

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VERSION DESCRIPTION

VER	DATE	INITIAL	RELEASE
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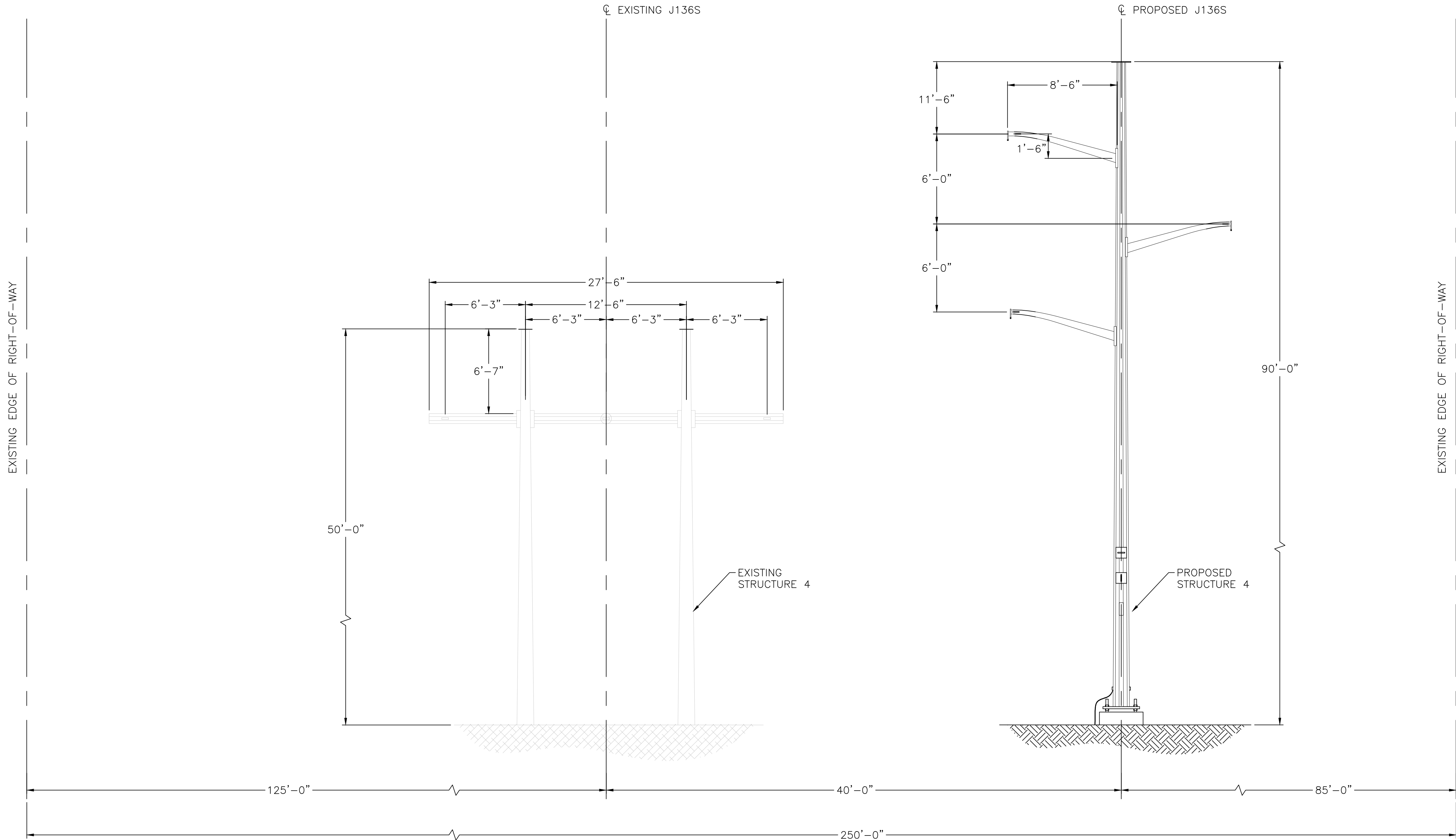
PREPARED BY	DATE	INITIAL	RELEASE
JJA	04-14-25		
ZK			
GEB			

VERSION

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PORPOSED X-SECTION OVERLAY



OVERLAID CROSS SECTION
LOOKING TOWARDS LITCHFIELD STREET SUBSTATION
PRATTS JUNCTION – LEOMINSTER
RIGHT OF WAY
EXISTING 250' WIDE CORRIDOR
LEOMINSTER, MASSACHUSETTS
WORCESTER COUNTY
MILE 0.07 TO MILE 2.6

INCHES ON ORIGINAL

PROPOSED X-SECTION OVERLAY

J136S TAP LINE STR. 1 TO LITCHFIELD ST. SS

115KV TRANSMISSION LINE
CROSS SECTION OVERLAY
MILE 0.07 TO MILE 2.6

PREPARED BY	JJA	04-14-25
REVIEWED BY	ZK	04-14-25
APPROVED BY	GEB	04-14-25
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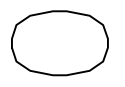
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REVISIONS/REVISED BY

JJA	ZK	GEB
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VERSION



Appendix B: SEIR Distribution List

Single Environmental Impact Report (SEIR)
J136S Tap Line Rebuild Project

Massachusetts Environmental Policy Act (MEPA) Distribution List¹

Agency	Email Address	Address
Massachusetts Environmental Policy Act (MEPA) Office	MEPA@mass.gov	MEPA Office 100 Cambridge Street, Suite 900 Boston, MA 02114
Department of Environmental Protection, Boston Office	helena.boccadoro@mass.gov	Commissioner's Office One Winter Street Boston, MA 02108
Department of Environmental Protection, Appropriate Regional Office and to each program from which a permit will be sought	andrea.briggs@mass.gov	DEP/Central Regional Office Attn: MEPA Coordinator 8 New Bond Street Worcester, MA 01606
Massachusetts Department of Transportation - Boston	MassDOTPPDU@dot.state.ma.us	Public/Private Development Unit 10 Park Plaza, Suite #4150 Boston, MA 02116
Massachusetts Department of Transportation – District Office	Kevin.R.Robenhymer@dot.state.ma.us Eric.Nascimento@dot.state.ma.us	District #3 Attn: MEPA Coordinator 499 Plantation Parkway Worcester, MA 01605
Massachusetts Historical Commission	Mail one hard copy of the filing to MHC	The MA Archives Building 220 Morrissey Boulevard Boston, MA 02125
Applicable Regional Planning Agency	mrpc@mrpc.org	Montachusett Regional Planning Commission (MRPC)
In each municipality affected by the Project	Information is provided on the table: Municipality Contacts	City Council or Board of Selectmen Planning Board/Department Conservation Commission Department/Board of Health
If the Project is located within five miles of an Environmental Justice Population	MEPA-EJ@mass.gov	MEPA Office Attn: MEPA Environmental Justice Liaison 100 Cambridge Street, Suite 900, Boston, MA 02144
If the Project site is within or contains designated significant or estimated habitat, or priority sites of endangered or threatened species or species of special concern in accordance with the Massachusetts Endangered Species Act	melany.cheeseman@mass.gov emily.holt@mass.gov	Natural Heritage and Endangered Species Program Division of Fisheries & Wildlife 1 Rabbit Hill Road Westborough, MA 01581

¹ This is the most up-to-date distribution list provided by MEPA, last revised on November 24, 2025 (Commonwealth of Massachusetts, n.d.). MEPA electronic distribution list. Retrieved January 28, 2026, from <https://www.mass.gov/doc/mepea-electronic-distribution-list/download>

Municipality Contacts

Municipality	Email Address	Address
Leominster	The City Council tardinger@leominster-ma.gov	25 West Street Leominster, MA 01453
	Board of Health mpowell@leominster-ma.gov	
	Planning and development cvittorioso@leominster-ma.gov	
	Conservation Commission javerka@leominster-ma.gov	
	Leominster Public Library leomref@leominster-ma.gov	30 West Street Leominster, MA 01453
Sterling	Select Board bcaldwell@sterling-ma.gov	1 Park Street Sterling, MA 01564
	Board of Health dfavreau@sterling-ma.gov	
	Conservation Commission sharris@sterling-ma.gov	
	Planning Board swallace@sterling-ma.gov	
	Sterling Public Library agrebinar@cwmars.org	
MECO will make an attempt to provide a copy of the SEIR Form through online portals when applicable.		

List of commenters on the EENF

Agency	Contact
The Commonwealth of Massachusetts Department of Environmental Protection (MassDEP)	JoAnne Kasper-Dunne, Central Regional Office MEPA Coordinator; joanne.kasper-dunne@mass.gov
Natural Heritage and Endangered Species Program (NHESP)	Lauren Glorioso, Endangered Species Review Biologist; masswildlife.news@mass.gov
Department of Environmental Protection Waterways Regulation (WRP)	Chrissy Hopps, Waterways Regulation Program, MassDEP/Boston; dep.waterways@mass.gov .

Environmental Justice (EJ) Reference List

Project-Specific EJ Reference List						
Contact Name	Title	Phone	Email	Affiliation	Contact Type	Proponent Notes (contact status, removal requests, updates)
Claire B.W. Muller	Movement Building Director	(508) 308-9261	claire@uumassaction.org	Unitarian Universalist Mass Action Network	Statewide CBO	none
Julia Blatt	Executive Director	(617) 714-4272	juliablatt@massriversalliance.org	Mass Rivers Alliance	Statewide CBO	none
Jodi Valenta	Massachusetts State Director	(617) 367-6200	Jodi.Valenta@tpl.org	The Trust for Public Land	Statewide CBO	none
Kerry Bowie	Board President	Not Provided	kerry@msaadapartners.com	Browning the GreenSpace	Statewide CBO	none
Sylvia Broude	Executive Director	(617) 292-4821	sylvia@communityactionworks.org	Community Action Works	Statewide CBO	none
Britteny Jenkins	Vice President	Not Provided	Bjenkins@clf.org	Conservation Law Foundation	Statewide CBO	none
Alex St. Pierre	Director of Communities & Toxics	Not Provided	aestpierre@clf.org	Conservation Law Foundation	Statewide CBO	none
Paulina Muratore	Director of Transportation Justice and Infrastructure	Not Provided	pmuratore@clf.org	Conservation Law Foundation	Statewide CBO	none
Breanne Frank	Associate Attorney	Not Provided	bfrank@clf.org	Conservation Law Foundation	Statewide CBO	none
Phil Papiasvili	Staff Attorney	Not Provided	ppapiasvili@clf.org	Conservation Law Foundation	Statewide CBO	none
Priya Gandbhir	Director of Clean Power	Not Provided	pgandbhir@clf.org	Conservation Law Foundation	Statewide CBO	none
Julia Carlton MacKay	Director of Community Resilience	Not Provided	jcarltonmackay@clf.org	Conservation Law Foundation	Statewide CBO	none
Amy Boyd Rabin	Vice President of Policy	(617) 221-8258	aboydrabin@environmentalleague.org	Environmental League of Massachusetts	Statewide CBO	none
Ben Hellerstein	MA State Director	(617) 747-4368	ben@environmentmassachusetts.org	Environment Massachusetts	Statewide CBO	none
Robb Johnson	Executive Director	(978) 443-2233	robb@massland.org	Mass Land Trust Coalition	Statewide CBO	none
Cindy Luppi	New England Director	(617) 338-8131 x208	cluppi@cleanwater.org	Clean Water Action	Statewide CBO	none
Dálida Rocha	Executive Director	Not Provided	dalida@n2nma.org	Neighbor to Neighbor Mass.	Statewide CBO	none
Lezlie Braxton	Deputy Director	Not Provided	braxton@n2nma.org	Neighbor to Neighbor Mass.	Statewide CBO	none

Project-Specific EJ Reference List

Contact Name	Title	Phone	Email	Affiliation	Contact Type	Proponent Notes (contact status, removal requests, updates)
Campbell						
Lena Entin	Director of Individual Giving	Not Provided	lena@n2nma.org	Neighbor to Neighbor Mass.	Statewide CBO	none
Danny Timpona	Organizing Director	Not Provided	danny@n2nma.org	Neighbor to Neighbor Mass.	Statewide CBO	none
Miles Gresham	Campaign Director	Not Provided	miles@n2nma.org	Neighbor to Neighbor Mass.	Statewide CBO	none
Rob Moir	Executive Director	Not Provided	rob@oceanriver.org	Ocean River Institute	Statewide CBO	none
Vickash Mohanka	Director, MA Chapter	Not Provided	vick.mohanka@sierrac lub.org	Sierra Club MA	Statewide CBO	none
Heidi Ricci	Director of Policy	Not Provided	hricci@massaudubon.org	Mass Audubon	Statewide CBO	none
Bettina Washington	Tribal Historic Preservation Officer	(508) 560-9014	thpo@wampanoagtribe-nsn.gov	Wampanoag Tribe of Gay Head (Aquinnah)	Federal Tribe	none
Brian Weeden	Chair	(774) 413-0520	Brian.Weeden@mwtribe-nsn.gov	Mashpee Wampanoag Tribe	Federal Tribe	none
Nakia Hendricks Jr.	Office Manager	Not Provided	106Review@mwtribe-nsn.gov	Mashpee Wampanoag Tribe	Federal Tribe	none
David Weeden	THPO/Director	(774) 327.0068	David.Weeden@mwtribe-nsn.gov	Mashpee Wampanoag Tribe	Federal Tribe	none
Alma Gordon	President	Not Provided	tribalcouncil@chappaquiddickwampanoag.org	Chappaquiddick Tribe of the Wampanoag Nation	Indigenous Org	none
Cheryll Toney Holley	Chair	(774) 317-9138	cholley@nipmuc.gov	Nipmuc Nation (Hassanamisco Nipmucs)	Indigenous Org	none
John Peters, Jr.	Executive Director	(617) 573-1292	john.peters@mass.gov	Massachusetts Commission on Indian Affairs (MCIA)	Indigenous Org	none
Melissa Ferretti	Chair	(508) 304-5023	melissa@herringpondtribe.org	Herring Pond Wampanoag Tribe	Indigenous Org	none
Patricia D. Rocker	Council Chair	Not Provided	rockerpatriciad@verizon.net	Chappaquiddick Tribe of the Wampanoag Nation, Whale	Indigenous Org	Removal Request

Project-Specific EJ Reference List						
Contact Name	Title	Phone	Email	Affiliation	Contact Type	Proponent Notes (contact status, removal requests, updates)
				Clan		
Raquel Halsey	Executive Director	(617) 232-0343	rhalsey@naicob.org	North American Indian Center of Boston	Indigenous Org	none
Cora Pierce	Not Provided	Not Provided	Coradot@yahoo.com	Pocasset Wampanoag Tribe	Indigenous Org	none
Elizabeth Solomon	Not Provided	Not Provided	Solomon.Elizabeth@gmail.com	Massachusetts Tribe at Ponkapoag	Indigenous Org	none
Neddy Latimer	Not Provided	(978) 534-3145	info@spanishamericiacncenter.org	Spanish American Center	Local CBO	none

Supplemental Community Contacts

Contact Name	Title	Affiliation	Email	Phone
Colleen Abrams	President	Wachusett Greenways	colleen.abrams@verizon.net	(508) 829-3954
Not Provided	President	Sterling Grange #53	sterlinggrange53@gmail.com	(508) 886-2341
Paul MacKinnon	President	Making Opportunity Count	info@mocinc.org	(978) 345-7040
Liz Leonard	Director	WHEAT Community Connections	liz.leonard@uwotc.org	508-370-4946
Fr. Bill Schipper	Pastor	Mary Queen of the Rosary Parish	maryqueen@mqrparish.org	508-885-3111 Ext.113
Not Provided	Not Provided	First Congregational Church of Spencer, United Church of Christ	office@spencerchurch.net	(508) 885-2149
Eric Mendelson	President	Congregation Agudat Achim	office@agudat-achim.org	978-534-6121
Not Provided	Not Provided	The Congregational Church of Christ	hello@churchofchristleominster.org	(978) 537-0837
Not Provided	Not Provided	Pilgrim Congregational Church	pilgrimchurch1743@comcast.net	978-534-5164
Stephanie Trudel	Lay Minister	First Church UU of Leominster	stephanietrudel2@yahoo.com	Not Provided
Not Provided	Not Provided	St. Mark's Episcopal Church	admin@stmarksleominster.org	978-537-3560
Not Provided	Not Provided	Leominster United Methodist Church	info@leominsterumc.org	978-537-1356
Martin Kang	Appointed Clergy	Antioch Korean United Methodist Church	myungsukkang169@gmail.com	9785343394
Not Provided	Not Provided	St. Cecilia Parish	office@stceciliachurch.net	(978) 537-6541
Fr. Carlos Ruiz	Pastor	St. Anna Parish	fathercarlosruiz@gmail.com	Not Provided
Not Provided	Not Provided	Holy Family of Nazareth Parish	churchonhill@aol.com	978-537-3016
Not Provided	Not Provided	St. Leo Parish	stleoparish@verizon.net	978-537-7257
Not Provided	Not Provided	Our Lady of the Lake	Information@ourladylake.org	(978) 342-2978
Not Provided	Not Provided	Immaculate Conception Parish	iconception@comcast.net	(978) 365-6582
Not Provided	Not Provided	First Church of Lancaster, Unitarian Universalist	Office@FirstChurchLancasterMA.org	978-365-2427

Appendix C: National Grid Environmental Guidance Document (EG-303NE)

Single Environmental Impact Report (SEIR)
J136S Tap Line Rebuild Project

 National Grid Environmental Guidance		Doc No.:	EG-303NE
		Rev. No.:	13
		Page No.:	1 of 49
		Date:	04/13/2020
SUBJECT ROW Access, Maintenance and Construction Best Management Practices for New England		REFERENCE EP-3; Natural Resource Protection	

PURPOSE/OBJECTIVE:

This document provides National Grid personnel, consultants and contractors with Best Management Practices (BMPs) for conducting work on electric and natural gas transmission and distribution rights-of-ways (ROWs) and substations in New England.

WHO:

These BMPs are to be followed by all personnel conducting work on Company electric and gas ROWs and substations in New England. These BMPs do not apply to Company employees and contractors performing routine vegetation management activities that are not a part of construction or re-construction projects. Employees and contractors maintaining vegetation on Company ROWs and substations must follow the National Grid ROW Vegetation and Substation Vegetation Management Plans.

DEFINITIONS:

Refer to **Glossary** in **Appendix 1** and **Acronyms** in **Appendix 2**.

WHAT TO DO:

1.0 Project Planning

Prior to the start of any project (proposed new facilities or maintenance of existing facilities), the Project Engineer or other project planner shall determine whether any environmental permits or approvals are required, per the state-specific EG-301 environmental checklists. Any questions regarding which activities may be conducted in regulated areas or within environmentally sensitive areas shall be referred to the National Grid Environmental Scientist or Project Environmental Consultant.

All new construction and maintenance projects shall follow clear and enforceable environmental performance standards, which is the purpose for which these BMPs have been compiled.

1.1 Avoidance and Minimization

Measures shall always be taken to avoid impacts to wetlands, waterways, rare species habitats, known below and above ground historical/archeological resources and other environmentally sensitive areas. If avoidance is not possible, then measures shall be taken to minimize the extent of impacts. Alternate access routes or staging areas shall always be considered. Below is a list of methods that shall be considered where impacts are unavoidable:

- Use existing ROW access where available. Keep to approved routes and roads without deviating from them or making them wider.
- Off-ROW access shall never be assumed and shall be coordinated through National Grid Real Estate before being implemented.
- Where no existing ROW access is present, avoid wetlands and if a wetland crossing is necessary, cross wetlands at the most narrow point possible or at the location of a previously used crossing (if evident). Figure 1 below illustrates this minimization technique.

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- Avoid and minimize stream crossings.
- Minimize the width of typical access roads through wetlands to a maximum width of 16 feet.
- Conduct work manually (without using motorized equipment) in wetlands, wherever possible.
- Use construction mats in wetlands to minimize soil disturbance and rutting when crossing or working within wetlands. When not using mats for access, standard vehicles shall not be allowed to drive across wetlands without the prior approval of the National Grid Environmental Scientist. Use of a low ground pressure (LGP) vehicle may be a feasible alternative to mats provided that such LGP vehicle use has been reviewed and approved by the National Grid Environmental Scientist. See Section 7.0.
- Coordinate the timing of work to cause the least impacts during the regulatory low-flow period under normal conditions, when water/ground is frozen, after the spring songbird nesting season, and, outside of the anticipated amphibian migration window (mid-February to mid-June). Refer to the United States Army Corps of Engineers (USACE) state-specific General Permit for the definition of the low-flow period in each state at: <http://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/>. A summary table is provided in Section 7.0.
- Seek alternative routes or work methods to minimize impact.

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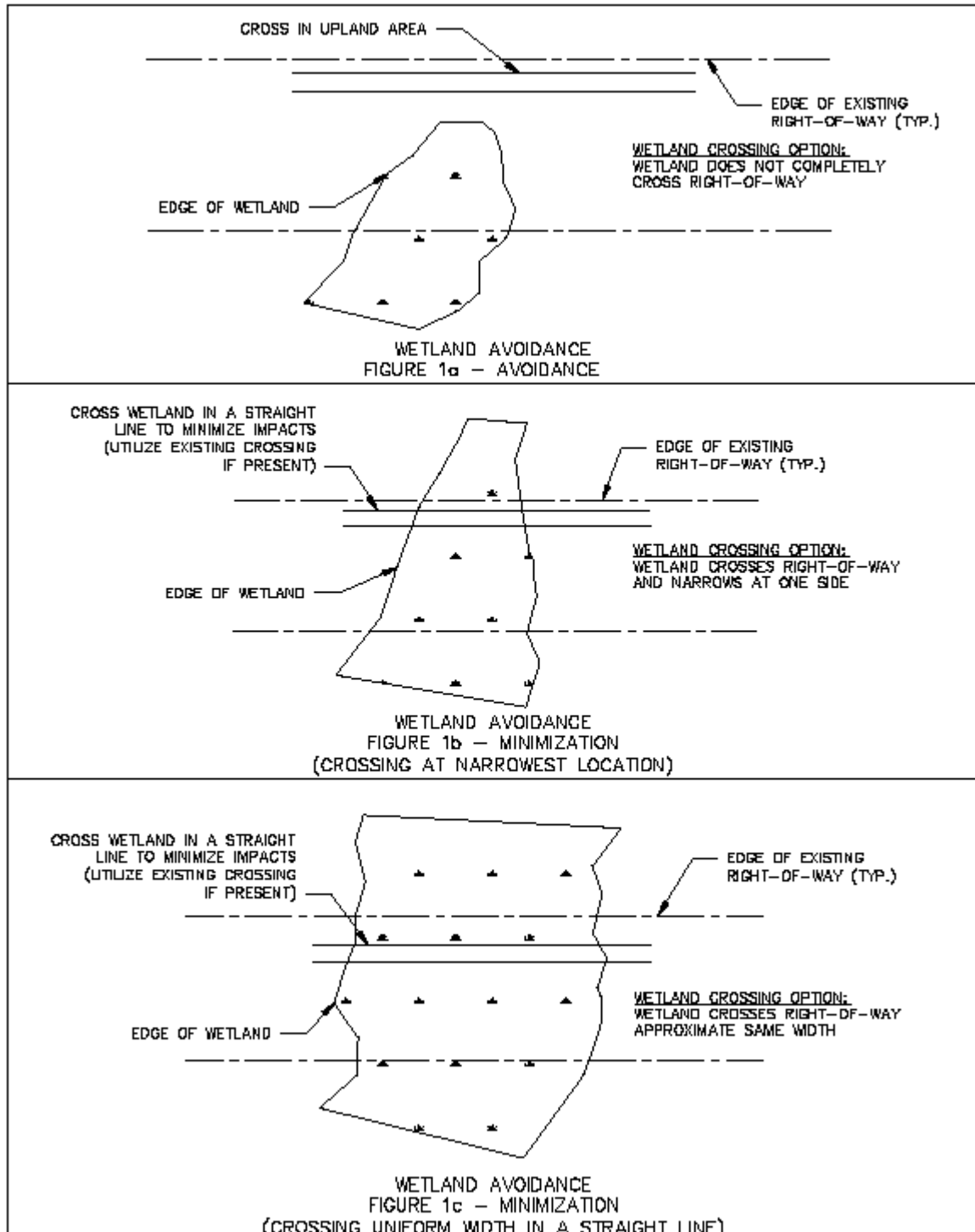
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1.2 Historically Significant Areas

Areas that have been identified as historically and/or culturally significant shall be avoided in accordance with site-specific avoidance plans, as applicable. Refer to the project-specific Environmental Field Issue (EFI) for any applicable avoidance plans or consult with the National Grid Environmental Scientist. Demarcation of these areas to be avoided shall use staked orange snow fencing or an equivalent physical barrier (not just ribbon flagging) and signage. Refer to Section 14.0 for signage guidance.

1.3 Rare Species Habitat

Work within areas that have been identified as mapped rare species habitat shall follow site-specific requirements, as applicable. In Massachusetts, maintenance activities within mapped habitat (known as Priority Habitat of Rare Species) shall follow the BMPs outlined in the Natural Heritage Endangered Species Program (NHESP)-approved National Grid Operation and Maintenance Plan. Work in mapped rare species habitat may require, at a minimum, turtle training for crews and sweeps of work areas for turtles, botanist identification of rare plant locations and avoidance of these locations, and protection of vernal pools, all prior to the start of work. Demarcation of these areas to be avoided (e.g., rare plant populations, overwintering turtles, nests) shall use staked orange snow fencing or an equivalent physical barrier (not just ribbon flagging) and signage. Refer to Section 14.0 for signage guidance.

Where new substations are being constructed or existing substations are undergoing a rebuild or expansion, and the substations are located in mapped rare turtle habitat, project team members should consider fenceline improvements or measures needed to prevent/eliminate turtle entrance into the substation or allow multiple points for easy egress such that turtles are not trapped within the substation fenceline.

Other requirements may apply in NH, VT and RI. Refer to the project-specific EFI for any applicable measures or consult with the National Grid Environmental Scientist.

1.4 Meetings

Pre-permitting meetings shall take place early in the project development process to determine what permits are triggered by the proposed work and the timeline required for permitting. During these meetings, the team shall develop access plans and BMPs to be used during construction of the project.

Field / Constructability review meetings shall take place on-site to evaluate construction site access and job site set-up, to ensure that the project can proceed as permitted. It is at this point in time where work areas, pulling locations, laydown areas, parking areas, and equipment storage areas are evaluated and located. Off-ROW areas under consideration should be included in this discussion.

Prior to submitting permit plans to regulatory authorities, the construction group (contractor or National Grid) shall review the plans for final sign off.

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Pre-construction meetings are typically held prior to the commencement of all work to appoint responsible parties, discuss timing of work, and further consider options to avoid and/or minimize impacts to sensitive areas. These meetings can occur on- or off-site and shall include all the willing and available stakeholders (i.e., utility employees, contractors, consultants, inspectors, and/or monitors, and regulatory personnel). Training of crews and supervisors of the EFI, Stormwater Pollution Prevention Plan (SWPPP), rare species, and other permit requirements shall be conducted at a pre-construction meeting.

Pre-job briefings shall be conducted daily or otherwise routinely scheduled meetings shall be conducted on-site with the work crew throughout the duration of the work. These meetings are a way of keeping everyone up to date, confirming there is consensus on work methods and responsibilities, and ensuring that tasks are being fulfilled with as little impact to the environment as possible.

The Project Environmental Scientist/Monitor and Construction Project Manager shall communicate regularly (e.g. weekly or bi-weekly meetings or phone conversations) to discuss the work completed since last communication (i.e. work locations, wetland impacts, equipment used, and unexpected delays or work conditions). These meetings or calls shall include the expected schedule of construction for the upcoming week, the long term construction plans, and planned methods for working near/in wetlands. Both the Project Environmental Scientist/Monitor and Construction Project Manager shall work together so the Project complies with all environmental permits and regulations. When changes to the Project scope or agreed work plan are proposed they shall be done so with the final approval of the National Grid Environmental Scientist.

1.5 Communication of Project Specific Environmental Requirements

Project specific environmental concerns, to include sensitive resources, permits, approved access and time-of-year or other restrictions, shall be communicated to the project team and be included as part of the Pre-Bid and Pre-Construction Meetings. Project specific requirements shall be communicated to the project manager/construction manager/engineering group using the following guidelines:

Environmental Field Issue – The EFI will be a full document consisting of narrative, project permits, access and matting plans. A table summarizing pertinent (but not all) permit conditions and the responsible party for those conditions shall be included in the EFI. Copies of all permits should be included as attachments. This will be prepared for most projects with multiple permits or large, complex projects (siting board, Section 404, 401 WQC, SWPPP). There shall be EFI training at the pre-construction meeting. The National Grid EFI template is located in **EI-303NE**.

Simplified Environmental Field Issue – The Simplified EFI is a memorandum containing environmental resources present, project permit(s), access and matting plans and a table summarizing relevant permit conditions and responsible party for those conditions. Copies of all permits should be included as attachments. The Simplified EFI will be prepared for most projects with 1 or 2 permits (Order of Conditions, S404 Cat 1). The Simplified EFI should also be provided for projects that have environmental resources present, but the scope of the project does not trigger environmental permitting (e.g., the scope of work qualifies for maintenance exemption(s)). The resources present

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shall be discussed at the Pre-Bid and Pre-Construction meetings and any changes in scope will require additional review by the National Grid project team.

E-mail delivery of Permit and any Sediment/Erosion control or BMP plan – For those projects with only one permit (eg., MA Order of Conditions, RI DEM permit, RI CRMC permit, NH Utility Notification) or projects with a sediment & erosion control plan (local town requirement or for exempt maintenance work), a copy of the permit and any applicable plan will be emailed to the Project Manager (and the project team where deemed necessary) to be incorporated into the Construction Field Issue.

STORMS work management system input – For STORMS work, no EFI is prepared unless multiple permits are required for the project (see guidance above). If only a MA Order of Conditions, MA Determination of Applicability, RI DEM permit, RI CRMC permit, RI SESC Approval, or NH Utility Notification is required, then the permit is attached in the Documents tab and conditions noted in Remarks/Comments section. Standard STORMS boilerplate language is located in **EI-303NE**.

1.6 Timing of Work

Regulatory authorities may place seasonal or time-of-year restrictions on project construction elements. These time-of-year restrictions may be state or permit-specific, and shall be adhered to.

Work during frozen conditions. Activities conducted once wetland areas are frozen sufficient to minimize rutting and other impacts to the surrounding environment may be authorized by the National Grid Environmental Scientist. Work during this time also generally reduces disturbance of aquatic and terrestrial wildlife movement by avoiding sensitive breeding and nesting seasons. When not using mats for access, vehicles shall not be allowed to drive across wetlands without the prior approval of the National Grid Environmental Scientist.

Work during the regulatory low-flow period. Conducting work during the low-flow period can reduce impacts to surface water and generally avoids spawning and breeding seasons of aquatic organisms. If the water is above normal seasonal levels, adjustments to work activities and methods are required.

1.7 Alternate Access

1.7.1 Manual Access

In some cases such as for smaller projects, work areas can be accessed manually. This includes access on foot through upland and shallow wetland areas, access by boat through open water or ponded areas, and climbing of structures where possible. Smaller projects, such as repair of individual structures, or parts of structures, that do not categorically require the use of heavy machinery, shall be accessed manually to the greatest extent practicable.

1.7.2 Use of Overhead/Aerial Access

Using helicopters can be expensive and is not always feasible, but it may be appropriate in some situations in order to get workers and equipment to a site that otherwise may be very difficult to access. The use of overhead and/or aerial equipment may be beneficial for work in areas where larger water bodies, deep crevices, or mountainous areas hinder ground access. The landing area for

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helicopters shall be reviewed for environmentally sensitive resources. Use of helicopters requires Project Manager and Senior Management approval.

2.0 Inspection, Monitoring and Maintenance

All construction practices and controls shall be inspected on a regular basis and in accordance with all applicable permits and local, state, and federal regulations to avoid and correct ANY damage to sensitive areas.

The construction crews shall be responsible for completing daily inspections, and IMMEDIATELY bring any **damage or observed erosion, or failed erosion controls** to the attention of the Person-In-Charge and the National Grid Environmental Scientist. Where applicable and/or as directed by environmental permits issued for the project, the Project Environmental Consultant shall conduct weekly (at a minimum) inspections of the project work areas and shall document their inspection using the Stormwater, Wetlands & Priority Habitat Environmental Compliance Site Inspection / Monitoring Report form found in **Appendix 3** and issue the report within 24 hours. The Person-in-Charge shall work with the National Grid Environmental Scientist and the Project Environmental Consultant to determine when and how the repairs shall be made.

Project-specific Action Logs and Long-Term Restoration Logs are prepared as needed by the National Grid Environmental Scientist or the Project Environmental Consultant to track issues and/or repairs and assign responsible parties.

3.0 Best Management Practices

The BMP sections presented in this EG address access, construction, snow and ice management, structures in wetlands, access road maintenance and repair, clean-up and restoration standards, ROW gates, field refueling and maintenance operations, management of spills/releases, and a summary of key construction BMPs.

Note that BMPs shown on any permit drawings for a specific project may need to be revised and or supplemented during the execution of a project based on unforeseen or unexpected factors such as extreme weather or unknown subsurface conditions. It is the responsibility of the Contractor to work with the National Grid Environmental Scientist and/or the Project Environmental Consultant to identify necessary changes and to ensure that construction-related impacts to wetlands, water bodies and other environmentally sensitive areas are avoided.

Any deviation from the approved BMPs shown in the EFI and/or SWPPP plans shall be communicated immediately to the National Grid Environmental Scientist as it may require additional permitting or could result in a permit violation.

3.1 Wetland Boundary Demarcation

Prior to the start of any activity conducted under an environmental permit, wetland boundaries shall be reviewed. Flagging for wetland boundaries, stream banks and other resource areas shall be

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refreshed as needed. This may become particularly important when the original flagging was placed in previous seasons and now may have become obscured.

3.2 Sedimentation and Erosion Controls

Appropriate sedimentation and erosion control devices shall be installed at work sites, in accordance with permit conditions and/or regulatory approvals, and as needed to prevent adverse impacts to water resources and adjacent properties.

The overall purpose of such controls is to prevent and control the movement of disturbed soil and sediment from work sites to adjacent, undisturbed areas, and particularly to water resources, public roads and adjacent properties. All proprietary controls shall be installed per manufacturer's recommendations and specifications.

Appropriate sedimentation and erosion control devices include but are not limited to: silt fencing, straw bales, wood chip bags, straw wattles, compost socks, erosion control blankets, mulch, slope interruption practices, flocculent powder/blocks and storm drain/catch basin inlet protection. Such controls shall be installed between the work area and environmentally sensitive areas such as wetlands, streams, drainage courses, roads and adjacent property when work activities shall disturb soils and result in a potential for causing sedimentation and erosion.

In Massachusetts, use of monofilament-encased wattles shall be avoided in mapped Priority Habitat for snakes and amphibians. For projects with work within mapped Priority Habitat for snakes and amphibians, wattles that are encased in a sock, hemp, fiber, or movable jute netting are required to prevent entrapment. Also, "wildlife gaps" should occur every 50 feet, if possible, given wetland permit conditions. This spacing of the wattles allows snakes and amphibians to move across the ROW. Refer to the Amphibian and Reptile BMPs in **Appendix 4**.

Staked straw bales often serve as the demarcation of the limits of work and/or sensitive areas to be avoided. Work shall never be conducted outside the limit of erosion controls without prior approval from the National Grid Environmental Scientist.

Project plans depict proposed erosion controls, however field conditions may warrant additional practices be implemented (e.g., wet conditions, frozen conditions, poorly drained soils, steep slopes, materials used for work pads, transition areas to construction mats, number of trips across work areas, etc.).

Any deviation from the approved erosion controls shown in the EFI and/or SWPPP plans needs to be communicated immediately to the National Grid Environmental Scientist as it may require additional permitting or result in a permit violation.

Appendix 4 provides typical sketches of common sedimentation and erosion controls. If a SWPPP is required for the project, maintenance and inspection of erosion controls shall follow the SWPPP requirements. Sedimentation and erosion controls shall be properly maintained and inspected on a

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periodic basis, until work sites are properly stabilized and restored. Inspections shall be documented using the Inspection Form “Storm Water, Wetlands & Priority Habitat Environmental Compliance Site Inspection/Monitoring Report” (**Appendix 3**).

The sequence and timing of the installation of sedimentation and erosion control measures is critical to their success. Sedimentation and erosion controls shall be installed prior to commencing construction activities that may result in any soil disturbance or cause otherwise polluted site runoff. Inspection of these devices may be required by the National Grid Environmental Scientist or by regulators prior to the start of work. The installation of water bars and other erosion control measures shall be installed shortly thereafter.

3.3 Concrete Wash Outs

Concrete wash outs shall be used for management of concrete waste. Concrete and concrete washout water shall not be deposited or discharged directly on the ground, in wetlands or waterbodies, or in catch basins or other drainage structures. Where possible, concrete washouts shall be located away from wetlands or other sensitive areas. Consult the National Grid Environmental Scientist on proposed concrete wash out locations prior to their use. Following the completion of concrete pouring operations, the wash outs shall be disposed of off-site with other construction debris. Refer to BMPs in **Appendix 4**.

3.4 Construction Activities in Standing Water

The use of silt curtains or turbidity barriers may be required when working in or adjacent to standing water such as ponds, reservoirs, low flowing rivers/streams, or coastal areas. Silt curtains and turbidity barriers prevent sediment from migrating beyond the immediate work area into the resource areas.

Coffer dams constructed using sheet piling or large sandbags (Trade names such as “the Big Bag” or “DamItDams”) may be used to temporarily isolate and contain a work area in standing water.

When working in standing water, an oil absorbent boom, in addition to a silt curtain or other temporary barrier, shall be placed around the work area for spill prevention.

Work in drinking water reservoirs or other waters may require extensive regulatory agency review, even for maintenance work, which could result in additional time required for permitting, review and material procurement prior to the start of work.

3.5 Dewatering

Where excavations require the need for dewatering of groundwater or accumulated stormwater, the water shall be treated before discharge. Appropriate controls include dewatering basins, flocculent blocks, filter bags, filter socks, or weir tanks. Schematics of these BMPs are included in **Appendix 4**. Water trucks or fractionation tanks may be utilized if watertight containers are desired for controlled on-site discharge or for off-site discharge into an approved dewatering area when site restrictions make it difficult to utilize other dewatering methods on-site. Dewatering discharge water shall never be directed into wetlands, streams/rivers, other sensitive resource areas, catch basins, other

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stormwater devices, or substation Trenwa trenches. Dewatering flow shall be controlled so that it does not cause scouring or erosion through the use of a dewatering basin, filter sock, or equivalent. If it is determined that the chosen controls are not appropriately filtering the fine sediment from the dewatering pumpate then the National Grid Environmental Scientist shall be notified immediately and the controls shall be revised or supplemented.

When establishing a dewatering basin, consideration should be given to the anticipated volume of water and rate of pumping in determining the size of the dewatering basin. Dewatering basins shall be constructed on level ground. Once pumping commences, the basin shall be monitored frequently to assure that the rate of water delivery to the structure is low enough to prevent water from flowing, unfiltered, over the top of the basin walls. The basin shall be monitored throughout the dewatering process because the rate of filtration shall decrease as sediment clogs the filter fabric. If the basin is not appropriately filtering the fine sediment from the dewatering pumpate then the basin may need to be supplemented with a flocculent block. Field conditions shall dictate how often the basin should be inspected.

Distance to sensitive areas, direction of flow (toward or away from protected, or sensitive areas, such as wetlands, ponds, or streams), amount of vegetative ground cover between the basin and nearby sensitive areas, ground conditions (ledge, frozen, etc.), volume of water being pumped, and pump-rate, are some of the factors to be considered when determining an inspection frequency. Clogged filter fabric shall be replaced and accumulated sediment shall be removed as necessary from the basins to maintain efficacy.

Any new dewatering location (not previously reviewed and approved by the National Grid Environmental Scientist during project planning or permitting) shall be reviewed and the discharge location approved by the National Grid Environmental Scientist before use.

Complex projects that require large scale dewatering shall require individual review by the National Grid Environmental Scientist and may trigger additional permitting.

Dewatering in areas of known chemical contamination may require a separate NPDES permit, or other approval, and treatment or containment system. Consult with the National Grid Environmental Scientist.

3.5.1 Overnight Dewatering

Some projects may necessitate 24-hour dewatering for on-site construction activities. Overnight dewatering will be evaluated on a case-by-case basis by the National Grid Environmental Department.

If it is necessary to conduct overnight dewatering on a project, a dewatering plan must be submitted to the Environmental Department for review and approval **5 business days prior to beginning dewatering activities**. Sufficient knowledge of flow, discharge, and re-infiltration rate of water must be obtained and submitted for review. The Environmental Department

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may require monitored dewatering for a period of time in order to provide this data in support of a request for 24-hour dewatering. The dewatering plan must include at a minimum:

1. Location of dewatering system, system components (basin, frac tank, etc), and materials.
2. Location of discharge and distance from closest wetland.
3. Location of erosion controls. A secondary perimeter of erosion controls will be required around the dewatering system for overnight dewatering.
4. Peak flow, discharge rate and re-infiltration rates.
5. Visual monitoring plan for discharge. Expected duration of dewatering.
6. Emergency provisions if overnight, unattended dewatering is proposed.

3.5.2 Dewatering Clean Up/Restoration

Basins shall be cleaned and removed as soon as dewatering is complete. Sediment removed from the dewatering basin shall be allowed to dry before being disposed of by evenly spreading it over unvegetated upland areas where erosion is not a concern if clean or removing it from the site for proper disposal. Off-site trucking of wet soils is prohibited. The sediment disposal area shall be approved by the National Grid Environmental Scientist or the Project Environmental Consultant prior to use. Stabilization measures shall also need to be implemented and approved by the National Grid Environmental Scientist or the Project Environmental Consultant. Soils/sediments shall be dewatered and dried to the point practicable for either on-Site reuse or off-Site transport.

3.6 Check Dams

Check dams are a porous physical barrier installed perpendicular to concentrated storm water flow. They are used to reduce erosion in a swale by reducing runoff energy (velocity), while filtering storm water, thereby aiding in the removal of suspended solids.

Check dams should only be used in small drainage swales that shall not be overtopped by flow once the dams are constructed. These dams should not be placed in streams. Check dams are typically installed in ROWs or on other construction sites prior to the start of soil disturbing work. Per the Rhode Island Soil Erosion and Sediment Control Handbook, no formal design is required for a check dam if the contributing drainage area is 2 acres or less and its intended use is shorter than 6 months; however, the following criteria should be adhered to when specifying check dams.

- The drainage area of the ditch or swale being protected should not exceed 10 acres.
- The maximum height of the check dam should be 2 feet.
- The center of the check dam must be at least 6 inches lower than the outer edges.
- The maximum spacing between the dams should be such that the toe at the upstream dam is at the same elevation as the top of the downstream dam.

Per the NHDES stormwater manual, the use of check dams should be limited to swales with longitudinal slopes that range between 2 to 5 percent that convey drainage from an area less than 1 acre. Existing conditions that exceed these limitations should be assessed in the field and discussed

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with the National Grid Environmental Scientist to determine the viability of this BMP for the specific application. Check dams are often comprised of stone, straw bales, sand bags, or compost/silt socks. Use of check dams should be coordinated with the National Grid Environmental Scientist to ensure that the material selection, spacing and construction method are appropriate for the site. Check dams composed of biodegradable materials (e.g. straw bales or wattles, wood chip bags) may require periodic replacement for continued proper functioning¹. Refer to BMPs in **Appendix 4**.

3.7 Water Bars

Water bars should be used on sloping ROWs to divert storm water runoff from unstabilized or active access roads when needed to prevent erosion. Surface disturbance and tire compaction promote gully formation by increasing the concentration and velocity of runoff. Water bars are constructed by forming a ridge or ridge and channel diagonally across the sloping ROW. Each outlet should be stable. The height and side slopes of the ridge and channel are designed to divert water and to allow vehicles to cross. When siting water bars, consideration shall be given to the sensitivity of the area receiving the diverted runoff. For example, runoff should not be directed into a wetland, waterbody, other environmentally sensitive areas, or to private property or public roadways. Refer to BMPs in **Appendix 4**.

3.8 Retaining Walls

In some situations, retaining walls comprised of concrete blocks, gabions, boulders or other comparable materials may be required to stabilize the shoulder of existing access roads and/or supplement required erosion controls. Installation of such measures shall not be allowed as a maintenance activity. Should these controls be considered for a project, it shall be reviewed by the National Grid Environmental Scientist, as design and additional permitting may be required.

3.9 Slope Stabilization

Temporary slope stabilization practices help to keep exposed, erodible soils stabilized while vegetation is becoming established. Acceptable temporary slope stabilization practices may include the use of erosion control blankets, or hydraulic erosion control. Erosion control blankets, often comprised of natural fibers (e.g., jute, straw, coconut, or other degradable materials) are a useful slope stabilization, erosion control and vegetation establishment practice for ditches or steep slopes. Blankets are typically installed after final grading and seeding for temporary or permanent seeding applications. Hydraulic erosion control practices, including Bonded Fiber Matrix or hydroseed with a soil stabilizer (e.g., tackifier and/or mulch) may be an acceptable or desirable alternative form of temporary slope stabilization. For all practices, manufacturer's specifications should be followed for installation depending on slope and other field conditions. Consult the National Grid Environmental Scientist prior to selecting and installing any slope stabilization practices. Refer to BMPs in **Appendix 4**.

3.10 Maintenance of Sedimentation and Erosion Controls

¹ Grass growth on a biodegradable type check dam is evidence that the material is decomposing. While this doesn't mean it is no longer functioning, it means it may be in a weakened condition and could potentially fail under high flow velocity. It is acceptable for grass to be growing on a stone check dam.

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Sedimentation and erosion controls shall be maintained in good operational condition during the course of the work. This includes, but is not limited to, replacing straw bales that are no longer in good condition, re-staking straw bales, replacing or re-staking silt fence, and removing accumulated sediment. Remove sediment before it has accumulated to one half the height of any exposed silt fence fabric, straw bales, other filter berm, check dams or water bars. Accumulated sediment shall be removed from sedimentation basins to maintain their efficacy. Manage the removed sediment by evenly spreading it over unvegetated upland areas where erosion is not a concern, by stockpiling and stabilizing, or by disposing of off-site. Stabilization measures shall also need to be implemented and approved by the National Grid Environmental Scientist or the Project Environmental Consultant. Where a SWPPP has been prepared for a specific site, the guidelines documented therein shall govern the management of sediment.

4.0 Right-of-Way (ROW) Access

Whenever possible, access shall be gained along existing access routes or roads within the ROW. However, in some cases there is no existing access. In many cases, temporary access can be utilized. The following practices provide general guidance on accessing a ROW. Check with a National Grid Environmental Scientist to determine if any environmental permitting is required before utilizing a temporary access.

Note that the building of new roads or enlargement of existing roads is **prohibited** unless this activity is allowed by a project-specific permit, and the new roads appear on the Site Plans that were authorized in the regulatory approvals.

4.1 Off-ROW Access

Off-ROW access shall be evaluated for wetlands, rare species, cultural resources and other potential sensitive receptors, as applicable. National Grid Real Estate and Stakeholder Relations shall also be contacted as soon as possible once off-ROW access is determined to be needed.

4.2 Stabilized Construction Entrance/Exit for Access to ROWs from Public or Private Roads

A suitable (minimum 15-foot wide by 50-foot long) construction entrance/exit shall be installed at the intersection of the ROW access road/route with public/private paved roads, or other such locations where equipment could track mud or soil onto paved roads. The construction entrance/exit should be comprised of clean stone installed over a geotextile fabric. Geotextile fabric may be omitted for permanent construction entrances/exits on a case-by-case basis with the approval of the National Grid Environmental Scientist. Refer to BMPs in **Appendix 4**.

Construction entrance areas shall be monitored and maintained to ensure that stone or other material is not deposited onto the roadway, causing a safety concern. Where track-out of sediment has occurred onto a roadway, it shall be swept off the road by the end of that same work day.

If a construction entrance/exit is clogged with sediment and no longer functions, the sediment and stone may require removal and replacement with additional clean stone (clean stone refreshment) to

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ensure this tracking pad is performing its intended function adequately. Heavier traffic use may require this clean stone refreshment multiple times throughout a project. Reinforcement of these stabilized construction entrance/exits with asphalt binder or asphalt millings is not likely to be considered “maintenance” and may trigger additional permitting requirements². In some cases, heavily used construction entrances/exits may benefit from the installation of a 5-15 foot strip of asphalt binder or asphalt millings closest to the paved roadway to capture any stone that is tracked from the stone apron. Such cases shall be evaluated on an individual basis with the National Grid Environmental Scientist.

Once work is complete, the construction entrance/exit shall either be removed or retained, depending upon future maintenance-related access needs, property ownership, and/or project-specific approvals. If removed, the area shall be graded, seeded (if adequate root and seed stock are absent) and mulched. Proper approvals for leaving access roads in place shall be obtained; contact the National Grid Environmental Scientist and Property Legal.

4.3 Maintenance of Existing Access Roads

In many cases, the existing access road may need to be maintained to allow passage of the heavy equipment required for scheduled maintenance work. Access roads cannot deviate from the approved and permitted access plans. Maintenance of these roads may include adding clean gravel or clean crushed stone to fill depressions and eroded areas. This activity shall be conducted only within the width of the existing access road footprint and does not include widening existing access roads

If gravel begins to migrate onto the existing vegetated road shoulder, this gravel shall be removed during the project and/or after the completion of use of the road to ensure the road fill is not spreading into adjacent resource areas, or resulting in the road becoming much wider than its pre-existing or permitted condition. In some areas of mapped rare species habitat or other sensitive areas where project-specific permit conditions require the prevention of the migration of sediments into adjacent resources, an engineered stabilization system (e.g., GeoWeb or similar) may be suitable to prevent sedimentation while allowing for unrestricted wildlife migration.

In Massachusetts, any proposed widening of access roads in turtle Priority Habitat would require individual consultation with NHESP and, depending on the level of impact proposed, may require a Project Review filing. The limited filling of ruts or potholes is compatible with the National Grid Operation and Maintenance Plan approved by NHESP under the Massachusetts Endangered Species Act, however, severely rutted access roads in turtle Priority Habitat that require extensive linear feet of stone for safe passage will require individual consultation with NHESP.

Major reconstruction projects may require multiple permits. In all cases, the fill to be used for existing access roads shall be clean and free of construction debris, trash or woody debris. Use of processed

² Depending on the road, use of an asphalt binder or asphalt millings as a construction entrance/exit may trigger state or local permit requirements.

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gravel may be approved by the Person-In-Charge and the National Grid Environmental Scientist, on a case-by-case basis. If clean stone is used then addition of more erosion controls may not be necessary.

4.5 Maintenance of Existing Culverts

Damaged culverts may not be repaired or replaced without consulting with the National Grid Environmental Scientist to determine if a permit is required. For functioning culverts, care shall be taken to protect adjacent wetlands and watercourses by installing appropriate sedimentation and erosion controls around the downstream end of the culvert. Culverts shall be repaired/replaced in kind and shall not be changed in size unless approval has been obtained from the National Grid Environmental Scientist. In-kind replacement is replacement using the same material, functional inverts, diameter and length as the existing culvert. Changes to any of these characteristics shall require permitting. Installation of any **new** culvert is not allowed without obtaining all necessary permits first. Refer to BMPs in **Appendix 4**.

If, at the time of anticipated replacement, there is heavy flow through the culvert, the Person-In-Charge shall consult with the National Grid Environmental Scientist, to verify whether the culvert shall be replaced at that time. Water may need to be temporarily diverted during culvert repair/replacement. There typically are seasonal restrictions limiting both the replacement of existing culverts as well as installation of new culverts to the low-flow period. The low-flow period can vary from state to state. If any unexpected conditions are encountered during culvert replacement, the National Grid Environmental Scientist shall be contacted immediately prior to the work being completed for additional consultation.

4.6 Temporary Construction Access over Drainage Ditch or Swale

In some situations, construction access from paved roads onto ROWs may require the crossing of drainage ditches or swales along the road shoulder. In these situations, the installation of construction mats, mat bridges or temporary culverts may facilitate construction access over the ditches or swales. These culverts shall be temporary only, sized for peak flow, and shall be removed after construction is complete. Consult with the National Grid Environmental Scientist prior to installation. In addition, if access over existing culverts may require extending the culvert, consult with the National Grid Environmental Scientist. Refer to BMPs in **Appendix 4**.

4.7 Construction Material along ROW

After preparing a site by clearing and/or installing any necessary erosion and sediment controls and prior to the start of construction, material such as poles, cross-arms, cable, insulators, stone and other engineered backfill materials may be placed along the ROW, as part of the project. The stockpiling of stone and other unconsolidated material on construction mats shall be avoided, if determined necessary due to access and work pad constraints, the material must be placed on a geotextile fabric and be properly contained with a sedimentation barrier such as straw wattle. No construction material shall be placed in wetlands or other sensitive resource areas unless authorized by the National Grid Environmental Scientist or Project Environmental Consultant.

5.0 Winter Conditions

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5.1 Snow Management

Refer to **Appendix 6** for the current Snow Disposal Guidelines.

5.2 De-icing

Where allowed, calcium chloride is preferred as a de-icing agent when applied according to manufacturer's guidelines in upland areas. Sand shall be used on construction mats through wetland areas.

Consult with the National Grid Environmental Scientist on de-icing agents when working in a facility or substation close to resource areas. Many municipalities have specific requirements for de-icing agents allowed within 100 feet of wetland resources and other sensitive areas.

5.3 Snow and Ice Management on Construction Mats

Proper snow removal on construction mats shall avoid the formation of ice. To avoid the formation of ice, snow shall be removed from construction mats before applying sand. Prior to their removal from wetlands, sand shall be collected from the construction mats and disposed of in an upland area. A round street sweeping brush mounted on the front of a truck may be an effective way to remove snow from construction mats. Propane heaters may also be suitable solutions for snow removal and/or de-icing of construction mats.

Once construction mats are removed, wetlands shall be inspected for build up of sand that may have fallen through construction mats. Care shall be taken to inspect wetland crossings as each mat is removed to ensure sand is properly removed and disposed of off-site.

6.0 Construction Mats

The use of construction mats allows for heavy equipment access within wetland areas. The use of construction mats minimizes the need to remove vegetation beneath the access way and helps to reduce the degree of soil disturbance and rutting in soft wetland soils. Construction mats most often used by National Grid are wooden timbers bolted together typically into 4-ft by 16-ft sections, wooden lattice mats, or composite mats. In some cases, construction mats or other mats are used for staging or access in upland areas based on site conditions (e.g., agricultural field access). Refer to BMPs in **Appendix 4**.

Typically construction mats may be installed on top of the existing vegetation, however in some instances cutting large woody vegetation may be required. Check with National Grid Environmental Scientist prior to cutting or clearing vegetation for construction mat placement.

Where an extended period of time has lapsed since wetland delineation and start of construction, and new vegetative growth has concealed wetland flagging or flagging is simply no longer obviously visible, wetland boundaries should be re-flagged where necessary prior to the installation of matting.

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Follow the approved plans in the EFI for construction mat installation and do not deviate from the plans. **Any deviation from the approved plans needs to be communicated immediately to the National Grid Environmental Scientist as it may require additional permitting, require stopping the project or result in a permit violation or revocation.**

6.1 Construction Mats and Mowing

Close coordination with the mowing contractor shall be required to ensure that access plans are followed, and construction mats are utilized when necessary. Sometimes mowing contractors may have to work off the leading edge of a construction mat to mow in order to lay the next construction mat and continue further into the wetland. Under no circumstances shall trees or shrubs be allowed to be pulled out of the wetland by the root ball. The root ball of trees and shrubs shall remain intact. Chipping debris and excessive amounts of slash shall not be placed in wetlands or other resource areas. In some instances, it may be beneficial to pile a reasonable amount of slash within a nearby upland area to create habitat for wildlife. This activity shall be approved by the National Grid Environmental Scientist.

6.2 Stream Crossings and Stream Bank Stabilization

Stream crossings shall be bridged with construction mats or other temporary minimally-intrusive measures unless fording is acceptable for the site and is authorized by the National Grid Environmental Scientist. Care shall be taken when installing a construction mat bridge to insure that the stream bed and banks are not damaged during installation and removal and that stream flow is not unduly restricted. Where stream width allows, construction mats shall be installed to span the watercourse in its entirety without stringer placement in the water or any restriction of stream flow. Environmental permits may be required to cross or disturb protected waters, depending upon state-specific regulatory requirements. Refer to BMPs in **Appendix 4**. Immediately following construction mat removal, all stream banks shall be stabilized and restored to prevent sedimentation and erosion.

6.3 Cleaning of Construction Mats

Mats shall be certified clean by the vendor prior to installation. The vendor shall use the certification form provided as **Appendix 5** to document compliance. Clean is defined as being free of plant matter (stems, flowers, roots, etc), soil, or other deleterious materials prior to being brought to the project site. Any equipment or timber mats that have been placed or used within areas containing invasive species within the project site shall be cleaned of plant matter (stems, flowers, roots, etc), soil, or other deleterious materials at the site of the invasive species prior to being moved to other areas on the project site to prevent the spread of invasive species from one area to another³. **Mats shall be cleaned prior to being removed at the completion of the project: exceptions to this requirement may be made on a case-by-case basis.** Consult with the National Grid Environmental Scientist prior to discharging or disposing of any waste water or waste material from the cleaning of construction mats.

³ On ROW projects where multiple wetlands may be dominated by the same invasive species, cleaning may not be required for movement along the ROW. Check with the National Grid Environmental scientist for guidance.

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6.4 Stone Removal for Construction Mat Placement

For situations where the matting contractor determines that stones or boulders must be removed or relocated within wetland areas in order to install safe and level structure work pads or access roads the boulders shall be moved in a manner which does not result in significant soil disturbance (i.e., pushing with a bull dozer is not allowed). The boulders shall not be placed on any existing vegetated areas within wetlands or within vernal pools. When numerous boulders shall be removed from a wetland area, they shall be deposited in an upland area outside of the flagged wetland limits, outside of any cultural resource areas and outside of any RTE species populations. Any boulders that shall be placed within buffers (In MA, the 100-foot buffer zone, and in RI, the 50-foot Perimeter Wetland, 100-foot or 200-foot Riverbank Wetlands) shall be placed to avoid causing soil disturbance and they shall be within an approved limit of work. When there is a significant number of boulders that need to be removed, the National Grid Environmental Scientist shall be consulted for guidance.

6.5 Transition onto Mats

Erosion controls and stone or wood chip ramps shall be installed to promote a smooth transition to and minimize sediment tracking onto construction mats. Geotextile may be added beneath stone or wood chip transitions to facilitate removal, as necessitated by site or permit conditions. Mat transitions shall be removed once construction mats have been removed and during restoration. Refer to BMPs in **Appendix 4**.

6.6 Construction Material on Mats

The stockpiling of stone, drill spoils and other unconsolidated material on construction mats shall be avoided unless determined necessary due to access and work pad constraints. Additional controls, such as watertight mud boxes and geotextile/filter fabric over or between construction mats shall be considered for stockpile management. If material is placed on construction mats and falls through into wetlands, the material must be removed by hand. Saturated soils shall be allowed to dewater prior to off-site transport for sufficient time to ensure that water/sediment is not deposited onto construction mats or public roads during transport.

6.7 Mat Anchoring

The National Grid Environmental Scientist and Project environmental consultant shall indicate to the project team when mat anchoring may or shall be necessary. The matting contractor will propose the method of mat anchoring, which will be approved by the National Grid Environmental Scientist and the National Grid Construction Supervisor. The need for anchoring should be noted in the project EFI, on the project access and matting plans, and in the scope of the bid document (if externally sourced).

Anchoring of construction mats should be considered when any of the following conditions are presented at a project work location:

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Location	Considerations
Stream crossings Shorelines of Ponds/Lakes Wetlands Floodplains	When located in a mapped flood area (A). When mapped 100-year flood elevations (AE) are greater than 2 ft above existing grades. Where past flash flood events have occurred. Where steep terrain is present or surrounds the project location When mats will be in place during hurricane season for greater than 2 weeks.
Tidal areas	When located in a Velocity (V or VE) Zone. When mats will be in place during a moon tide cycle. When mats will be in place during hurricane season for greater than 2 weeks.

Examples of mat anchoring are provided below, but the implementation methods for anchoring mats are not limited to these examples. Where anchoring is determined to be necessary, the matting contractor should propose a method suitable based on field conditions and that takes crew safety, slip/trip/fall hazards, size of matting footprint, and other project and site-specific factors into consideration. Refer to BMPs in **Appendix 4**.

Limited sets of mats

- Cable or rope in chain pockets and run linearly, or
- Linear ropes anchored using helical screws, manta ray anchors, or posts.

Larger sets of mats or those without chain pockets

- Chain link fence posts or other posts driven in along mat edge every 3-4 feet and ropes then laced across mats between opposing posts before storm event, or
- Anchor bolts added to mats, then cable is laced between bolts and tied to helical or manta ray anchor.

6.8 Corduroy Roads

Corduroy roads are a wetland crossing method where logs are cut from the immediate area and used as a road bed to prevent rutting from equipment crossing. This technique is designed to be used in areas of wetland crossings where there is no defined channel or stream flow and should never be used in streams. Corduroy logs shall be placed in the narrowest area practicable for crossing with the logs placed perpendicular to the direction of travel across wet area. The use of corduroy logs shall only be in emergencies when approved by the National Grid Environmental Scientist or when they have been specifically permitted as part of a project. Refer to BMPs in **Appendix 4**.

6.9 Construction Mat Removal

Once construction mats are removed, wetlands shall be inspected for build up of sand or other materials that may have fallen through construction mats. Care shall be taken to inspect wetland

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crossings as each mat is removed to ensure any materials are properly removed and disposed of off-site.

6.10 Utility Air Bridging

In ROWs where other utility facilities (including but not limited to gas, oil, fiber optic, electric, water, and sewer) are co-located within the transmission ROW, bridging may be required to cross those facilities. The project team shall coordinate with the respective utility company prior to determining if bridging or permanent crossings are required.

7.0 LGP Equipment Use

Only when approved by the National Grid Environmental Scientist on a case-by-case basis shall equipment with a LGP **psi that meets the state-specific USACE General Permit requirement when loaded** be allowed to access through wetlands. Refer to the state-specific General Permit for the definition of LGP in each state at: <http://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/>, or to the summary table provided below. The National Grid Environmental Scientist's approval of the use of LGP equipment through wetlands depends on several criteria including:

- Time of year. LGP equipment use may be allowed if weather and field conditions at the time of construction are suitable to eliminate/minimize the concern of rutting or other impacts. Frozen, frozen snow pack, low flow, drought conditions, or unsaturated surface soil conditions are typically acceptable conditions. Spring and fall construction, due to the typical higher precipitation, are not suitable times of year for LGP equipment use.
- Number of trips. Multiple trips through a wetland have shown to increase the potential for damage and require matting. LGP equipment use shall likely only be approved if trips are limited to one trip in and one trip out.
- Type of wetland system. Some wetlands have harder soils/substrate, and may be passable without causing significant damage. Some of the wetlands along National Grid ROWs have existing hard bottom roads that have been vegetated over time and may be traversed with LGP equipment without construction mats.
- Emergencies. LGP equipment use may be allowed during emergency or storm conditions for outage restoration.
- State-specific USACE General Permit Performance Standards. The standard is for no impact to the wetland, which may be obtained by using LGP equipment **when loaded**). *"Where construction requires heavy equipment operation in wetlands, the equipment shall either have low ground pressure (as specified in the USACE GP), or shall not be located directly on wetland soils and vegetation; it shall be placed on construction mats that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation."*
- Local bylaws. Municipal wetland bylaws, where applicable, shall be reviewed for prohibitive conditions or applicable performance standards.

LGP equipment is prohibited in the following resources areas:

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- Stream crossings
- State listed-species habitat
- Outstanding Resource Waters (ORWs)
- Vernal pools
- Archaeological sensitive areas

Where LGP equipment use is desired in lieu of construction mats, the construction supervisor should identify these areas on marked-up access plans. A site visit with the Project Environmental Monitor should be scheduled to assess if the proposed locations are potential candidates. The Project Environmental Monitor will document potentially suitable locations and dismiss others as unsuitable.

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ACOE New England District General Permit Requirements

State	Restrictions	Maximum PSI (when loaded) for Use without Mats	Reference
MA	<i>One of the following must apply:</i> Equipment operated within wetlands shall: a) Have low ground pressure; b) Be placed on timber mats that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation; or c) Equipment must be operated on adequately dry or frozen conditions such that shear pressure does not cause subsidence of the wetlands immediately beneath equipment and upheaval of adjacent wetlands.	3 psi	MA General Permit, General Condition 13
NH	<i>One of the following must apply:</i> Equipment operated within wetlands shall: a) Have low ground pressure; b) Be placed on timber mats that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation; or c) Be operated on frozen wetlands.	4 psi	NH General Permit, General Condition 17
VT	<i>One of the following must apply:</i> Equipment operated within wetlands shall: a) Have low ground pressure; b) Be placed on timber mats that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation; or c) Be operated on frozen wetlands such that shear pressure does not cause subsidence of the wetlands immediately beneath equipment and upheaval of adjacent wetlands. Note: Written authorization from the Corps required to waive the use of mats during frozen or dry conditions.	3 psi	Vermont General Permit, General Condition 14
RI	<i>One of the following must apply:</i> Equipment operated within wetlands shall: a) Have low ground pressure; b) Be placed on timber mats that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation; or c) Be operated on frozen wetlands such that shear pressure does not cause subsidence of the wetlands immediately beneath	6 psi	Rhode Island General Permit, General Condition 15

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State	Restrictions	Maximum PSI (when loaded) for Use without Mats	Reference
	equipment and upheaval of adjacent wetlands. Note: Written authorization from the Corps required to waive the use of mats during frozen or dry conditions.		

Due to the fact that ground conditions may change between the time of the evaluation and construction, LGP equipment approval is required **at the time of construction for each wetland crossing** and shall be dependent upon the above conditions. In addition, LGP equipment use and approval shall be assessed by the National Grid Environmental Scientist or Project Environmental Monitor during construction on a continuing basis

Once a location is approved for the use of LGP equipment:

- The Construction Supervisor must check-in with the Project Environmental Monitor at least two weeks before construction begins to ensure conditions remain suitable for LGP equipment use, and weather conditions are favorable.
- The Project Environmental Monitor must observe the equipment when in use.
- LGP equipment use shall cease immediately if field conditions are found to be unsuitable (i.e. soil rutting greater than six inches or the destruction of vegetation root systems beyond the capacity of natural revegetation).
- **If wetlands damage occurs, the use of the LGP equipment shall be suspended, and the wetlands be restored.**
- Any LGP equipment used within areas containing invasive species within the project site shall be cleaned of plant matter (stems, flowers, roots, etc), soil, or other deleterious materials at the site of the invasive species prior to being moved to other areas on the project site to prevent the spread of invasive species from one area to another.

8.0 Soil Disturbing Activities

8.1 Dust Control

Cutting activities shall be conducted to minimize the impacts of dust on the surrounding areas. Dust suppression is an important consideration. Water or application of calcium chloride or other National Grid approved equivalent in accordance with the manufacturer's guidelines may be used for dust control along ROWs in upland areas. During application of water for dust control, care shall be taken to ensure that water does not create run-off or erosion issues. Refer to BMPs in **Appendix 4**.

8.2 Clearing

Clearing is not allowed without specific permission as it constitutes soil disturbance under several regulatory programs and may trigger permitting by increasing the project's footprint of disturbance. If

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clearing is required for a project, the limit of clearing shall be established with flagging or construction fencing and/or erosion controls. Clearing shall be done in accordance with project specific permits. Following the completion of clearing, the limits of work shall be re-established. Refer to BMPs in **Appendix 4**.

8.3 Grubbing

Grubbing is not allowed without specific permission as it constitutes soil disturbance under several regulatory programs and likely triggers permitting by increasing the project's footprint of disturbance. If grubbing is required for a project, the limit of grubbing shall be re-established after clearing has been completed. The area of grubbing shall be identified with flagging or construction fencing and/or erosion controls. Grubbing shall be conducted in accordance with project-specific permits.

8.4 Blasting, Noise and Vibration Control

If blasting is anticipated, the project team, including the National Grid Environmental Scientist, shall be consulted. If possible, plan work in residential areas to avoid noisy activities at night, weekends or during evenings. Emergency work in residential areas should be carried out in such a way as to keep noise to a minimum at night and weekends. Equipment should be maintained as per the manufacturer's guidance to minimize noise and vibration.

Work plans must consider local noise ordinances and provide specific controls to ensure noise levels are maintained within specified limitations.

8.5 Site Grading

The work site shall not be graded other than in accordance with project permits. Any proposed grading shall be reviewed by the National Grid Environmental Scientist for wetlands, rare species habitat, areas of cultural and historical significance, and other environmentally sensitive areas prior to start of work. In some cases, additional testing for cultural or historical resources may be triggered by proposed grading; alternatives to grading may be sought due to protracted time frame of obtaining the permit associated with testing and performing the testing. Grading outside of a regulated area shall be kept to the minimum extent necessary for safe and efficient operations and shall comply with the project permit plans.

Grading shall be performed in a manner which does not increase the erosion potential at the Site (e.g., terraces or slope interruptions shall be utilized). Graded sites shall be promptly stabilized by applying a National Grid approved seed mix (if adequate root and seed stock are absent), and mulching with hay, straw or cellulose (use straw or cellulose hydromulch where the potential introduction of invasive plant species is of concern) to reduce erosion and visual impact, as soon as possible following completion of work at the site. Grading within a regulated area shall be subject to the review and approval of the National Grid Environmental Scientist.

In some municipalities, site grading activities require the prior approval of the Town Engineer, Building and Zoning Official, or Public Works Director. Local ordinances or bylaws should be reviewed for applicable restrictions and permitting thresholds

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8.6 Grounding Wells

The installation of grounding wells shall require erosion controls and proper soil management. Due to the typical depth required for grounding wells (typically 50 to 200 feet or more), erosion controls shall be installed around the proposed well location when working in buffer zone, in proximity to sensitive resources or near slopes. Also, dewatering basins may be required for the proper management of groundwater. The National Grid Environmental Scientist shall be consulted for the disposal of any excess soil.

8.7 Counterpoise and Cathodic Protection

The installation of counterpoise or cathodic protection shall require erosion controls and proper soil management. The National Grid Environmental Scientist shall be consulted for the disposal of any excess soil.

8.8 Work Pads

When work pads are being constructed, only clean material shall be used in their construction. Work pads shall only be constructed in areas approved by the National Grid Environmental Scientist and shown on the approved permit access plans.

8.9 Site Staging and Parking

During the project planning and permitting process, locations shall be identified for designated crew parking areas, material storage, and staging areas. Where possible, these areas should be located outside of buffer zones, watershed protection areas, and other environmentally sensitive areas. Any proposed locations shall be evaluated for all sensitive receptors and for new projects requiring permitting, shall be incorporated onto permitting and access plans.

8.10 Soil Stockpiling

Soil stockpiles shall be located in upland areas and, if in close proximity to wetlands and wetland buffers, shall be enclosed by staked straw bales or another erosion control barrier. The stockpiling of stone, drill spoils and other unconsolidated material on construction mats shall be avoided unless determined necessary due to access and work pad constraints. Additional controls, such as watertight mud boxes and geotextile/filter fabric over or between construction mats shall be considered for stockpile management. If material is placed on construction mats and falls through into wetlands, the material must be removed by hand. Saturated soils shall be allowed to dewater prior to off-site transport for sufficient time to ensure that water/sediment is not deposited onto construction mats or public roads during transport.

8.11 Top Soil/High Organic Content Soil

When the work site requires excavation and grading, the top soil shall be stockpiled separately from the material excavated. This top soil shall be spread as a top dressing over the disturbed area during restoration of the site.

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In some instances where work is occurring within wetlands, high organic content soil may be displaced. Such high organic content soil shall be segregated from other excavated materials and stockpiled for use in wetland restoration areas. Care shall be taken to minimize the handling of high organic content soil. Preferably, the soil shall be stockpiled in one location until it is moved to the restoration area.

9.0 Stone Wall Dismantling and Re-building

Removal or alteration of stonewalls shall be avoided, whenever possible. As appropriate, some stonewalls removed or breached by construction activities shall be repaired or rebuilt. Rebuilt stone walls shall be placed on the same alignment that existed prior to temporary removal, to the extent that it shall not interfere with operations. The removal and rebuilding of stone walls requires approval from the National Grid Environmental Scientist and Property Legal, and may require several weeks lead time for coordination. Note that not all states allow this technique and that dismantling may not be allowed at all due to quality or significance of the wall. Once a stone wall has been identified as requiring dismantling, the following procedures shall be followed:

- Identify stone wall that is required to be temporarily dismantled and notify project team that a site visit is warranted to review the stone wall.
- The National Grid Environmental Scientist, with support from Property Legal and/or cultural/historical consultant, shall determine if permitting or additional permissions are required prior to dismantling stone wall.
- Once permit or permissions have been received, full documentation of wall dimensions (measurements and photographs) shall be submitted to the National Grid Environmental Scientist. Documentation of the wall dimensions shall be marked onto a copy of the applicable EFI access plan (or equivalent plan) with a useful reference for future locating such as GPS coordinates and/or measurement from a permanent reference point (closest structure location or closest cross street, etc.). The wall shall be photographed from all sides with a written description of the photograph (i.e. southern side of wall looking north). In addition, documentation of the length of wall to be dismantled shall be recorded. Take special care to note if granite property bounds (or other marker) are located within the wall so additional survey can be accomplished prior to dismantling in cases where the stone wall represents a property boundary. Site visits by project team (which shall include the National Grid Environmental Scientist) are a mandatory requirement prior to dismantling.
- No dismantling shall take place until documentation has been submitted to the National Grid Environmental Scientist and approved as sufficient documentation.
- Stones from the wall shall be removed from the work area and temporarily stored in nearby location, away from wetlands; buffer zones; rare species habitat and other historical/archeological concerns.
- Avoid dismantling via the “bulldozer” method when possible as this method makes it nearly impossible to rebuild the wall in the same alignment due to its uncontrolled nature. Dismantling shall be conducted either by hand, with stones stacked as they are removed, or on

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less “sensitive” walls to use an excavator with a thumb to grab each stone and build a stockpile. Significant ground disturbance below the wall shall be avoided.

- Once construction and access in the area has been completed, the wall shall be rebuilt to pre-dismantled conditions or better. If rebuilding a stone wall can not be placed on the same alignment that existed prior to temporary removal, approval from the National Grid Environmental Scientist and Property Legal is required. **Note that if the wall represents a legal property boundary or is historically or culturally significant (or was previously determined to be in a very high quality condition), a professional stone masonry company may be required to document wall alignment, and conduct the dismantling and rebuilding.**

10.0 Avian Nest Removal

Avian nest removal shall be done in accordance with EG-304. Consult the National Grid Environmental Scientist prior to removing any nests. There are seasonal restrictions of the removal of avian nests and federal or state permits may be necessary prior to removal.

11.0 Drilling Fluids and Additives

When installing subsurface structures, Contractors shall take all necessary steps to prevent potential adverse effects on drinking water aquifers and groundwater quality. Efforts should be made to utilize natural bentonite clay type slurries, in place of polymer based slurries. If polymer based slurries are deemed required by the Contractor, the Contractor shall provide all the necessary information regarding the proposed product to be used to National Grid as part of their initial bid package.

Polymer based slurries and additives may only be used when approved by the Environmental Department and the applicable state environmental regulating authorities governing the state in which the work will be completed. Contractors are responsible for securing a written determination for use from all applicable environmental regulatory agencies prior to utilizing a polymer based slurry and/or additive. Documented proof of the regulatory approval/determination for each project must be provided to the National Grid Environmental Department upon its approval and prior to its use. Approvals may vary by state.

If a polymer based slurry is approved for use, Contractor will designate a qualified individual who will confirm/verify and document the specific use of polymer and/or additives at each location, including add-mix ratios, surface area treated, volume of water within excavation, volumes/weight of additives used, and any other measurements specified by the manufacturer. No mixing will be allowed in the drilled shaft excavation. The Contractor is solely responsible for neutralizing all slurries and additives in accordance with the manufacturer’s specifications. This shall be performed following removal from the excavation and while held in holding tanks. A qualified person shall be designated by the Contractor who will confirm/verify and document the appropriate neutralization of additives at each location, as necessary.

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The Contractor is solely responsible for properly treating, containerizing, testing, transporting and disposing of any/all slurries and additive-containing fluids and solids generated during their activities. Relevant documentation shall be maintained by the Contractor, and shall include volume of material treated and disposed and the location/facility at which it was disposed.

The activities detailed above shall be documented by the contractor and the information provided to National Grid project manager for document retention. Soils that may have come into contact with polymers and associated additive wastes will not be disposed of on National Grid properties, discharged to the ground surface or subsurface, or placed on 3rd party properties. National Grid will not be identified as the disposal generator for any polymer based slurry waste or additives generated by Contractor activities. All wastes must be disposed of in accordance with federal and state regulations.

The Contractor assumes full responsibility for the safe storage of all polymers and additives during use and also assumes full responsibility for improper use and application of said polymers and additives that are deemed to have contravened aquifer and/or groundwater quality. Contractor assumes responsibility to ensure that all polymer and additive use is completed in strict adherence with the management, storage, mixing, transporting, disposing and any other requirements of state and federal regulatory approvals and permits, as applicable.

National Grid reserves the right to refuse and terminate the use of a specific polymer based slurry or additive at any time.

12.0 Water Withdrawal for Geotechnical Investigations

The use of water during geotechnical drilling operations may be required, and is most common during the “drive and wash” drilling technique, where 4- or 6-inch diameter casing is driven into the ground, and the soil inside the casing is washed out using a pump and hollow rods. Soil samples are generally collected at periodic intervals using a split spoon sampler (e.g., every 5 vertical feet).

The National Grid Environmental Scientist and/or Project Environmental Monitor may approve withdrawals from wetlands and waterways on a case-by-case basis should the geotechnical team advise no other options are available. Generally, the amount of water required for withdrawal is between 100 and 200 gallons, and the water is then recycled continuously in the drilling process. Certain scenarios may require additional water usage if water is lost down the boring (e.g., lost due to bedrock fractures during rock coring). The following general guidance should be adhered to when determining whether water withdrawals may be allowed during geotechnical investigations on the ROW. Approval from the National Grid Environmental Scientist and/or Project Environmental Monitor is required prior to initiating water withdrawals during geotechnical investigations.

- Withdrawals from perennial streams, ponds, lakes and large wetlands systems are preferred over small isolated wetlands to ensure the water level, water table, and hydroperiod are not affected.

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Prior to start of work, the Contractor shall identify which water source they prefer to withdraw from. The National Grid Environmental Scientist and/or the Project Environmental Monitor will confirm whether these sources are appropriate.

- Care should be taken to avoid alteration of wetlands or the beds and banks of surface waters. Examples of alterations include, but are not limited to, the following:
 - (a) the changing of pre-existing drainage characteristics, flushing characteristics, salinity distribution, sedimentation patterns, flow patterns and flood retention areas;
 - (b) the lowering of the water level or water table;
 - (c) the destruction of vegetation; and
 - (d) the changing of water temperature, biochemical oxygen demand (BOD), and other physical, biological or chemical characteristics of receiving waters.
- Wetlands and waterways providing habitat for rare species should be avoided unless all other options are exhausted. Under no circumstances should water be withdrawn from a Vernal Pool.
- Withdrawal pipes or stingers should be elevated off the bottom of wetlands and streams during the duration of pumping. Additionally, fabric or screening should be covering the withdrawal pipes to eliminate inadvertent harm to wildlife.
- Withdrawals should be performed in a manner that does not damage vegetation, disturb sediment, or result in the release of temporary or permanent fill material (e.g., sediment, spoils, or turbid water) into the wetland/waterway. Additional detail from geotechnical experts may be required to solidify BMP recommendations.
- Any water used for geotechnical drilling operations (including water withdrawn from surface water, brought on-site, or from other sources) shall be discharged into the open borehole or to an upland area such that the water infiltrates to the ground and is not discharged to a wetland or surface water resource area. Consultation with the National Grid Environmental Scientist and/or the Project Environmental Monitor is required if this is not feasible. At no time should water withdrawals result in a temporary or permanent fill/discharge of material (e.g. sediment, spoils, or turbid water) into the wetland or waterway.
- If water sourcing options is not determined prior to mobilization, necessary water shall be brought in by tank truck. Should withdrawal from surface water sources become necessary during soil boring work, the National Grid Environmental Scientist and/or the Project Environmental Monitor shall be notified prior to beginning withdrawal. If initial withdrawal from surface water is approved by the National Grid Environmental Scientist and/or the Project Environmental Monitor, the driller may withdraw from the surface water, as long as the above criteria are met.
- If excessive water withdrawal is necessary, the National Grid Environmental Scientist and/or the Project Environmental Monitor shall be consulted to determine whether the water source is appropriate for withdrawal.
- In New Hampshire, withdrawals made from state-owned property require written permission from the agency with primary responsibility for monitoring and/or maintaining the site.

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13.0 Gates

When not in use, gates shall be locked with a company-approved lock or double locked with the property owner's lock. New gates may be installed during a project, however, installation of a gate requires permission from the property owner, and may require environmental permitting. Consult with National Grid Real Estate and the National Grid Environmental Scientist prior to installing a new gate, as well as with the appropriate engineering department for the current company gate specifications. Refer to BMPs in **Appendix 4**. Installation of ROW access restrictions (e.g., stone, bollards, other) at road crossings also require consultation with the National Grid Environmental Scientist and Property Legal.

14.0 Signage

Specific signage may be required by permits or be specified in the EFI to limit access in certain sensitive areas. Signs shall be used to clarify allowed access and sensitive areas, such as:

- "No snow stockpiling beyond this point";
- "Approved access (to structures A-F)";
- "Do not cross this area until construction mats are in place";
- "No vehicle crossing";
- "Areas to avoid"; and
- "Environmentally Sensitive Area – Keep Out."

Signs shall be used in conjunction with snow fencing or other physical barriers as demarcation for sensitive areas (e.g., rare species areas, sensitive archeological locations, etc.) that need to be protected and avoided by construction activities. In addition, permit signs required by the regulatory agencies shall be present (i.e. MADEP, RIDEM, EPA (SWPPP), ACOE, etc) at construction sites and/or ROW access points. Construction signage shall be installed and maintained by the contractor performing the work during the project. Absence of signage does not eliminate the need to comply with access plans, permit conditions, and other regulatory requirements. Refer to BMPs in **Appendix 4**.

15.0 Refueling and Maintenance Operations

15.1 Spill Prevention and Response Plan

Spill controls shall be provided on every field vehicle. Bulk storage of fuels (55 gallons or greater) shall be approved by the National Grid Environmental Scientist prior to being brought on site. The need for a field spill plan shall be evaluated specific to the project for regulatory requirements under SPCC regulations or local ordinances. A field spill plan would include information on fuels and oils being used, approximate amounts in each container or type of equipment, location, fueling location, secondary containment, response and notification procedures, including contact phone numbers, etc. All personnel shall be briefed on spill prevention and response prior to the commencement of construction. The state-specific EG-501 and EG-502 shall be followed in the event of a spill.

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Typical construction activities do not require the use or storage of large quantities of oil or hazardous materials (i.e., greater than 55 gallons). However, oil and/or hazardous materials (OHM) may be required in limited quantities to support construction or vehicle operations. Best practices shall be followed in the use and storage of OHM which include but are not limited to: storage and refueling greater than 100 feet from resource areas; maintenance of spill response equipment at work locations sufficient to handle incidental releases from operating equipment; general training for on-site personnel for spill clean up response for incidental releases of OHM; and contracting with an on-call spill response contractor that is capable of managing incidental and significant releases of OHM. There may situations that additional precautions shall be required for the storage or use of OHM (i.e., within wellhead protection areas, GA/GAA areas, Zone IIs). Storage of OHM shall be done in accordance with any applicable regulatory requirements.

15.2 Field Refueling

Small equipment such as pumps and generators shall be placed in small swimming pools or on absorbent blankets/pads, to contain any accidental fuel spills. Small swimming pools with absorbent blankets/pads, and/or other secondary containment, shall be used for refueling of fixed equipment in wetlands and should be maintained to prevent accumulation of precipitation.

15.3 Grease, Oil, and Filter Changes

Routine vehicle maintenance shall not be conducted on project sites.

15.4 Other Field Maintenance Operations

When other vehicle or equipment maintenance operations (such as emergency repairs) occur, company personnel or contractors at field locations shall bring vehicles or equipment to an access location a minimum of 100 feet away from environmentally sensitive areas (e.g., wetlands or drinking water sources). A paved area, such as a parking lot or roadway, is a preferred field maintenance location to minimize the possibility of spills or releases to the environment.

Crews shall take all usual and reasonable environmental precautions during repair or maintenance operations. Occasionally, it is infeasible to move the affected vehicle or equipment from an environmentally sensitive area to a suitable access area. When this situation occurs, precautions shall be taken to prevent oil or hazardous material release to the environment. These precautions include (but are not limited to) deployment of portable basins or similar secondary containment devices, use of ground covers, such as plastic tarpaulins, and precautionary placement of floating booms on nearby surface water bodies.

15.5 Tools and Equipment

Cleaning of tools and equipment shall be conducted away from environmentally sensitive areas (such as wetlands, buffer zones or drinking water sources) to the maximum extent possible. A paved area such as a parking lot or roadway is preferred, to minimize the possibility of spill or release to the environment. Crews shall wipe up all minor drips or spills of grease and oil at field locations.

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16.0 Stabilization Deadlines for Projects Subject to EPA Construction General Permit

16.1 Deadlines to Initiate Stabilization Activities (Permanent and Temporary)

Soil stabilization measures shall be implemented immediately whenever earth-disturbing activities have permanently or temporarily ceased on any portion of the project. The following are some examples of activities that constitute initiation of stabilization:

- Preparing the soil for vegetative or non-vegetative stabilization;
- Applying mulch or other non-vegetative product to the exposed area;
- Seeding or planting the exposed area;
- Finalizing the arrangements to have stabilization product fully installed in compliance with the deadlines to complete stabilization in Section 15.2 below.

16.2 Deadlines to Complete Stabilization Activities (Permanent and Temporary)

As soon as practicable, but no later than 14 calendar days or 7 calendar days (for areas discharging to a sensitive water) after the initiation of soil stabilization measures commence the following should be completed:

- For vegetative stabilization, all activities necessary to initially seed or plant the area to be stabilized; and
- For non-vegetative stabilization, the installation or application of all such non-vegetative measures.

16.3 Vegetative Stabilization (all except for arid, semi-arid, or on agricultural lands)

- Provide established uniform vegetation (e.g., evenly distributed without large bare areas), which provides 70% or more of the density of coverage that was provided by vegetation prior to commencing earth-disturbing activities. Avoid the use of invasive species as cover.
- For final stabilization, vegetative cover must be perennial; and
- Immediately after seeding or planting a disturbed area to be vegetatively stabilized, a non-vegetative erosion control must be implemented to the area while the vegetation is becoming established. Examples include; mulch and rolled erosion control products.

16.4 Vegetative Stabilization (Agricultural Lands)

- Disturbed areas on land used for agricultural purposes that are restored to their pre-construction agricultural use are not subject to vegetative stabilization standards.

16.5 Non-Vegetative Stabilization

If using non-vegetative controls to stabilize exposed portions of your site, or if you are using such controls to temporarily protect areas that are being vegetatively stabilized, you must provide effective non-vegetative cover to stabilize any such exposed portions of the site. Examples of non-vegetative stabilization techniques include, but are not limited to, rip-rap, gabions, and geotextiles.

17.0 Clean-up and Restoration Standards

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The following steps shall be taken once construction has been completed at each location along the ROW or within the project site. The following are minimum guidelines for clean-up and stabilization standards. Please refer to permit conditions for project-specific related standards. Refer to the EFI for applicable permit requirements and to determine if the site needs to be reviewed and approved by the permitting authorities prior to removal of erosion controls.

17.1 Removal of Sedimentation and Erosion Controls

After all work has been satisfactorily completed and vegetation has been re-established to a minimum of 75% cover, and upon approval by the National Grid Environmental Scientist, all non-biodegradable materials (e.g., siltation fencing, straw bale strings, stakes, straw wattle mesh casing, etc.) shall be disposed of properly off-site.

Dependent on permit requirements, sedimentation and erosion controls may not be allowed to be removed until after inspection and approval by one or more permitting authority. In most cases, removed straw bales may be used to mulch disturbed areas. Remaining straw bales that do not block the flow of water may be left in place unless they are required to be removed pursuant to permit conditions. Straw bales that block the flow of water shall be removed.

Prior to project construction being completed, the project team will develop post-construction inspection intervals to ensure timely removal of temporary BMPs. BMPs will be removed when the area is stabilized, which typically occurs when the area has either naturally stabilized (75% cover), or seed and mulch that was installed has achieved 75% cover.

17.2 In-Situ Restoration

Unless otherwise specified in permits or prescribed by the National Grid Environmental Scientist or the Project Environmental Consultant, all disturbed areas, including stream banks, wetlands and access routes, shall be restored following the completion of work. When the work is completed and construction mats have been removed, the National Grid Environmental Scientist or Project Environmental Consultant shall conduct an inspection. Wetlands shall be inspected for build up of sand or other materials that may have fallen through construction mats. Care shall be taken to inspect wetland crossings carefully after construction mat removal to ensure any materials are properly removed and disposed of off-site.

Restoration of Soil Compaction. If rutting or soil compaction following construction mat removal is observed, the area shall be returned to pre-existing conditions, and comparable to the surrounding area, by light hand raking or by back-blading with machinery. Restoration shall be overseen by the Project Environmental Consultant or National Grid Environmental Scientist. Deep ruts (>12") shall be filled in using available, loose soil from the work area.

Seeding and Mulching. If adequate root and seed stock are absent and have been stripped from the area, graded sites shall be promptly stabilized by applying an approved seed mix and mulching with straw to reduce erosion and visual impact. Seeding and mulching shall be completed as soon as possible following completion of work at the site. For some wetland areas, natural re-vegetation may be more appropriate than seeding disturbed sites. Wetland areas where adequate root and seed stock are absent will be

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seeded using an approved wetland native seed mix. For some wetland areas, natural re-vegetation may be more appropriate than seeding disturbed sites. Refer to BMPs in **Appendix 4** for seed mix tables and mulch ratio tables.

If needed, the import of quality topsoil onto the ROW will be required. Topsoil should be tested, and approved by the Project Environmental Consultant or National Grid Environmental Scientist to determine its suitability for site conditions. Fertilizers will be approved on a case-by-case basis.

For upland areas, the disturbed vegetation and soil shall be restored and stabilized⁴ by regrading the area to pre-existing conditions, if needed, seeding (if adequate root and seed stock are absent) and mulching the exposed soil, and removing strings and stakes from straw bales and using broken up straw bales for the mulch. Siltation fencing, strings and stakes shall be removed for disposal as ordinary waste. Refer to BMPs in **Appendix 4** for seed mix tables and mulch ratio tables.

For sites with excess boulders, additional boulders could be used at proposed and existing gate locations to use on either side of the gates as a deterrent for unauthorized vehicle access or be placed along the edges of work pads where steep slopes are present for safety purposes. The final placement of boulders should be reviewed prior to installation with Real Estate and the National Grid Environmental Scientist or Project Environmental Consultant.

Unless otherwise specified in Project-specific permit conditions, the National Grid Environmental Scientist or Project Environmental Consultant shall develop an inspection frequency to monitor restored areas for stabilization, germination and successful revegetation.

17.3 Invasive Species

All equipment shall be certified clean⁵ utilizing the attached form (**Appendix 5**) or equivalent as approved by the vendor prior to mobilization to the work site. The vendor shall use the certification from provided as **Appendix 5** to document compliance with invasive species management BMPs. Clean is defined as being free of plant matter (stems, flowers, roots, etc), soil, or other deleterious materials prior to being brought to the project site. Any equipment that has been placed or used within areas containing invasive species within the project site shall be cleaned of plant matter (stems, flowers, roots, etc), soil, or other deleterious materials at the site of the invasive species prior to being moved to other areas on the project site to prevent the spread of invasive species from one area to another⁶. **Equipment shall be cleaned prior to being removed at the completion of the project: exceptions to this requirement shall be determined on a case-by-case basis.** Consult with the National Grid Environmental Scientist prior to discharging or disposing of any waste water or waste material from the cleaning of equipment.

⁴ For projects subject to the 2012 CGP, stabilization is required within 14 days, or within 7 days for sensitive areas.

⁵ The **Appendix 5** certification form (or equivalent as approved by National Grid Environmental Scientist) shall be used to document the clean certification

⁶ On ROW projects where multiple wetlands may be dominated by the same invasive species, cleaning may not be required for movement along the ROW. Check with the National Grid Environmental Scientist for guidance.

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17.4 Cleaning of Equipment

At the completion of the project, equipment shall be cleaned prior to being de-mobilized to prevent tracking of material onto roads and causing safety issues. Consult with the National Grid Environmental Scientist prior to discharging or disposing of any waste water or waste material from the cleaning of equipment.

17.5 Access Roads

Constructed gravel roads shall be left in place following project completion unless permit conditions require their removal. Refer to the specific permit conditions for these provisions. If the road is to be removed, the crushed stone and geotextile fabric shall be removed from the work site. Seeding and/or mulching of gravel roads is generally not required, unless necessary to prevent erosion. Pre-existing sandy soils within mapped rare turtle habitat shall not be seeded unless directed by the National Grid Environmental Scientist so as to not alter nesting habitat.

17.6 Stone Work Pads

Unless permit conditions or property owner's require the removal of constructed stone work pads following project completion, constructed work pads shall be left in place. Refer to the specific permit conditions for these provisions.

17.7 Construction Materials on ROWs

As soon as the structure work has been completed, all used parts and trash are to be picked up and removed from the project site. Retired poles shall be removed in accordance with National Grid Engineering Standard SP.06.01.301. In some cases, the used material from structure work may be temporarily stored at the work area by placing it out of the wetlands or other sensitive resource area until work in the adjacent areas has been completed. However, treated wood poles shall never be stored in standing water or in wetlands. If the project is cancelled, all material shall be removed from the project site. Excess material brought to the project site shall be removed upon project completion. Consult with the National Grid Environmental Scientist on whether the work site shall be restored in addition to the measures outlined above.

17.8 Improved Areas

Yards, lawns, agricultural areas, and other improved areas shall be returned to a condition at least equal to that which existed at the start of the project. Off-ROW access shall never be assumed and shall be coordinated through Real Estate before being implemented. Depending on the access point, construction matting or other BMPs may be required to prevent ruts, lawn damage, or other property damage. Restoration following the completion of work and any use of improved areas shall be conducted in accordance with the measures outlined above.

17.9 Property Damage

All damage to property occurring as a result of a project shall be immediately repaired or replaced. In some locations, it may be desirable to document pre-existing damage prior to work commencing in that area in order to demonstrate afterwards that the damage did not result from the project. Work crews, the

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Project Environmental Consultant or the National Grid Environmental Scientist shall document repairs that were performed in response to damage from unauthorized vehicle use.

17.10 Overall Work Site

Upon satisfactory completion of work, the construction personnel shall remove all work-related trailers, buildings, rubbish, waste soil, temporary structures, and unused materials belonging to them or used under their direction during construction, or waste materials from previous construction and maintenance operations. All areas shall be left clean, without any litter or equipment (wire, pole butts, anchors, insulators, cross-arms, cardboard, coffee cups, water bottles, etc.) and restored to a stable condition and as near as possible to its original condition, where feasible. Debris and spent equipment shall be returned to the operating facility or contractor staging area for disposal or recycling (cardboard) as appropriate in accordance with EI-111.

17.11 Material Storage/Staging and Parking Areas

Upon completion of all work, all material storage yards, staging areas, and parking areas shall be completely cleared of all waste and debris. Unless otherwise directed or unless other arrangements have been made with an off ROW or off-property owner, material storage yards and staging areas shall be returned to the condition that existed prior to the installation of the material storage yard or staging area. Regardless of arrangements made with a landowner, all areas shall be restored to their pre-construction condition or better. Also any temporary structures erected by the construction personnel, including fences, shall be removed by the construction personnel and the area restored as near as possible to its original condition, including seeding and mulching as needed.

18.0 Notification of Emergency Work

Because it is sometimes difficult to identify wetlands and other sensitive environmental areas, the National Grid Environmental Scientist shall be notified within 24 hours or by the next working day whenever emergency off-road repair work takes place. Although the routine maintenance and emergency repair work is generally allowed, due to site conditions or the scope of the project, notification to the regulating agencies may be required.

19.0 Appendices

APPENDIX 1:	Glossary
APPENDIX 2:	Acronyms
APPENDIX 3:	Storm Water, Wetlands & Priority Habitat Environmental Compliance Site Inspection / Monitoring Report Form
APPENDIX 4:	BMP Drawings and Guidelines
APPENDIX 5:	Certification Sheet for Invasive Species Control
APPENDIX 6:	Snow Disposal Guidelines

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Appendix 1 – Glossary

Access Road – An existing, periodically maintained road often consisting of gravel and/or exposed soils or vegetated with grasses but devoid of woody vegetation, that is visible on aerial photography and shown on ROW T-sheets. May include newly permitted permanent roads (i.e., roads to be constructed in accordance with a project-specific permit).

Access Route - A pathway previously used or proposed to be used by crews for access along the ROW. Routes may be shown on ROW T-sheets or previous project access plans but are not improved as maintained gravel/exposed soil roads. Access routes may be mown and can consist of trails utilized by recreational vehicles.

Action Logs – Project-specific log used to document action items required for permit compliance. The log identifies timeframes for completion and responsible parties. The log is typically updated by the Project Environmental Consultant or the National Grid Environment Scientist and circulated to the project team on a weekly, or more frequent, basis.

Bank – The transitional slope immediately adjacent to the edge of a surface water body, the upper limit of which is usually defined by a break in slope, or, for a wetland, where a line delineated in accordance with applicable state and federal regulations that indicates a change from wetland to upland.

BMP – Best Management Practice. Individual engineered constructions or operating procedures intended to minimize and mitigate soil disturbance, erosion, sedimentation, turbid discharges, and/or impacts to sensitive receptors.

Clean - Free of plant matter (stems, flowers, roots, etc), soil, or other deleterious materials prior to being brought to the project site.

Clean Gravel – Gravel is a type of coarse-grained soil that consists of small stones and other mineral particles. Clean Gravel shall meet the requirements in accordance with National Grid Standard Construction Specification for Electric Stations (Engineering Standard SP.08.00.001) Clean Gravel will not have fine materials that could lead to a turbid discharge.

Clean Stone (Crushed Stone) – Clean Stone (Crushed Stone) shall meet the requirements in accordance with National Grid Standard Construction Specification for Electric Stations (Engineering Standard SP.08.00.001). Clean Stone will not have fine materials that could lead to a turbid discharge.

Clearing – The cutting of trees and large bushes by hand and/or mechanical means.

Compost Socks – Tubular devices comprised of non-degradable, photodegradable, or biodegradable mesh tubing containing organic compost matrix. Compost socks are effective for intercepting site runoff, trapping

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sediment, and treating for soluble pollutants by filtering stormwater runoff. . Compost socks are a useful sedimentation control device along construction site perimeters, as check dams in drainage channels, as a slope interruption practice on long and/or steep slopes, and around drain or street curb inlets.

Construction Mats - Construction, swamp, and timber mats (“construction mats”) are generic terms used to describe structures that distribute equipment weight to minimize disturbance to wetland soil and vegetation while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes.

Corduroy Road – Corduroy roads are cut trees and/or saplings with the crowns and branches removed, and the trunks lined up next to one another.

Dewatering Basin – An established containment area for saturated materials and pumped discharges. This measure is used for the purpose of de-watering soils prior to transport off site or for use in another location on site, and for allowing suspended sediment to settle out of pumped discharges.

Detention/Retention Basin – A detention/retention basin is designed for the purpose of detaining or retaining water. A dewatering basin is a form of detention basin

Dewatering – Use of a system of pumps, pipes and temporary holding dams to drain or divert waterways or wetlands, or lower the groundwater table before and during excavation activities.

Drainage Ditch or Swale – A clearly noticeable channel that is typically dry, except after precipitation events. Intermittent and perennial streams and rivers are not included in this definition.

Dredge – To dig, excavate, or otherwise disturb the contour or integrity of sediments in the bank or bed of a wetland, a surface water body, or other area within the regulating bodies’ jurisdiction.

Dredge Spoils – Material removed as the result of dredging.

Embankment – A protective bank constructed of mounded earth or fill materials located between a roadway (or rail bed) and a seasonal stream or other wetland.

Environmental Field Issue – Document that contains copies of all project-specific environmental permits and summarizes all environmental permit conditions. The EFI is prepared by the Project Environmental Consultant or the National Grid Environment Scientist and copies are provided to the Project Manager, Construction Supervisor(s), and other team members as appropriate.

Environmental Monitoring Records – Examples of checklists and/or monitoring reports suggested for use by the Company Environmental Engineer to document conformance of the project with this Environmental Guidance and or project specific permit/license conditions.

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Environmental Scientist – Formerly Environmental Engineer. The National Grid Environmental Department representative for the project or the territory where the work is located. For a map of Environmental Department staff territories, refer to the Environmental page of the National Grid infonet.

Environmentally Sensitive Areas – Examples of environmentally sensitive areas that may be found on National Grid properties are rivers, streams, ponds, lakes, wetlands, bogs, swamps, salt marshes, rare species habitat, wellhead protection areas, cultural sites, parks, preserves, schools and as otherwise defined by Federal, State or local regulations. Refer to EG-301.

Erosion Controls – The utilization of methods to prevent soil detachment and minimize displacement or washing down slopes by rainfall or run-off. Common practices include, but are not limited to:

- (a) Temporary and Permanent Seeding.
- (b) Mulching, Soil Binders, Tackifiers.
- (c) Erosion Control Blankets.
- (d) Hydraulic Erosion Control.

Excavate/Excavation – To dig, remove, or form a cavity or a hole in an area within the department's jurisdiction.

Fill (n.) – Any rock, soil, gravel, sand or other such material that has been deposited or caused to be deposited by human activity.

Fill (v.) – To place or deposit materials in or on a wetland, surface water body, bank or otherwise in or on an area within the jurisdiction of the department.

Flats – Relatively level landforms composed of unconsolidated mineral and organic sediments usually mud or sand, that are alternately flooded and exposed by the tides and that usually are continuous with the shore.

Frozen Condition – Field conditions when the upper portion of the ground surface freezes or when areas of standing water freeze solid such that vehicle passage over these areas is supported without any resulting soil disturbance. The frozen conditions must have been affected by severe cold (maximum daily temperatures less than 32 degrees F) for a continuous 2-week period.

GAA – Rhode Island groundwater classification, groundwater resources that are known, or presumed to be suitable for drinking water use without treatment, and are located in one of the three areas described below.

a) The state's major stratified drift aquifers that are capable of serving as a significant source for a public water supply ("groundwater reservoirs") and the critical portion of their recharge area as delineated by DEM;

b) The wellhead protection area for each public water system community water supply well. Community water supply wells are those that serve resident populations and have at least 15 service

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connections or serve at least 25 individuals, e. g. municipal wells and wells serving nursing homes, condominiums, mobile home parks, etc.; and

c) Groundwater dependent areas that are physically isolated from reasonable alternative water supplies and where existing groundwater warrants the highest level of protection. At present only Block Island has been designated as meeting this criterion.

GA – Rhode Island groundwater classification, groundwater resources that are known, or presumed to be suitable for drinking water use without treatment. However, groundwater classified by GA does not fall within any of the three priority areas described under the GAA classification.

Grade/Grading – The movement of soil and fill material to change the elevation of the land. The term refers to the combined actions of excavating and filling to change elevation or shape.

Grubbing – The removal of stumps/roots by mechanical means during site preparation activities.

Immediately - As soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased.

In-kind Replacement - Replacement using the same material, functional inverts, diameter and length as the existing item. In-kind replacement includes the substitution of a structure with a similar structure in approximately the same location as is practicable, and is approximately the same in design. The design may be altered to meet applicable utility standards, and may include alternate materials designed to prolong the life of that service.

Intermittent Stream – A stream that flows for sufficient time to develop and maintain a defined channel, but which might not flow during dry portions of the year.

In the Dry – Work done either during periods of low water or behind temporary diversions, such as Earth Dike / Drainage Swale and Lined Ditches designed and installed in accordance with best management practices.

Limit of Work/Disturbance – The approved project limits within regulated areas. All project related activities in regulated areas must be conducted within the approved limit of work/disturbance. The limit of work/disturbance shall be depicted on the approved permit site plans and in the EFI plans. Where it is warranted National Grid may require that these limits be identified in the field by flagging, construction fencing, and/or perimeter erosion controls.

Long-Term Restoration Logs - Project-specific log used to document restoration required following the completion of construction or as areas of the project have been completed (i.e., segments of ROW for a multi-mile project). The log is typically updated by the Project Environmental Consultant or the National Grid Environment Scientist and circulated to the project team on a weekly basis.

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Low Flow Conditions – Low water flow that generally occurs during the summer, as a result of decreased precipitation and the removal of water by increased evaporation and evapotranspiration by vegetation. Work done under low-flow conditions minimizes the potential for environmental damage. The USACE defines the calendar dates for low flow conditions in its New England state-specific Programmatic General Permits.

Low Ground Pressure – Equipment that meets the USACE GP state-specific defined Pounds per Square Inch (PSI) ground pressure when loaded. Use of LGP equipment **requires approval** from the National Grid Environmental Scientist.

Marsh – A wetland:

- a) That is distinguished by the absence of trees and shrubs;
- b) Dominated by soft-stemmed herbaceous plants such as grasses, reeds, and sedges; and
- c) Where the water table is at or above the surface throughout the year, but can fluctuate seasonally.

Methods – Are the construction practices and procedures that take place through choosing the proper equipment, trucks and labor to execute the earth moving activities based on the existing conditions and implementing creative and sensitive scheduling for the daily activities.

NHESP - Natural Heritage Endangered Species Program; a department within the Massachusetts Division of Fisheries and Wildlife that is responsible for protecting the 176 species of vertebrate and invertebrate animals and 259 species of native plants that are officially listed as Endangered, Threatened or of Special Concern in Massachusetts.

Perennial – A stream that contains water at all times except during extreme drought.

Permanently Ceased – Is applicable to earth disturbance activities when clearing and excavation within any area of the Project that will not include permanent structures has been completed.

Person-in-Charge – A National Grid Project Engineer, Manager, Supervisor, Field Construction Coordinator or equivalent Contractor personnel assigned to oversee and coordinate work activities.

Processed Gravel – Processed Gravel shall meet the requirements in accordance with National Grid Standard Construction Specification for Electric Stations (Engineering Standard SP.08.00.001). Processed Gravel will not have fine materials that could lead to a turbid discharge. Gravel consisting of inert material that is hard, durable stone and is free from loam and clay, surface coatings and deleterious materials.

Regulating Body – Federal, State, or local authority that has jurisdiction over resource areas that may be impacted by company operations

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Regulated Wetland Area – Those areas that are subject to federal, state or local wetland regulation, including certain buffer or adjacent areas.

Repair – The restoring of an existing legal structure by partial replacement of work, or broken, or unsound parts (Env-Wt 101.73).

Replacement – The substitution of a new structure for an existing legal structure with no change in size, dimensions, location, configuration, construction, or which conforms in all material aspects to the original structure

Right-of-Way – A corridor of land where National Grid has legal rights (either fee ownership, lease or easement) to construct, operate, and maintain an electric power line and/or natural gas pipeline and may include work on customer owned properties.

River – A watercourse that is larger than a perennial stream and flows all year long.

Routine Utility Rights-of-Way Maintenance Activity – Includes but is not limited to vegetation management and repair or replacement of existing utility structures.

Sedimentation Controls – Silt fences, straw bales, compost socks/berms and other barrier devices strategically placed to intercept and treat sediment-laden site runoff.

Sensitive Water - Includes any sediment or nutrient impaired water or a water that is identified by the state, tribe or EPA as Tier 2, 2.5 or Tier 3 for antidegradation purposes.

Siltation Curtain – An impervious barrier erected to prevent silt and sand and/or fines from being washed into a wetland, surface water body or other area of concern.

Surface Water Body or Surface Waters – Those portions of waters which have standing or flowing water at or on the surface of the ground.

Spill Prevention, Control and Countermeasure Plans – Required for site operations that involve the storage of 1,320 gallons or greater of fuel and oils, both in storage containers and stored in equipment. Response actions to spills and releases are specified in these plans.

Stormwater Pollution Prevention Plan – A site-specific, written document that, among other things: (1) identifies potential sources of stormwater pollution at a construction site; (2) describes stormwater control measures to reduce or eliminate pollutants in stormwater discharge from a construction site; and (3) identifies procedures the operator will implement to comply with the terms and conditions of EPA NPDES Construction General Permit (CGP). SWPPPs must be prepared, maintained on-site, and amended as necessary in order to obtain NPDES permit coverage for specific construction site stormwater discharges under the EPA NPDES CGP.

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Temporarily Ceased - Is applicable when there are earth disturbance activities such as clearing, grading, and/or excavation that are not complete, but will be idle in one area for a period of up to 14 or more calendar days, and which will resume in the future. The 14 calendar day timeframe begins as soon as you know that construction work on a portion of the Project will be left incomplete and idle. In circumstances where there are unanticipated delays and you do not know at first how long the work stoppage will continue, the requirement to immediately initiate stabilization is triggered as soon as you know with reasonable certainty that work will be stopped for 14 or more additional calendar days.

Tidal Wetlands – A wetland whose vegetation, hydrology or soils are influenced by periodic inundation or tidal waters.

Topsoil – The uppermost part of the soil, ordinarily moved in tillage, or its equivalent in uncultivated soils and ranging in depth from 2 to 10 inches.

Turbidity – The condition in which solid particles suspended in water make the water cloudy or even opaque in extreme cases.

United States Geological Survey Topographic Map – A map that uses contour lines to represent the three-dimensional features of a landscape on a two-dimensional surface. These maps use a line and symbol representation of natural and artificially created features in an area.

Wetland – An area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation (more than 50 percent) typically adapted for life in saturated soil conditions (hydric soils). Wetlands include but are not limited to swamps, marshes, bogs, and similar areas.

Work Site – An area where work is performed.

Worker – Company employee, contractor, consultant working on site.

Zone II - Massachusetts - That area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at safe yield, with no recharge from precipitation). It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, streams or lakes may act as recharge boundaries. In all cases, Zone IIs shall extend up gradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary).

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Appendix 2 – Acronyms

ASTM	American Society for Testing and Materials
BMP	Best Management Practices
EFI	Environmental Field Issue
EG	Environmental Guidance
EPA	Environmental Protection Agency
GA/GAA	Rhode Island Groundwater Classifications – see glossary
LGP	Low Ground Pressure
MA	Massachusetts
MA DEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
NE	New England
NH	New Hampshire
NH DES	New Hampshire Department of Environmental Services
NHESP	Natural Heritage Endangered Species Program
NPDES	National Pollutant Discharge Elimination System
OHM	Oil and/or Hazardous Materials
PSI	Pounds per square inch
RI	Rhode Island
RI DEM	Rhode Island Department of Environmental Management
RI CRMC	Rhode Island Coastal Resources Management Council
RI SESC	Rhode Island soil erosion and sediment control
ROW	Right-of-Way
RTE	Rare, Threatened or Endangered
SPCC	Spill Prevention, Control and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
TOY	Time-of-Year
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
VT	Vermont

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VT DEC Vermont Department of Environmental Conservation

Zone II Massachusetts Groundwater Protection district – see glossary

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Appendix 3

See EG303NE_Appendix3_Reporting Form published separately

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National Grid
Storm Water, Wetlands & Priority Habitat Environmental Compliance
Site Inspection / Monitoring Report

Project Name: Date:

City / Town: Time:

WO / WR #

IHC or Contractor? (Company Name):

Current Weather Conditions:

Precipitation Since Last Inspection (Date, Est. Duration and Est. Amount from Each Storm):

Activities / Structures / Locations Inspected:

Identify Locations / Activities / Structures within Designated Priority Habitat (Identify Rare species Observations, if any) and Mitigation / Restoration Measures Implemented:

Any Significant Discharges of Sediment to Water Bodies or Wetlands? (If "yes", state locations):

National Grid
Storm Water, Wetlands & Priority Habitat Environmental Compliance
Site Inspection / Monitoring Report

Compliance with SWPPP Storm Water Controls, O&M Plan, Order of Conditions or Other Applicable Environmental Requirements? (Explain if "no" for any feature inspected):

Additional BMPs or Other Corrective Action Needed and, if so, Where?

Compliance with Previous Observations?

National Grid
Storm Water, Wetlands & Priority Habitat Environmental Compliance
Site Inspection / Monitoring Report

Are Spill Control Supplies Available	Yes	No
Are Oil and / or Hazardous Materials Stored On Site?	Yes	No
If So, Are they Properly Labeled and Managed?	Yes	No
Are Wastes Stored On Site?	Yes	No
If So, Are they Properly Managed?	Yes	No

Miscellaneous (e.g., dumping?):

Comments:

**Inspection Completed by
(Name, Title, Company):**

**Inspector's Signature for
Certification:**

**National Grid Environmental Dept.
Representative - Signature for
Certification:**

Date:

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Appendix 4 – BMPs

See EG303NE_Form1 for a list of BMPS

See EG303NE_Form2 for BMP details

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	BMP #	Measure
Sediment & Erosion Controls	SEC-1	Weed free bale barrier
	SEC-2	Sediment control fence
	SEC-3	Silt fence / weed free barrier
	SEC-4	Silt Soxx
	SEC-5	Straw Wattle
	SEC-6	Erosion Control Blanket - Ditch
	SEC-7	Erosion Control Blanket - Slope
	SEC-8	Hydroseeding with Tackifier (slope stabilization)
	SEC-9	Mulch materials, rates and uses (from NY)
	SEC-10	Seeding options - Upland Seed Mixes
	SEC-11	Seeding options - Wetland Seed Mix
	SEC-12	Distribution Pole Erosion Control

Crossing Measures	CM-1	Prefabricated mats
	CM-2	Construction mat bridge
	CM-3	Construction mat layout (with transition)
	CM-4	Construction mat layout (with transition & BMPs)
	CM-5	Construction mat - Air Bridge
	CM-6	Corduroy road
	CM-7	Rock Ford
	CM-8	Temporary construction entrance / exit
	CM-9	Temporary construction culvert
	CM-10	Access way stabilization
	CM-11	Construction signage
	CM-12	Construction Mat Anchoring

Advanced Applications	AA-1	Reinforced silt fence
	AA-2	Sediment filter
	AA-3	Stone check dams
	AA-4	Straw / haybale check dam
	AA-5	Waterbar
	AA-6	Sandbag check dam
	AA-7	Earth dike
	AA-8	Drainage swale and lined ditch
	AA-9	Sedimentation basin
	AA-10	Dewatering basin - Small scale
	AA-11	Dewatering basin - Large scale
	AA-12	Dirtbag
	AA-13	Concrete waste sump

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	AA-14	Outpak concrete washout
Advanced Applications	AA-15	Barrier fence (construction fence)
	AA-16	ROW gates / fences
	AA-17	Bollard
	AA-18	Dust control
	AA-19	Catch Basin Inlet Protection
	AA-20	Silt Sack
	AA-21	Turbidity Curtain
	AA-22	Siltsoxx Amphibian & Reptile Crossing #1
	AA-23	Siltsoxx Amphibian & Reptile Crossing #2
	AA-24	Siltsoxx Amphibian & Reptile Crossing #3
	AA-25	Cultural Avoidance

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SUBJECT

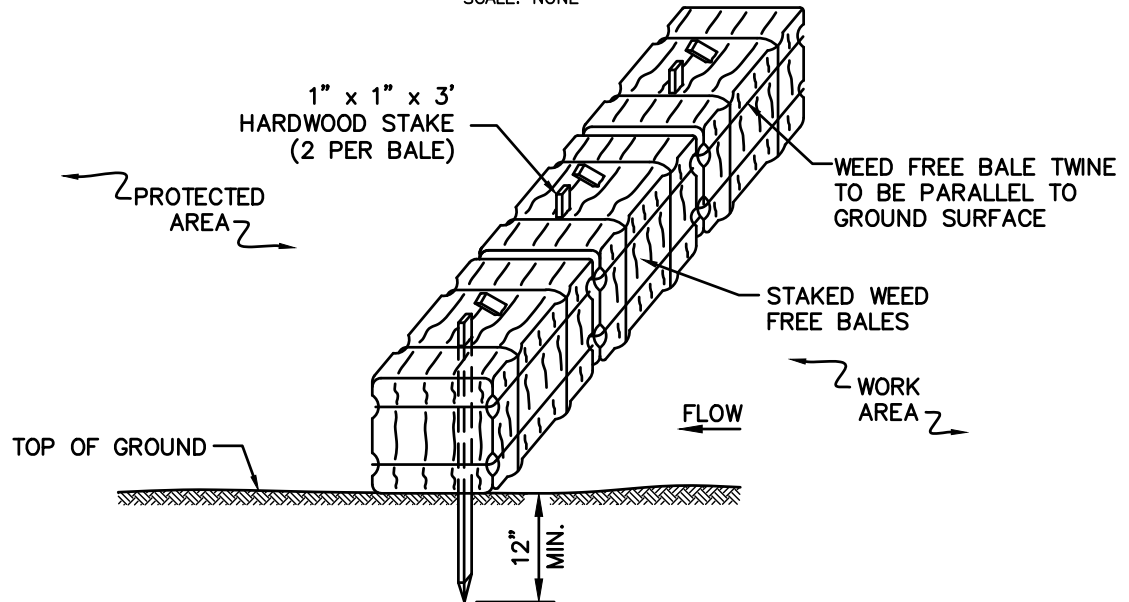
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. THE GROUND SHALL BE PREPARED TO PROVIDE COMPLETE CONTACT WITH THE BALES.

BMP PICTURE**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**

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SEC-1

WEED FREE BALE BARRIER

SUBJECT

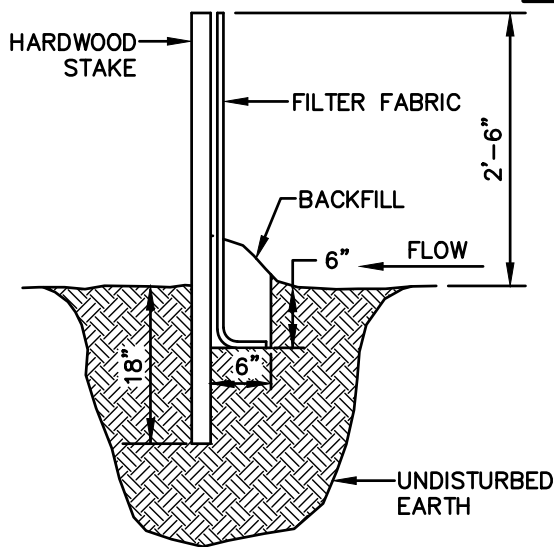
Access, Maintenance and Construction
Best Management Practices

Reference

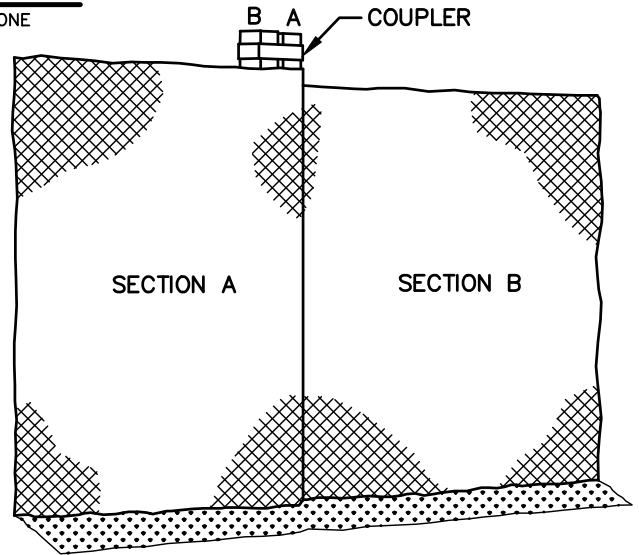
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BMP DETAIL

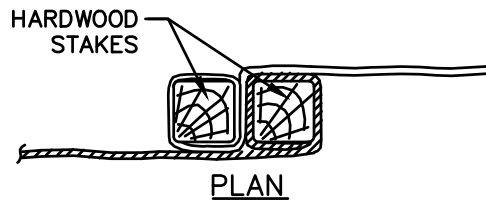
SCALE: NONE



PROFILE



SECTION



PLAN

BMP PICTURE



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SEC-2
SEDIMENT CONTROL FENCE

SUBJECT

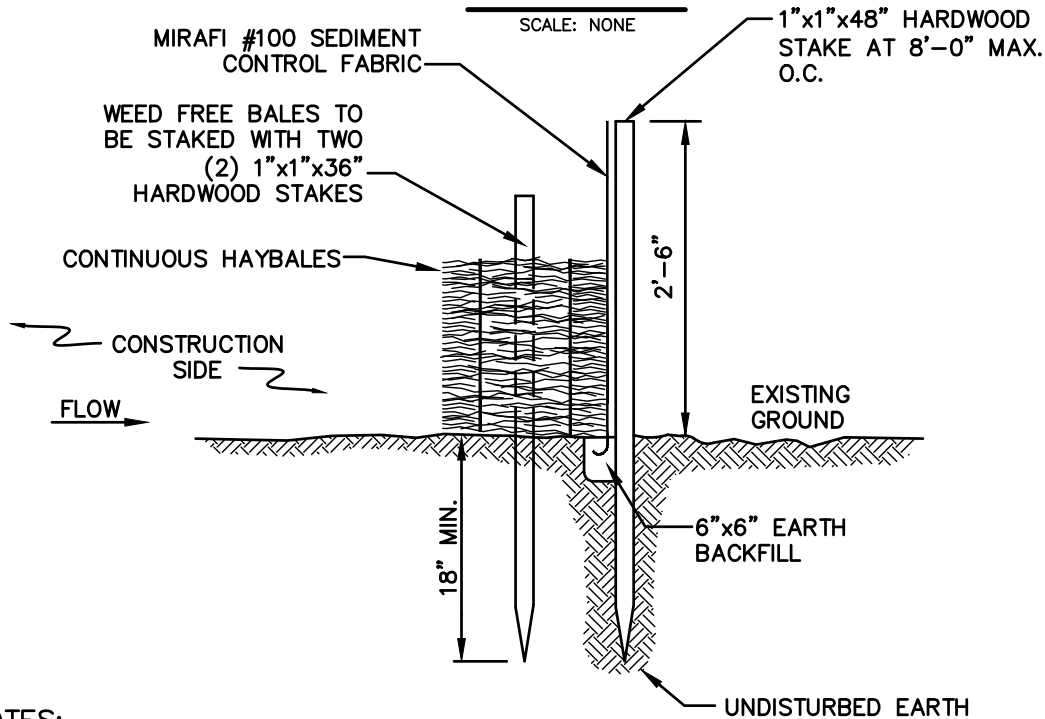
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. BALES SHALL BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY TWO (2) 1"x1"x36" HARDWOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. BALES SHALL BE REMOVED AND REPLACED WHEN THEY BECOME FILLED WITH SEDIMENT AND BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
5. BALES SHALL BE REMOVED WHEN THE EMBANKMENTS STABILIZE.
6. BALES TO BE TWINE BOUND.

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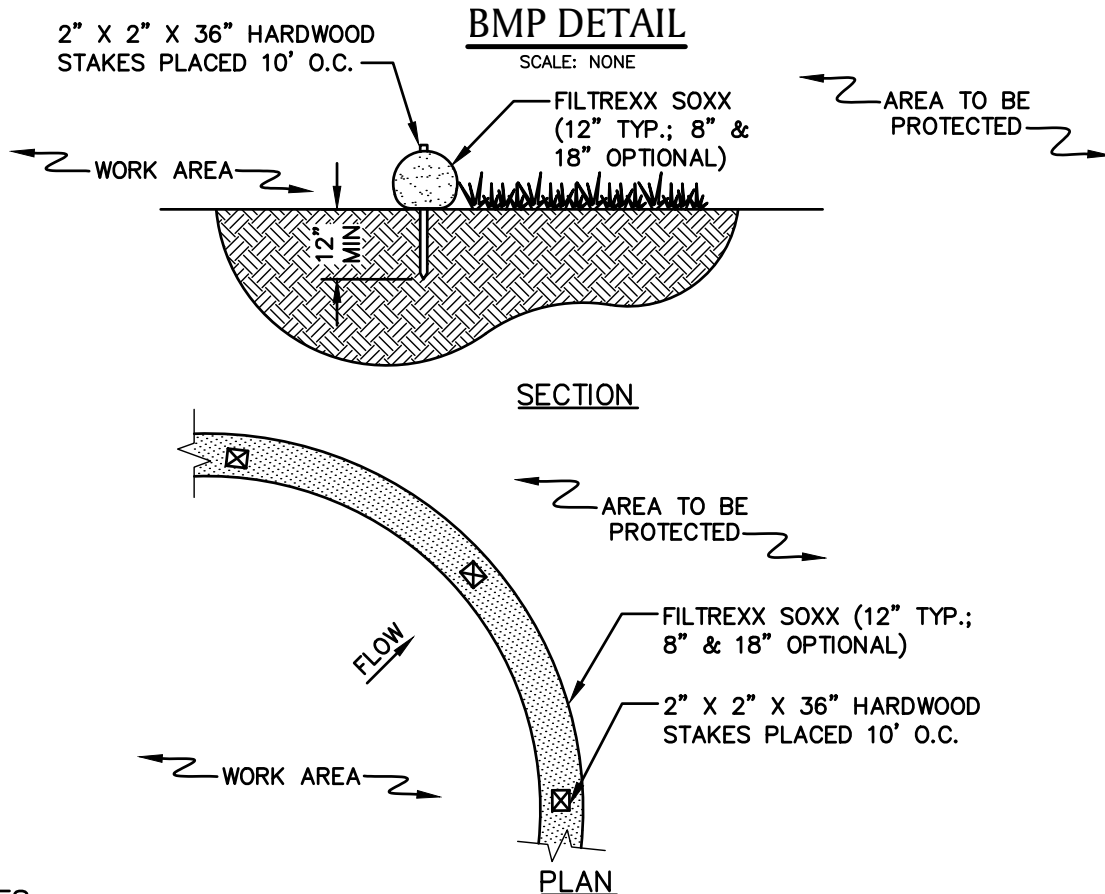
SEC-3
SILT FENCE /
WEED FREE BARRIER

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

NOTES

1. PRODUCT TO BE FILTREXX SILT SOXX OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
4. MESH CONTAINMENT MATERIAL SHOULD BE KNITTED PHOTODEGRADABLE OR BIODEGRADABLE MATERIAL, WITH OPENING SIZES BETWEEN 1/8" – 3/8".
5. COMPOST MEDIA SHOULD HAVE PARTICLE SIZE WHERE 99% < 2", 50% > 1/2".
6. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP PICTURE

* PICTURE AND DETAIL PROVIDED BY FILTREXX LAND IMPROVEMENT SYSTEMS
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SEC-4
SILT SOXX *

SUBJECT

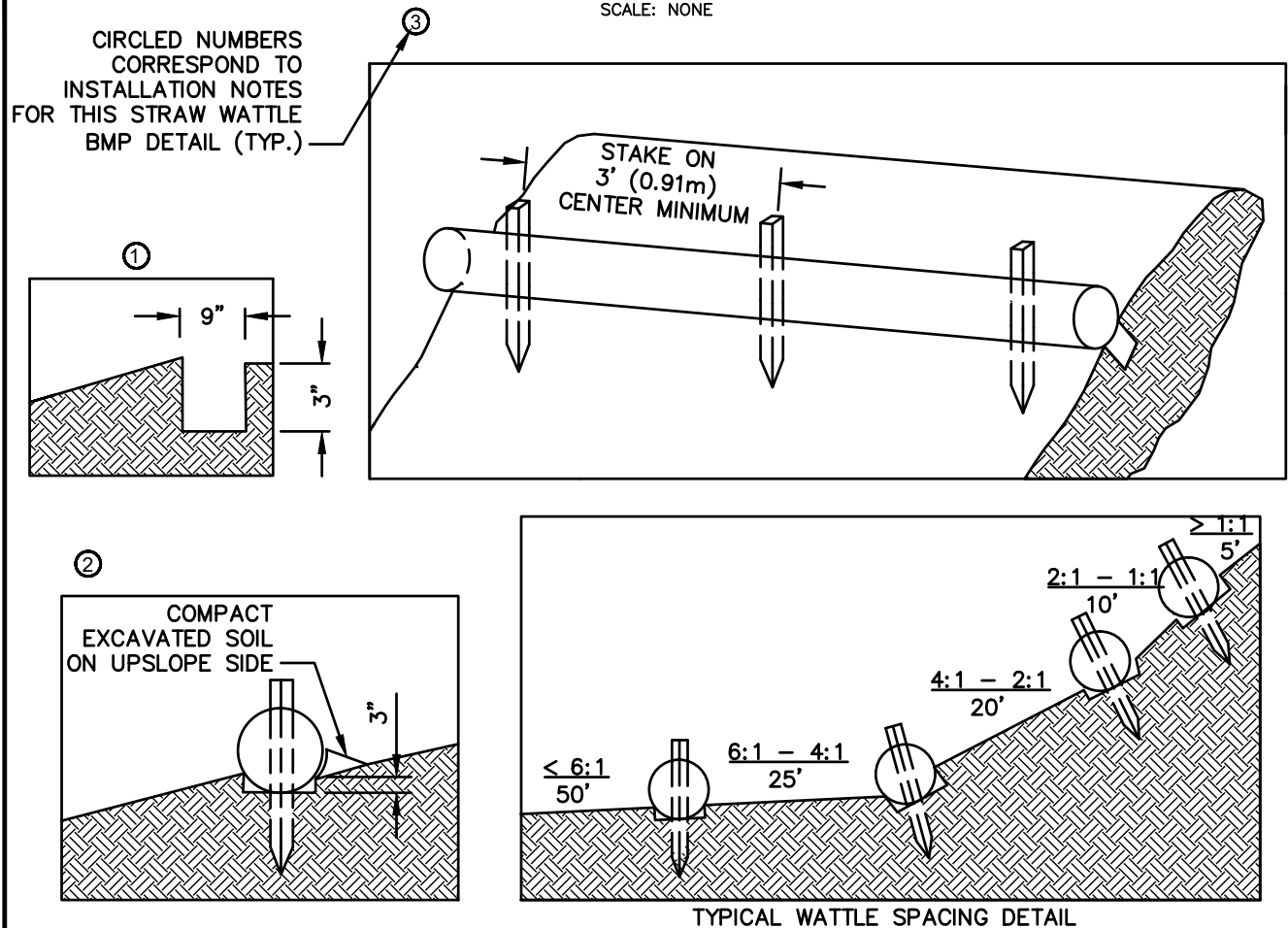
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. PRODUCT TO BE TENSAR NORTH AMERICAN GREEN STRAW WATTLE OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. TYPICAL WATTLE SPACING BASED ON SLOPE GRADIENT. COORDINATE SPACING AND LOCATION WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.
3. MINIMUM 12" DIAMETER WATTLES SHOULD BE USED FOR HIGHLY DISTURBED AREAS (I.E., HEAVILY USED ACCESS ROAD WITH ADJACENT WETLAND) AND MINIMUM 9-10" WATTLES SHOULD BE USED FOR LESS DISTURBED SOILS.

INSTALLATION NOTES:

1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2-3" DEEP X 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UPSLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
3. SECURE THE WATTLE WITH 18-24" HARDWOOD STAKES EVERY 3-4' AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2-3" OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.

* DETAIL AND PICTURE PROVIDED BY TENSAR NORTH AMERICAN GREEN
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SEC-5
STRAW WATTLE * (1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE

STRAW WATTLE – SHALLOW SLOPE ($\leq 4:1$)
(ALTERNATE STAKING)

ALTERNATE STAKING INSTALLATION NOTES:

1. ON SHALLOW SLOPES ($\leq 4:1$), STRAW WATTLE MAY BE SECURED WITH 18–24" HARDWOOD STAKES DRIVEN AGAINST THE SIDES OF THE WATTLE INSTEAD OF THROUGH. STAKES SHALL ALTERNATE SIDES, AND BE SPACED 3–4' MAX.
2. TWINE SHALL BE TIED FROM STAKE TO STAKE, CRISS-CROSSING THE STRAW WATTLE. TIE TWINE TO STAKES BELOW THE HEIGHT OF THE WATTLE.

SUBJECT

Access, Maintenance and Construction
Best Management Practices

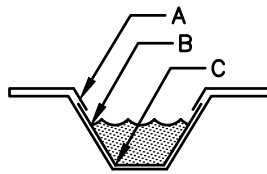
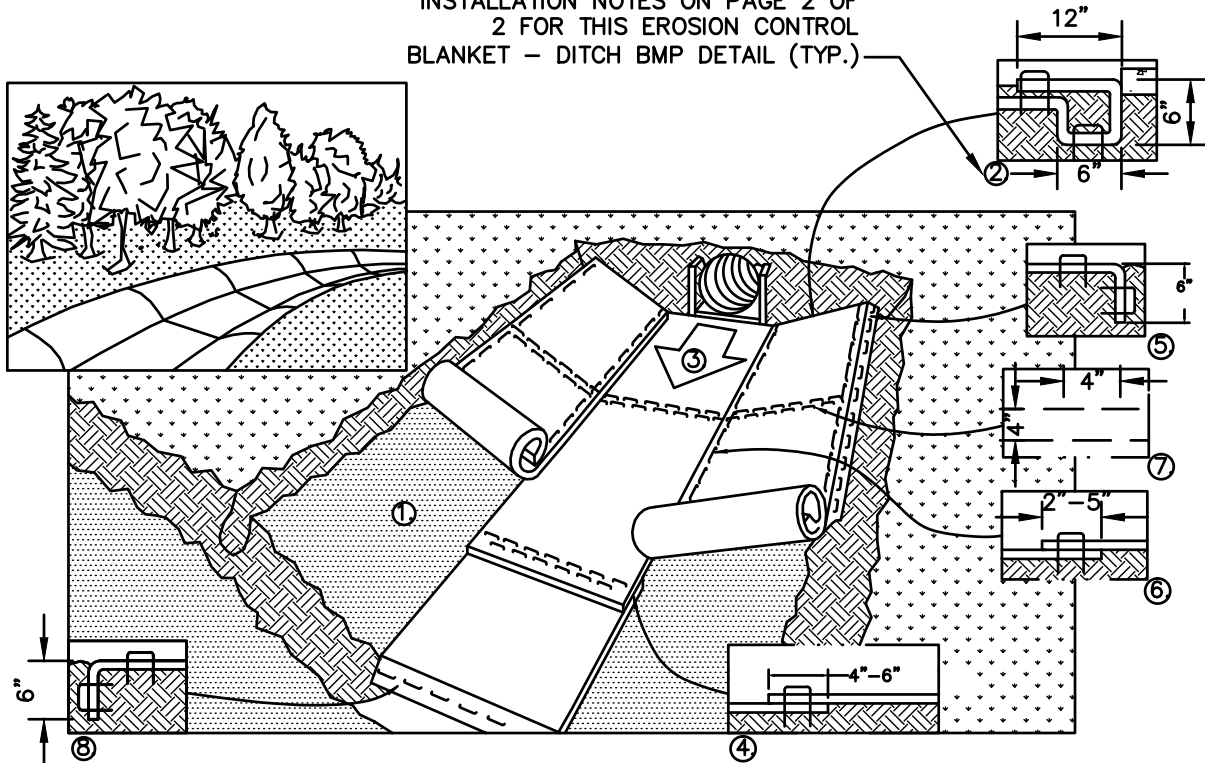
Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

CIRCLED NUMBERS CORRESPOND TO
INSTALLATION NOTES ON PAGE 2 OF
2 FOR THIS EROSION CONTROL
BLANKET - DITCH BMP DETAIL (TYP.)

**CRITICAL POINTS**

- A. OVERLAPS AND SEAMS
- B. PROJECTED WATER LINE
- C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTES:

1. PRODUCT TO BE NORTH AMERICAN GREEN EROSION CONTROL BLANKET OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
3. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE ROLLED EROSION CONTROL PRODUCTS (RECP's).

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SEC-6
EROSION CONTROL BLANKET -
DITCH * (1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL**INSTALLATION NOTES:**

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" – 6" (10 CM –15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" – 5" (5 CM –12.5 CM) (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M – 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

BMP PICTURE

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SEC-6
EROSION CONTROL BLANKET -
DITCH * (2 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

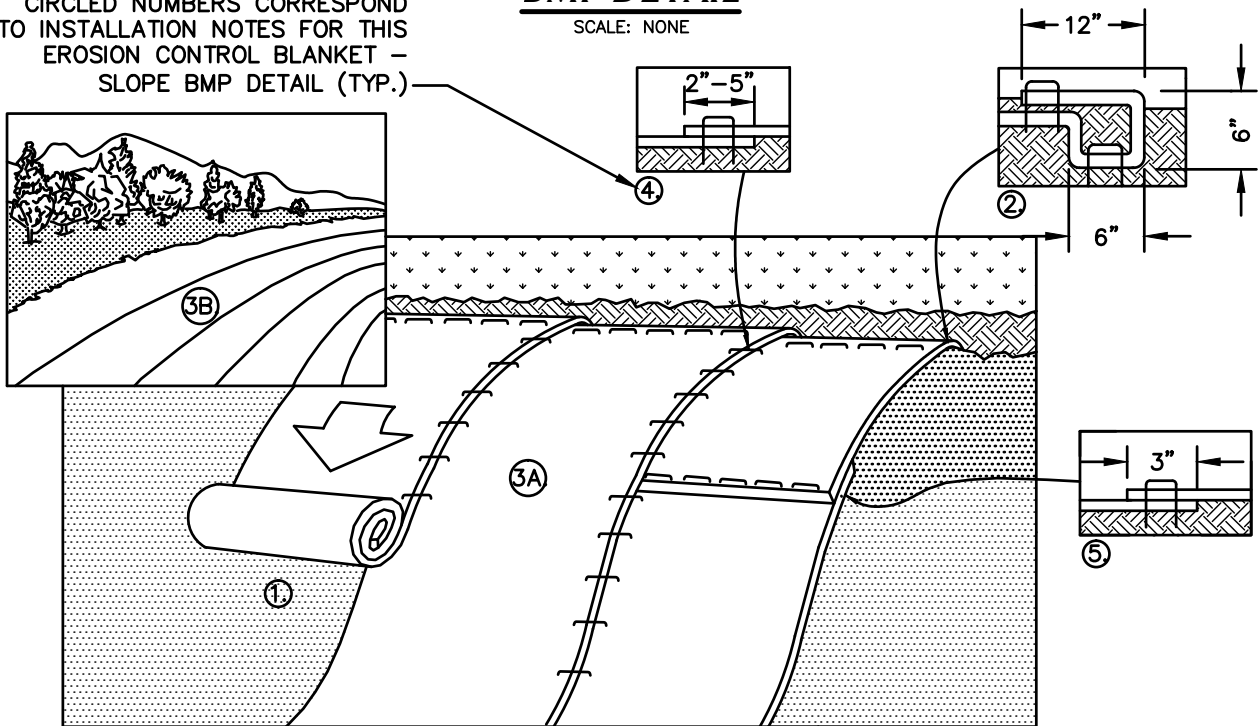
Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

CIRCLED NUMBERS CORRESPOND
TO INSTALLATION NOTES FOR THIS
EROSION CONTROL BLANKET –
SLOPE BMP DETAIL (TYP.)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. PRODUCT TO BE NORTH AMERICAN GREEN EROSION CONTROL BLANKET OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLES OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

INSTALLATION NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.

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SEC-7
EROSION CONTROL BLANKET -
SLOPE * (1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE

File: Erosion_Blanket_Slope.dwg

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SEC-7
EROSION CONTROL BLANKET -
SLOPE * (2 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURENOTES:

1. COORDINATE MIXTURE TYPE AND APPLICATION AREAS WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST PRIOR TO CONSTRUCTION.
2. A MINIMUM OF 1500 LBS. PER ACRE OF A PAPER/CORN FIBER OR EQUIVALENT WITH NATURAL TACKIFIERS WILL BE USED ON SLOPES LESS THAN 3:1.
3. A BFM (BONDED FIBER MATRIX) WILL BE USED ON SLOPES GREATER THAN 2:1.
4. A FGM (FLEXIBLE GROWTH MATRIX) OR ESM (EXTREME SLOPE MATRIX) WILL BE USED ON SLOPES GREATER THAN 1:1.
5. REFER TO BMP #10 FOR SEED MIXTURE OPTIONS.

* PICTURE PROVIDED BY TENSAR NORTH AMERICAN GREEN

* TACKIFIER INFORMATION PROVIDED BY FILTREXX LAND IMPROVEMENT SYSTEMS AND TENSAR NORTH AMERICAN GREEN

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SEC-8

HYDROSEEDING WITH TACKIFIER
(SLOPE STABILIZATION) *

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP**Definition**

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface.

Purpose

The primary purpose is to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch is also used alone for temporary stabilization in non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.

**NOTE:**

1. PICTURE DEPICTS STRAW MULCH APPLICATION (FROM MULCH SPREADER) ON STEEP SLOPE WITH AN IMPROVED DRAINAGE SWALE.
2. COORDINATE MULCH MATERIALS AND RATES WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

* BMP INFORMATION FROM "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (AUGUST, 2005)." INFORMATION OBTAINED VIA WEBSITE: <http://www.dec.ny.gov/chemical/29086.html>
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SEC-9

MULCH MATERIALS, RATES AND
USES (FROM NY) *

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

UPLAND ROW RESTORATION MIX – GENERAL

Species Composition Options:

- Andropogon gerardii; Niagra Big Bluestem
- Schizachyrium scoparium; Little Bluestem
- Elymus Canadensis; Canada Wild Rye
- Elymus virginicus; Virginia Wildrye
- Lolium multiflorum; Annual Ryegrass
- Sorghastrum nutans; Indiangrass
- Chamaecrista fasciculata; Partridge Pea
- Desmodium canadense; Showy Tick Trefoil
- Heliopsis helianthoides; Ox-Eye Sunflower
- Panicum virgatum; Switchgrass
- Rudbeckia hirta; Black Eyed Susan
- Poa palustris; Fowl Bluegrass
- Agrostis perennans; Upland Bentgrass
- Agrostis alba; Redtop
- Festuca rubra; Red Fescue
- Lotus corniculatus; Birds-Foot Trefoil
- Chrysanthemum leucanthem; Ox-Eye Daisy
- Aster novae-angliae; New England Aster

Example Seed Mixes:

1. Native Upland wildlife forage and Cover Meadow Mix – Ernst Conservation Seeds (ERNMX-123)
2. Eastern Ecotype Native Grass Mix– Ernst Conservation Seeds (ERNMX-177)
3. New England Native Warm Season Grass Mix – New England Wetland Plants, Inc.
4. New England Logging Road Mix – New England Wetland Plants, Inc.
5. Northeast Upland Wildflower/Restoration Erosion Mix – Southern Tier Consulting (STCMX-2)

UPLAND ROW RESTORATION MIX – DRY/ROCKY SITES

Species Composition Options:

- Festuca rubra; Red Fescue
- Schizachyrium scoparium; Little Bluestem
- Elymus Canadensis; Canada Wild Rye
- Bouteloua gracilis; Blue Grama
- Lolium multiflorum; Annual Ryegrass
- Lolium perenne; Perennial Ryegrass
- Agrostis scabra; Rough Bentgrass
- Agrostis perennans; Upland Bentgrass
- Sorghastrum nutans; Indiangrass

Example Seed Mixes:

1. New England Erosion Control/ Restoration Mix for Dry Sites – New England Wetland Plants, Inc.
2. Ernst Conservation Seeds and similar companies can create a custom seed mix matching the composition above (with site specific additions if necessary).

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

WETLAND ROW RESTORATION MIXSpecies Composition Options:

- Agrostis stolonifera; Creeping Bentgrass
- Poa trivialis; Rough Bluegrass
- Alopecurus arundinaceus; Creeping Meadow Foxtail
- Lolium multiflorum; Annual Ryegrass
- Festuca rubra; Creeping Red Fescue
- Elymus virginicus; Virginia Wildrye
- Schizachyrium scoparium; Little Bluestem
- Andropogon gerardii; Niagra Big Bluestem
- Carex vulpinoidea; Fox sedge
- Panicum virgatum; Switchgrass
- Agrostis scabra; Rough Bentgrass
- Aster novae-angliae; New England Aster
- Eupatorium perfoliatum; Boneset
- Euthamia graminifolia; Grass Leaved Goldenrod
- Scirpus atrovirens; Green Bulrush
- Verbena hastata; Blue Vervain
- Juncus effusus; Soft Rush
- Scirpus cyperinus; Wool Grass
- Panicum clandestinum; Deertongue

Example Seed Mixes

1. New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites – New England Wetland Plants, Inc.
2. Northeast Wetland Grass Seed Mix – Southern Tier Consulting (STCMX-7)
3. Ernst Conservation Seeds and similar companies can create a custom seed mix matching the composition above (with site specific additions if necessary).

GERNERAL NOTES:

1. Seed mixes described herein are intended to cover a variety of typical new england landscapes. However, site specific seed mixes will need to be evaluated in coastal or mountainous regions.
2. Seed mixes described herein are intended for general ROW restoration. Site specific wetland seed mixes may be required by local, state and/or federal regulators for certain impacts to wetlands.
3. All seed mixes are to be approved by National Grid Environmental Scientist prior to construction and must conform with all project permits.
4. Seedbed preparation and maintenance as well as temporary erosion and sediment controls are crucial to the establishment of newly seeded areas. Coordinate with National Grid Environmental Scientist on seed bed preparation and maintenance as well as temporary erosion and sediment controls prior to construction.

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SEC-11

SEEDING OPTIONS -
WETLAND SEED MIX

SUBJECT

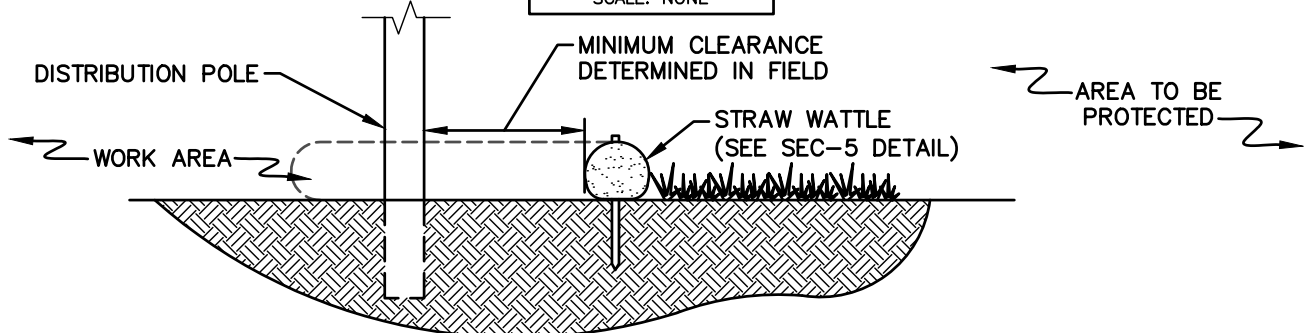
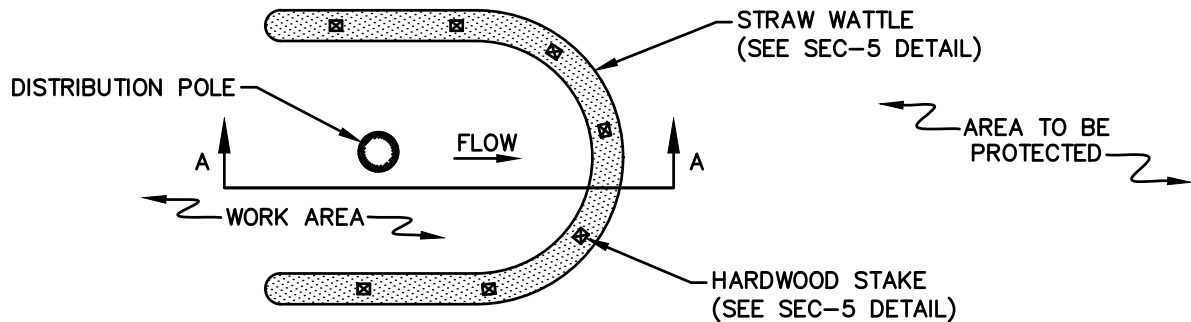
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

SECTION A-APLANNOTES

1. PRODUCT TO BE STRAW WATTLE OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST (SEE SEC-5 BMP DETAIL).
2. STRAW BALE BARRIER PER SEC-1 BMP DETAIL TO BE AN AVAILABLE ALTERNATE DEPENDING ON SITE CONDITIONS AT THE DIRECTION OF NATIONAL GRID ENVIRONMENTAL SCIENTIST (SEE FIGURE 2).
3. MINIMUM CLEARANCE BETWEEN POLE AND EROSION CONTROL TO BE DETERMINED BY CONDITIONS OF POLE INSTALLATION/REPLACEMENT WORK AND ASSOCIATED DISTURBANCE.

BMP PICTURE

FIGURE 1: TYP. STRAW WATTLE APPLICATION



FIGURE 2: ALT. STRAW BALE APPLICATION

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SEC-12
**DISTRIBUTION POLE
SEDIMENT CONTROL**

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE

SCALE: NONE

**NOTES:**

1. PRODUCT TO BE ALTURNAMATS' PREFABRICATED MATS OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. PRODUCT AVAILABLE IN 4X8' UNITS.
3. IF MATS ARE INSTALLED IN A WETLAND AREA, INSTALL EROSION CONTROLS TO CONTAIN MATERIAL UTILIZED IN THE MAT TRANSITIONS.

* PICTURE PROVIDED BY ALTURNAMATS

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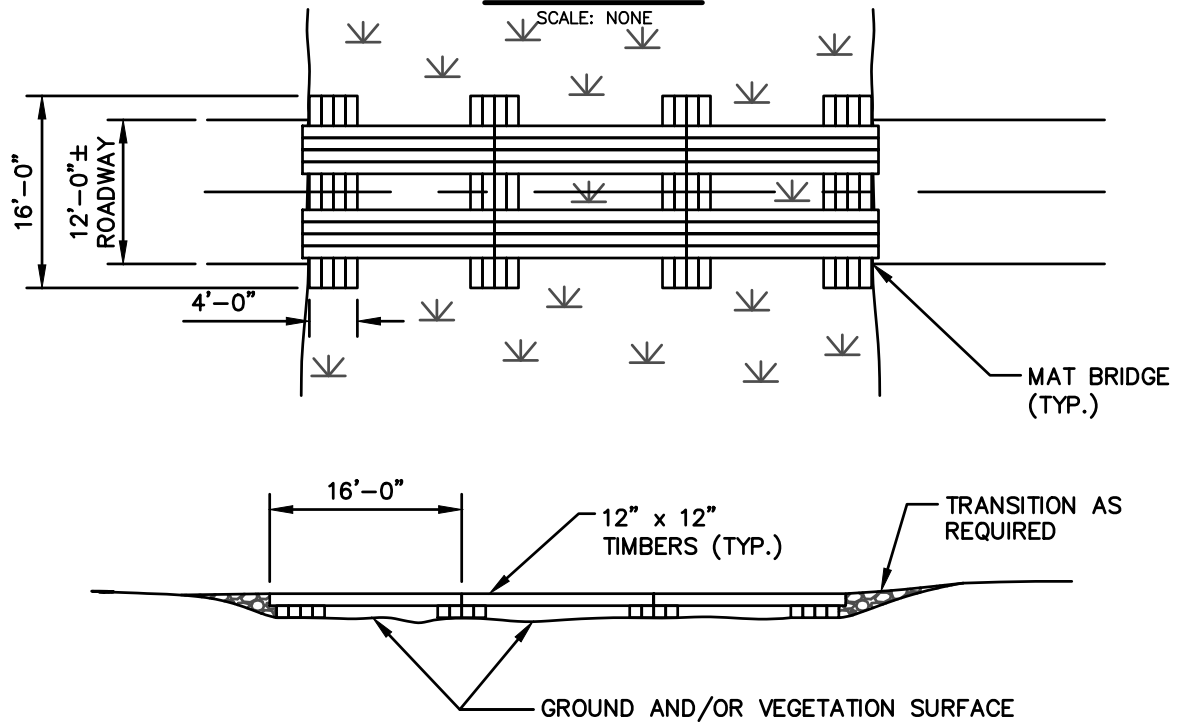
CM-1
PREFABRICATED MATS *

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL**NOTES:**

1. IF MATS ARE INSTALLED IN A WETLAND AREA, INSTALL EROSION CONTROLS TO CONTAIN MATERIAL UTILIZED IN THE MAT TRANSITIONS.

BMP PICTURE

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CM-2
CONSTRUCTION MAT BRIDGE
(1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE - SINGLE SPAN

SCALE: NONE

**NOTES:**

1. WHERE STREAM WIDTH ALLOWS, INSTALL CONSTRUCTION MATS TO SPAN THE WATERCOURSE IN ITS ENTIRETY WITHOUT STRINGER PLACEMENT IN THE WATER OR ANY RESTRICTION OF STREAM FLOW.
2. INSTALLATION OF THE CONSTRUCTION MAT BRIDGE SHALL NOT DAMAGE THE STREAM BED AND BANKS. WHERE POSSIBLE, FOOTERS SHALL BE PLACED PARALLEL TO THE TOP OF THE STREAM BANKS, WITH ACCESS MATTING PLACED ACROSS THE TOP OF THE STRINGERS DISTRIBUTING THE WEIGHT OF THE CONSTRUCTION EQUIPMENT.
3. AT STREAM CROSSINGS THAT CANNOT BE SPANNED BY A SINGLE SECTION OF CONSTRUCTION MATTING, AND WHERE PERMITS ALLOW, STRINGERS SHALL BE PLACED ATOP THE STREAM BED PARALLEL TO THE FLOW OF WATER.

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CM-2
CONSTRUCTION MAT BRIDGE
(2 OF 2)

SUBJECT

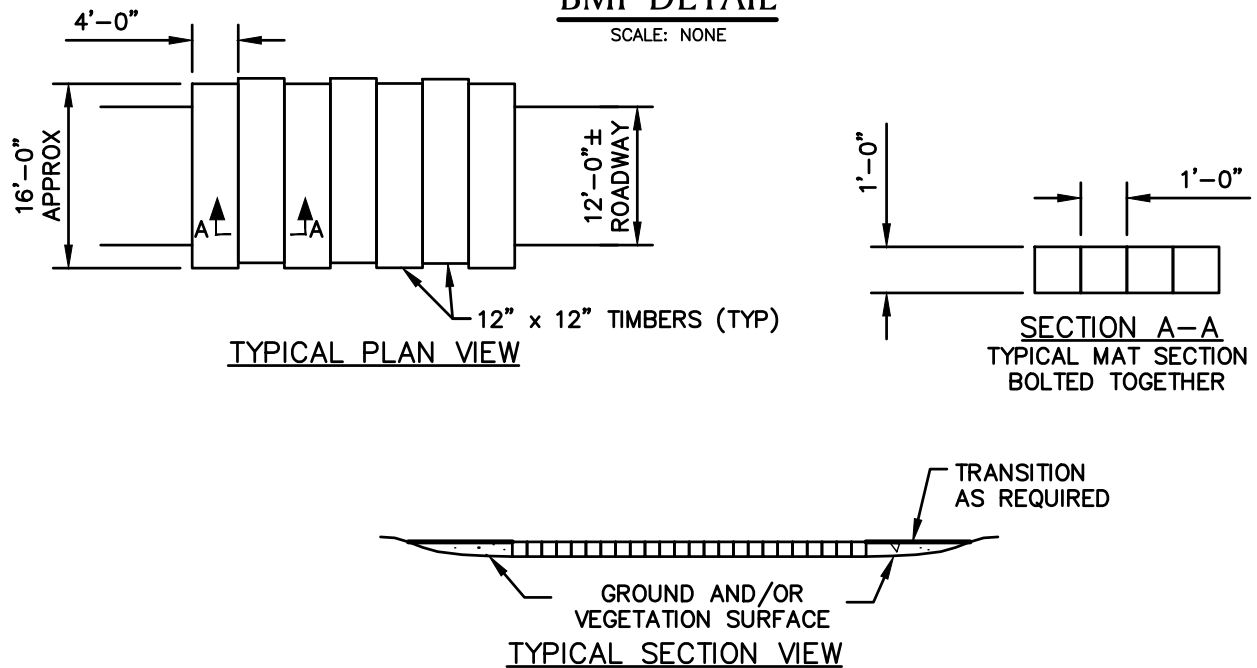
Access, Maintenance and Construction
Best Management Practices

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EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. TO BE INSTALLED IF NECESSARY TO PREVENT RUTTING, TO ACCESS STRUCTURES.
2. THIS DETAIL SHOWS TYPICAL DIMENSIONS. SOME CONTRACTOR'S CONSTRUCTION MATS ARE DIMENSIONALLY DIFFERENT FROM WHAT IS SHOWN HERE.
3. DEPENDENT ON SITE CONDITIONS, MULTIPLE LAYERS OF CONSTRUCTION MATS MAY BE INSTALLED.

BMP PICTURE

CM-3

CONSTRUCTION MAT LAYOUT
(WITH TRANSITION)

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SUBJECT

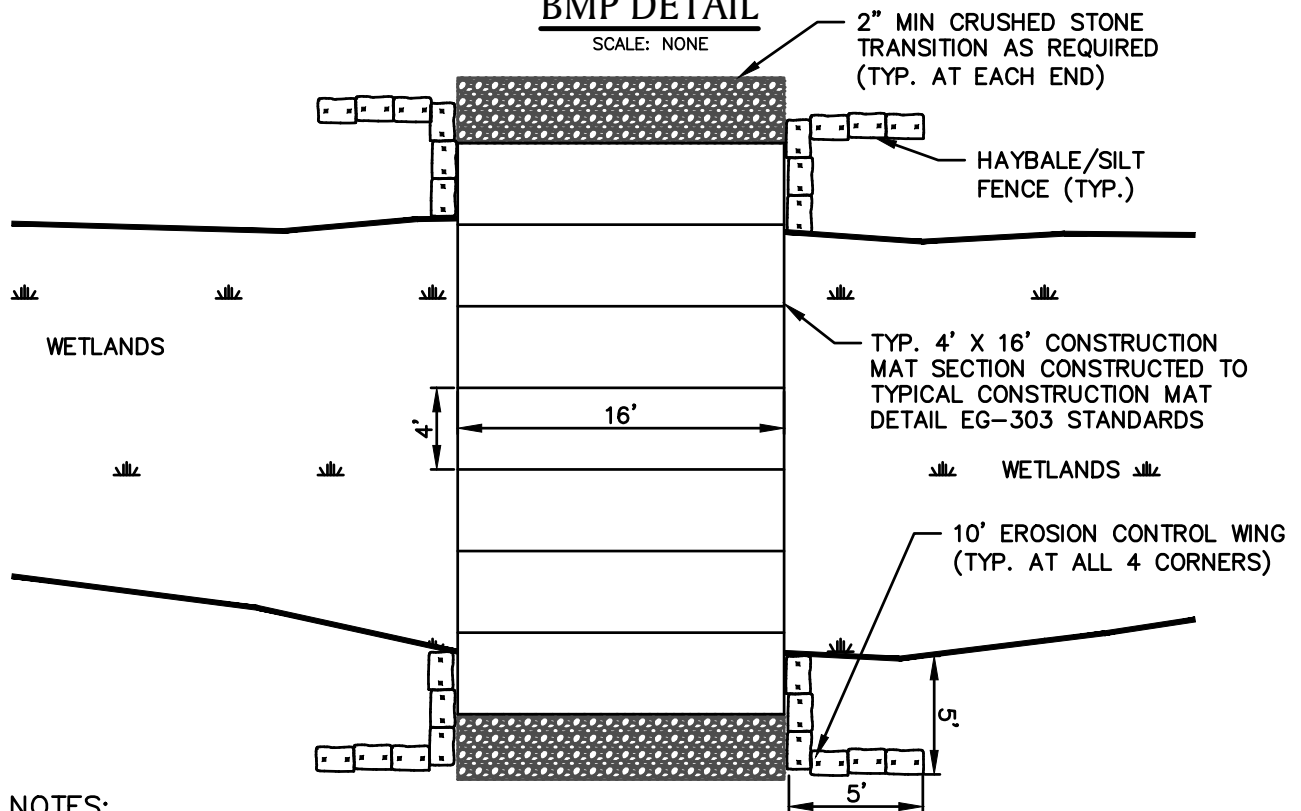
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. ADD FILTER FABRIC AS NEEDED UNDER STONE TRANSITION RAMPS.
2. ALL MEASUREMENTS AND LOCATIONS ARE APPROXIMATE.

BMP PICTURE

CM-4

CONSTRUCTION MAT LAYOUT
(WITH TRANSITION AND BMPs)

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SUBJECT

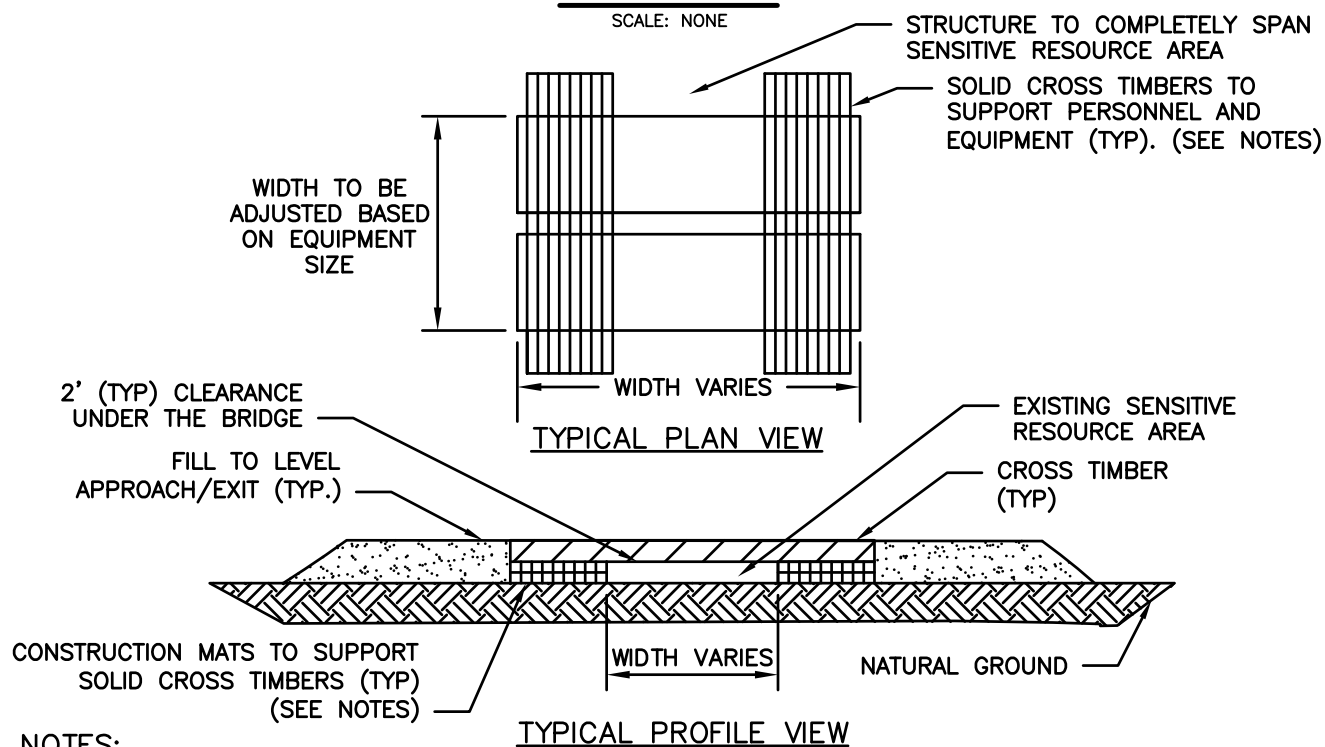
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. THE DETAIL SHOWN IS CONCEPTUAL. CONSTRUCTION MATS AND CROSS TIMBERS SHALL BE SIZED AND SELECTED BASED ON SPAN WIDTH, CROSSING EQUIPMENT AND FIELD CONDITIONS.
2. THE NUMBER OF CONSTRUCTION MATS MAY VARY DEPENDING ON THE CLEARANCE HEIGHT.
3. EQUIPMENT AND PERSONNEL LOAD SHALL BE DISTRIBUTED ON ALL TIMBERS.
4. EACH EQUIPMENT OPERATOR AND USER OF THE FIELD BRIDGE SHALL BE FAMILIAR WITH THE DESIGN AND THE MAXIMUM EQUIPMENT AND PERSONNEL LOADS.
5. THIS DETAIL MAY NOT BE APPLICABLE IN ALL FIELD CONDITIONS.
6. INSTALL EROSION CONTROLS ADJACENT TO THE CULVERT ENDS TO PROTECT THE WATERWAY FROM ROADWAY DEBRIS.

BMP PICTURE

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CM-5

CONSTRUCTION MAT - AIR BRIDGE

SUBJECT

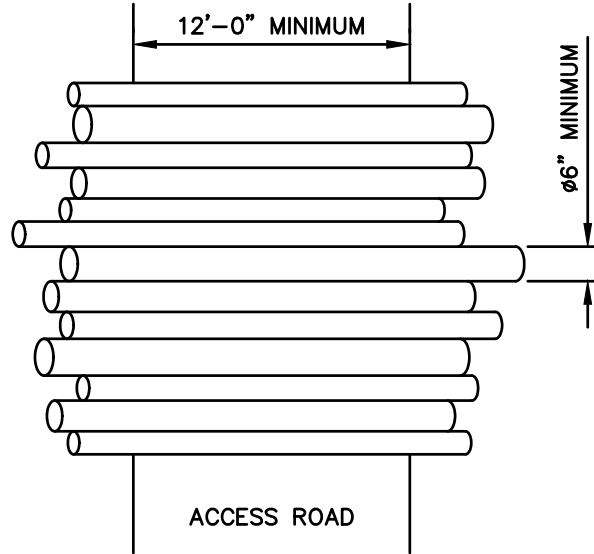
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Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE



RANDOM LENGTH AND DIAMETER LOGS PLACED ACROSS AN ACCESS ROAD

NOTE:

1. A SIMILAR BRUSH MAT INSTALLATION CONSISTING OF SMALLER DIAMETER STEMS AND LOGS CAN BE USED.
2. CORDUROY ROADS SHALL ONLY BE USED IN EMERGENCIES OR AFTER APPROVAL FROM THE PROJECT ENVIRONMENTAL CONSULTANT OR NATIONAL GRID ENVIRONMENTAL SCIENTIST.

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CM-6
CORDUROY ROAD

SUBJECT

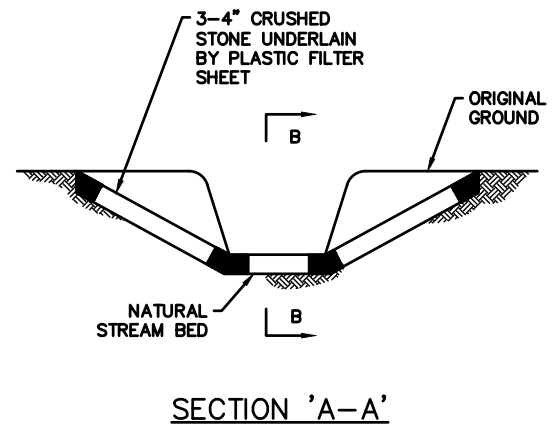
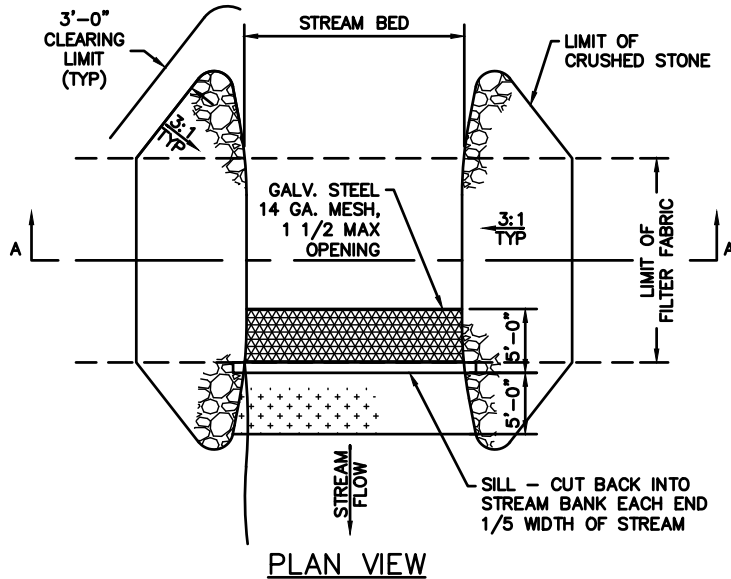
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BMP DETAIL

SCALE: NONE

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CM-7
ROCK FORD

SUBJECT

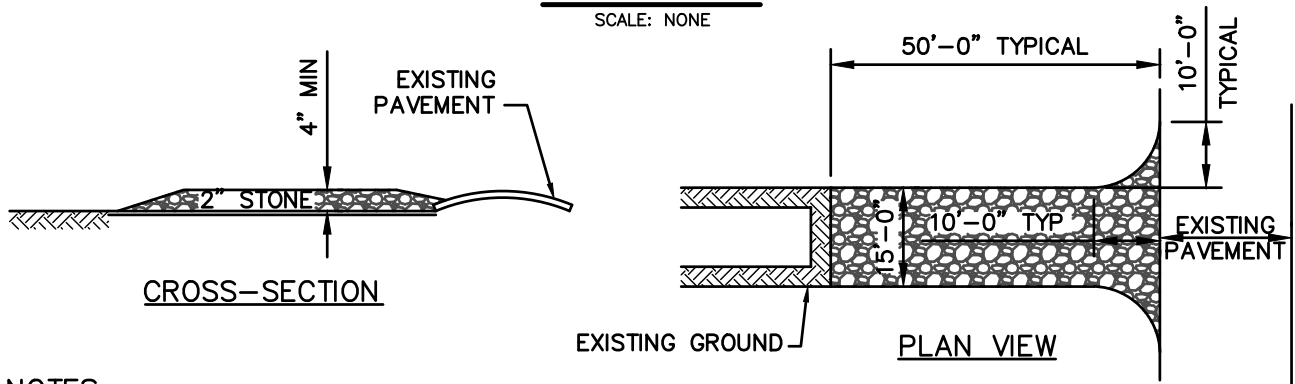
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Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. STONE SIZE – USE 2" STONE (MINIMUM) TO 6" STONE (MAXIMUM)
2. LENGTH – GREATER THAN OR EQUAL TO 50 FEET
3. THICKNESS – 4"
4. WIDTH – FIFTEEN (15) FOOT TYP., BUT NOT LESS THAN FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS ENTRANCE. IF PIPING IS IMPRACTICAL, MOUNTABLE BERM SHALL BE PERMITTED.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
7. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.
8. THE CLEAN STONE SHOULD BE INSTALLED OVER A GEOTEXTILE FABRIC. GEOTEXTILE FABRIC MAY BE OMITTED FOR PERMANENT CONSTRUCTION ENTRANCES/EXITS ON A CASE-BY-CASE BASIS WITH THE APPROVAL OF THE NATIONAL GRID ENVIRONMENTAL SCIENTIST.
9. FOLLOWING CONSTRUCTION, THE CONSTRUCTION ENTRANCE/EXIT SHALL BE REMOVED AND THE AREA GRADED, SEEDED, AND MULCHED AS NEEDED. ENTRANCE/EXITS MAY REMAIN DEPENDING UPON FUTURE ACCESS NEEDS AND/OR PROJECT-SPECIFIC APPROVALS BUT REQUIRES APPROVALS FROM THE NATIONAL GRID ENVIRONMENTAL SCIENTIST AND PROPERTY LEGAL.

BMP PICTURE

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CM-8
TEMPORARY CONSTRUCTION
ENTRANCE/ EXIT

SUBJECT

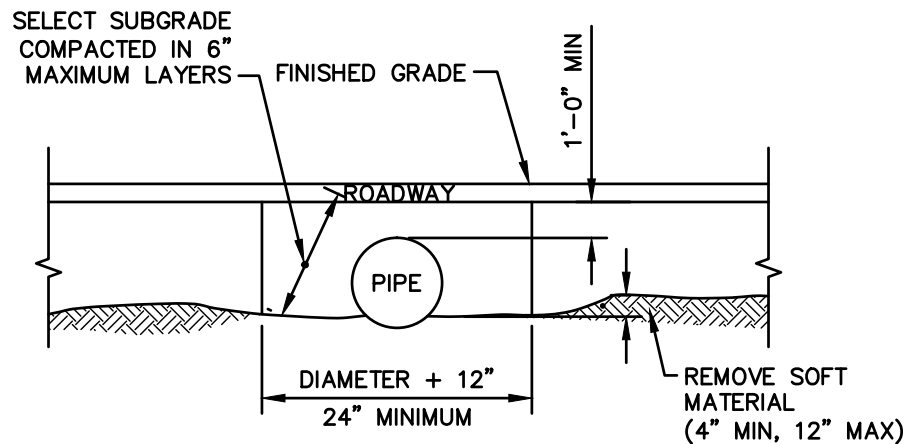
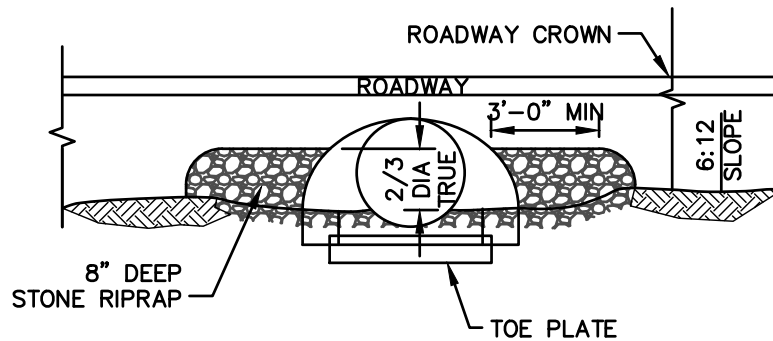
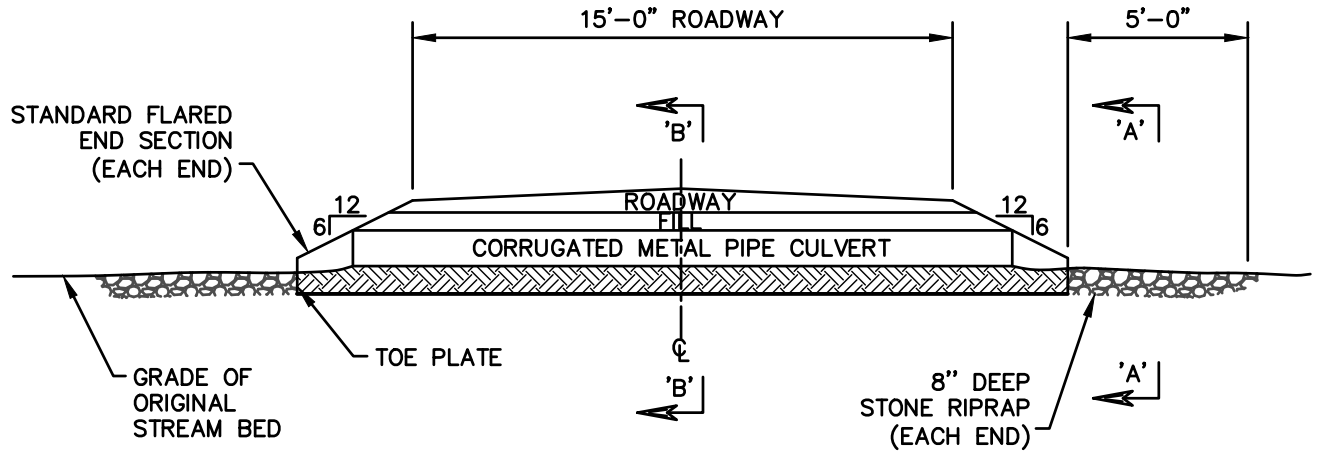
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BMP DETAIL

SCALE: NONE



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CM-9
TEMPORARY CONSTRUCTION
CULVERT (1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
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BMP DETAIL**NOTES:**

SCALE: NONE

1. CULVERT DESIGN AND LAYOUT SHALL BE COORDINATED WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST (NGES).
2. CROWN ROADWAY 1/2 INCH PER FOOT.
3. LAY THE CULVERT STRAIGHT AND AS NEARLY AS POSSIBLE ALONG THE EXISTING STREAM BED AND WITH THE INVERTS AT OR SLIGHTLY BELOW BED ELEVATION.
4. CORRUGATED METAL PIPE IS TO BE GALVANIZED STEEL, OR ALUMINIZED STEEL (TYPE 2), WITH BOLTED CONNECTORS.
5. DIAMETERS SHALL BE AS PER THE PROJECT DRAWINGS AND THE SPECIFICATION. THE PIPE GAGE SHALL BE AS FOLLOWS:

DIAMETER (INCHES)	GAGE
12" - 15"	.004"
18" - 24"	.079"
30" - 36"	.109"

6. INSTALLATION OF CULVERTS LARGER THAN 36 INCH DIAMETER SHALL REQUIRE SPECIAL ENGINEERING DESIGN.
7. SELECT SUBGRADE SHALL BE A GRANULAR MATERIAL AS DESCRIBED IN NYSDOT SPECIFICATION ITEM 203-2.02C, OR AS APPROVED BY A NGES.
8. STONE RIPRAP SHALL BE AS DESCRIBED IN NYSDOT SPECIFICATION ITEM 203-2.02D, WITH 8 INCH MAXIMUM SIZE, OR AS APPROVED BY A NGES. EXCEPT WHERE PROTECTED BY STONE, ALL EMBANKMENT SLOPES ARE TO BE STABILIZED, MULCHED AND SEEDED AS PER PROJECT SPECIFICATIONS.
9. OUTLET SHOULD BE CONFIGURED NOT TO CREATE HYDRAULIC JUMP OR PLUNGE POOL.
10. INSTALL EROSION CONTROLS ADJACENT TO THE CULVERT ENDS TO PROTECT THE WATERWAY FROM ROADWAY DEBRIS.

BMP PICTURE

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CM-9

TEMPORARY CONSTRUCTION
CULVERT (2 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURENOTE:

1. PICTURE SHOWS VIEW OF ACCESS WAY STABILIZATION ADJACENT TO A WETLAND.
2. COORDINATE STABILIZATION DESIGN AND PRODUCT WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE

NO ACCESS – WETLAND/STREAM CROSSING MATS REQUIRED



NO ACCESS – A.) PROJECT LIMITS E.G. ROW LIMITS
B.) HISTORICAL/CULTURAL
C.) ENVIRONMENTALLY SENSITIVE E.G. THREATENED & ENDANGERED
D.) OTHER



APPROVED ACCESS

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CM-11
CONSTRUCTION SIGNAGE

SUBJECT

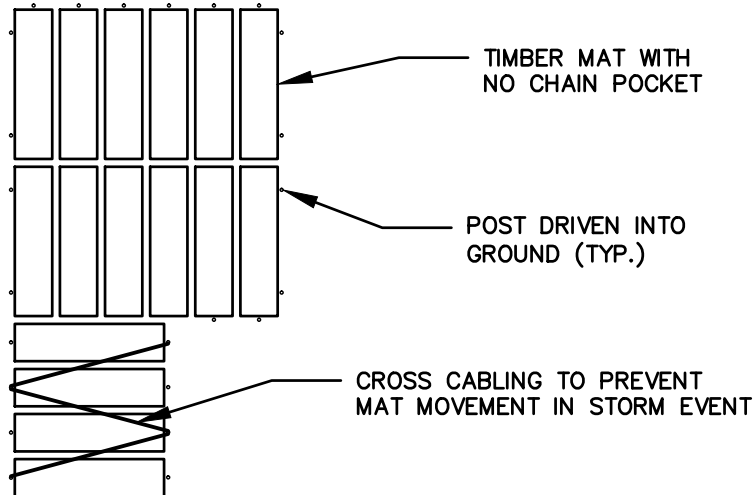
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL 1

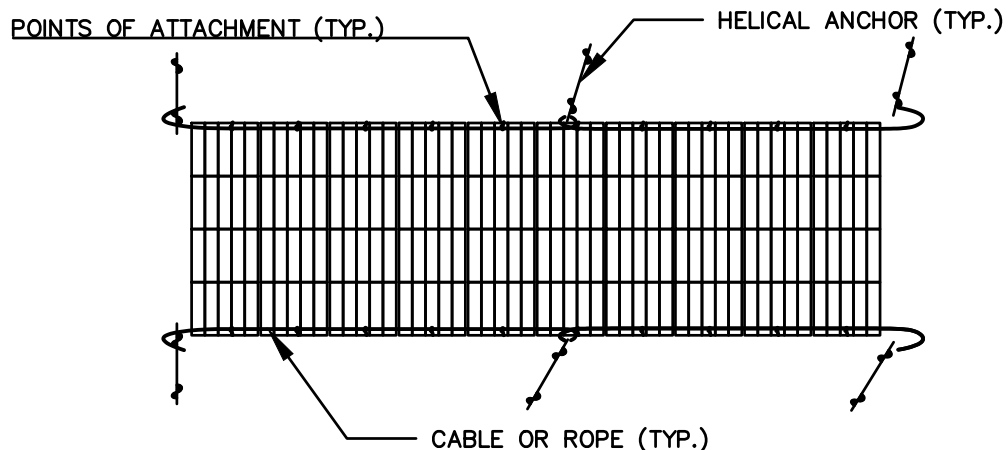
SCALE: NONE

TYPICAL PLAN VIEWNOTES:

1. EXAMPLES OF ANCHORING ONLY. MATTING CONTRACTOR SHALL PROPOSE THE METHOD OF ANCHORING BASED ON FIELD CONDITIONS.
2. ANCHORING METHOD TO BE APPROVED BY THE NATIONAL GRID ENVIRONMENTAL SCIENTIST AND TRANSMISSION LINE CONSTRUCTION SUPERVISOR.

BMP DETAIL 2NOTES:

1. TYPICAL HELICAL ANCHOR AND CABLE CONFIGURATION FOR MAT CONTAINMENT IN FLOODPLAINS/LAND SUBJECT TO FLOODING.
2. TYPICAL POINTS OF ATTACHMENT HEAVY STAPLES, EYE BOLTS OR OTHER SUITABLE HARDWARE TO SECURE ATTACHMENT OF MAT TO LINEAR CABLE. IF CHAIN POCKETS ARE PRESENT IN THE MATS CABLE OR ROPE CAN BE LOOPED THROUGH RODS.

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CM-12

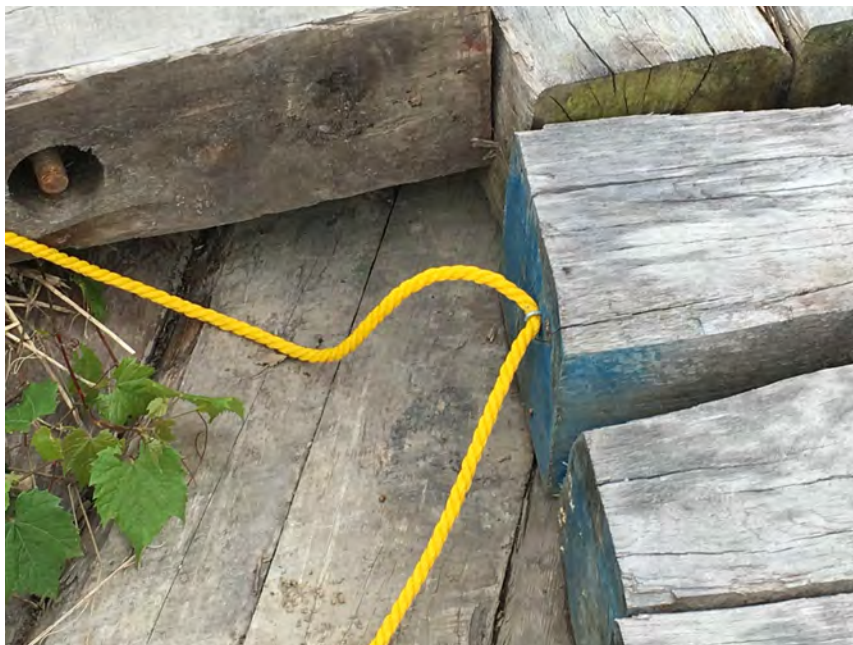
EXAMPLE OF CONSTRUCTION MAT
ANCHORING (1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE 1BMP PICTURE 2

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CM-12

EXAMPLE OF CONSTRUCTION MAT
ANCHORING (2 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

WIRE BACKED SILT FENCE

**MUTUAL INDUSTRIES WIRE BACKED SILT FENCE**

PART # 1776-14-24

36" X 100'

36" MISF 1776 FABRIC

24" 14GA WIRE MESH

OPENING OF MESH 2" X 4"

FABRIC HOG RINGED EVERY 12"-18" ALONG THE TOP OF THE FENCE

ROLL WEIGHT 40 LBS

32 ROLLS PER PALLET

NOTES:

1. PRODUCT TO BE MUTUAL INDUSTRIES' WIRE BACKED SILT FENCE OR APPROVED EQUAL BY NATIONAL ENVIRONMENTAL SCIENTIST.
2. COORDINATE INSTALLATION METHOD AND LOCATION WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

* PICTURE AND DETAIL PROVIDED BY MUTUAL INDUSTRIES

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AA-1

REINFORCED SILT FENCE *

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURENOTE:

1. PICTURE SHOWS SEDIMENT FILTER WITHIN A WETLAND.

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AA-2
SEDIMENT FILTER

SUBJECT

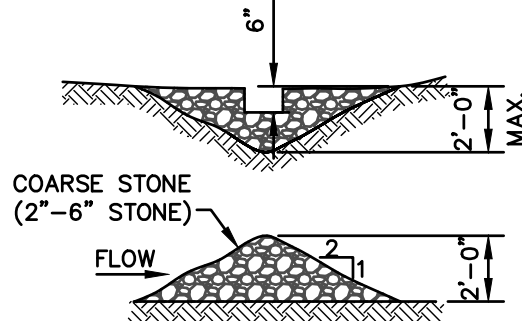
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**STONE CHECK DAM****NOTES:**

1. USE CHECK DAMS TO SLOW WATER FLOWS AND AS SMALL SEDIMENT TRAPS IN DITCHES ALONG ACCESS ROADS.
2. CLEAN SEDIMENT AND REPLACE DAMS AS NECESSARY.
3. THE CENTER OF THE CHECK DAM MUST BE AT LEAST 6" LOWER THAN THE OUTER EDGES.
4. COORDINATE SPACING WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.
5. MAX. SPACING: TOE OF THE UPSTREAM DAM IS SAME ELEVATION AS TOP OF DOWNSTREAM DAM.
6. STONE SHALL BE FREE OF FINE PARTICLES TO PREVENT TURBID DISCHARGES.

BMP PICTURE

NOTE: A SMALLER STONE SIZE IS SHOWN IN THIS PICTURE.

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AA-3
STONE CHECK DAMS

SUBJECT

Access, Maintenance and Construction
Best Management Practices

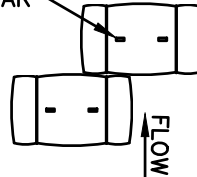
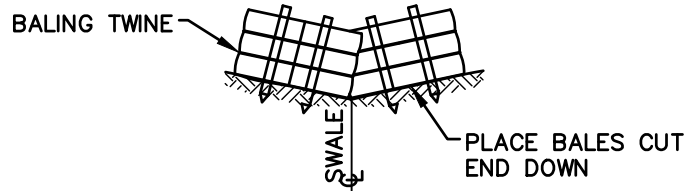
Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

3' HARDWOOD
STAKES OR
Ø5/8" REBAR

PLAN VIEWSECTION VIEWNOTES:

1. USE CHECK DAMS TO SLOW WATER FLOWS AND AS SMALL SEDIMENT TRAPS IN DITCHES ALONG ACCESS ROADS.
2. CLEAN SEDIMENT AND REPLACE DAMS AS NECESSARY.
3. COORDINATE SPACING WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP PICTURE**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**

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AA-4

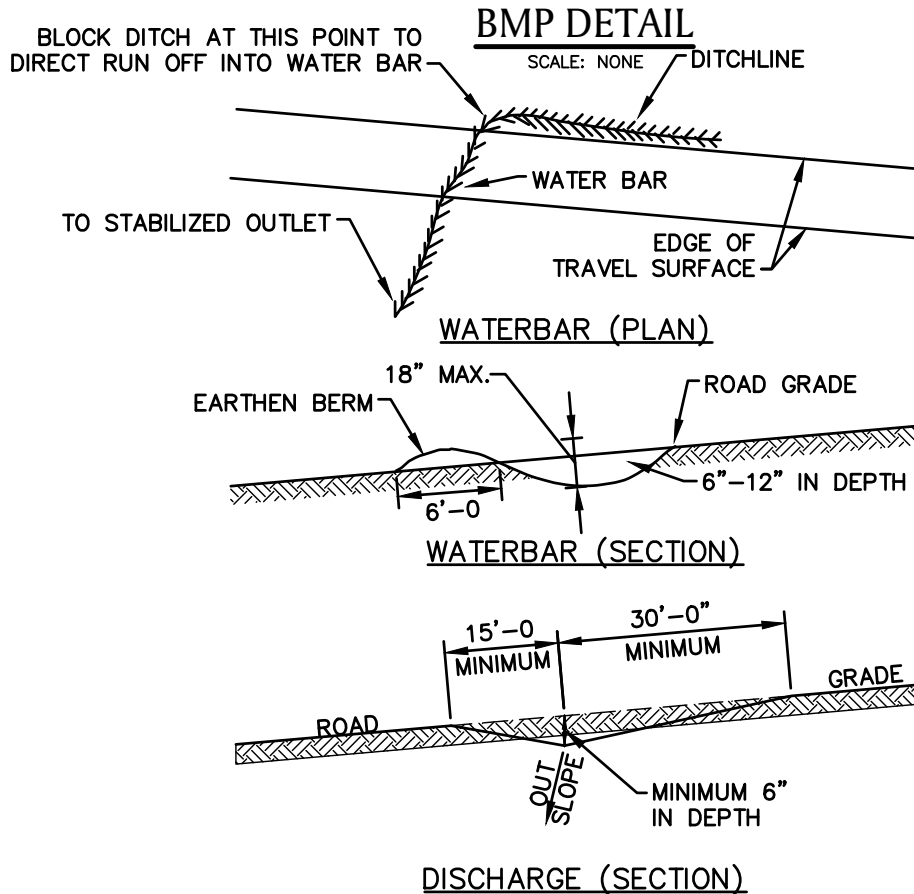
STRAW / HAYBALE CHECK DAM

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

**NOTE:**

1. LINE WITH 2"-6" STONE UNDERLAIN BY GEOTEXTILE FILTER FABRIC, KEYED INTO ROAD SURFACE AT LEAST 10 FEET EACH SIDE OF WATERBAR.
2. COORDINATE SPACING WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP PICTURE

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AA-5
WATERBAR

SUBJECT

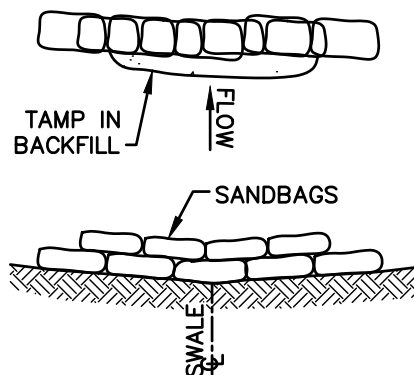
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**SANDBAG
CHECK DAM****NOTES:**

1. USE CHECK DAMS TO SLOW WATER FLOWS AND AS SMALL SEDIMENT TRAPS IN DITCHES ALONG ACCESS ROADS.
2. CLEAN SEDIMENT AND REPLACE DAMS AS NECESSARY.
3. COORDINATE SPACING WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP PICTURE**NOTE:**

1. PICTURE DOES NOT DEPICT "TAMP IN BACKFILL"

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AA-6
SANDBAG CHECK DAM

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURENOTE:

1. EXACT SIZE, LOCATION AND DESIGN IS DEPENDANT ON SITE CONDITIONS, AND LOCAL AND STATE REGULATIONS. COORDINATE THIS BMP WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST PRIOR TO CONSTRUCTION.

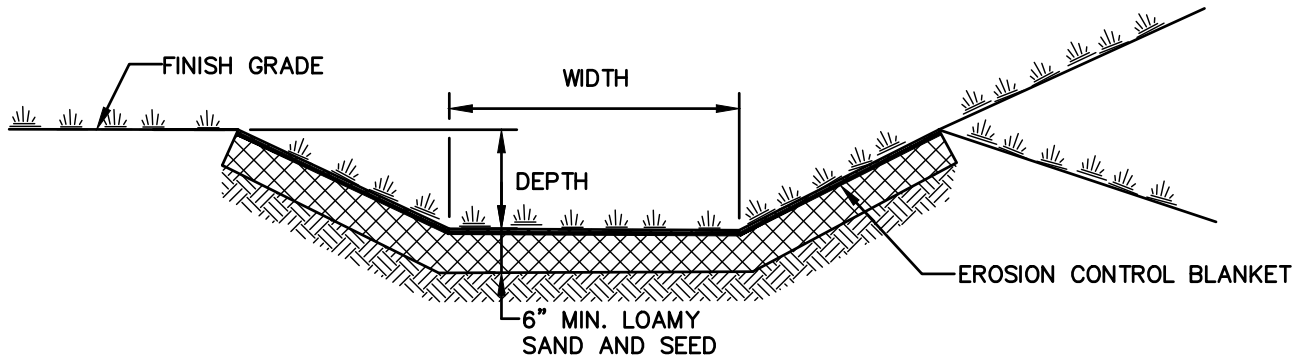
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AA-7
EARTH DIKE

SUBJECTAccess, Maintenance and Construction
Best Management Practices**Reference**EP No. 3 - Natural Resource
Protection (Chapter 6)**BMP DETAIL**

SCALE: NONE

**NOTES:**

1. WIDTH AND DEPTH OF SWALE, AND EROSION CONTROL BLANKET TYPE TO BE COORDINATED WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. REFER TO DETAILS SEC-10 AND SEC-11 FOR SEED MIXTURE OPTIONS.

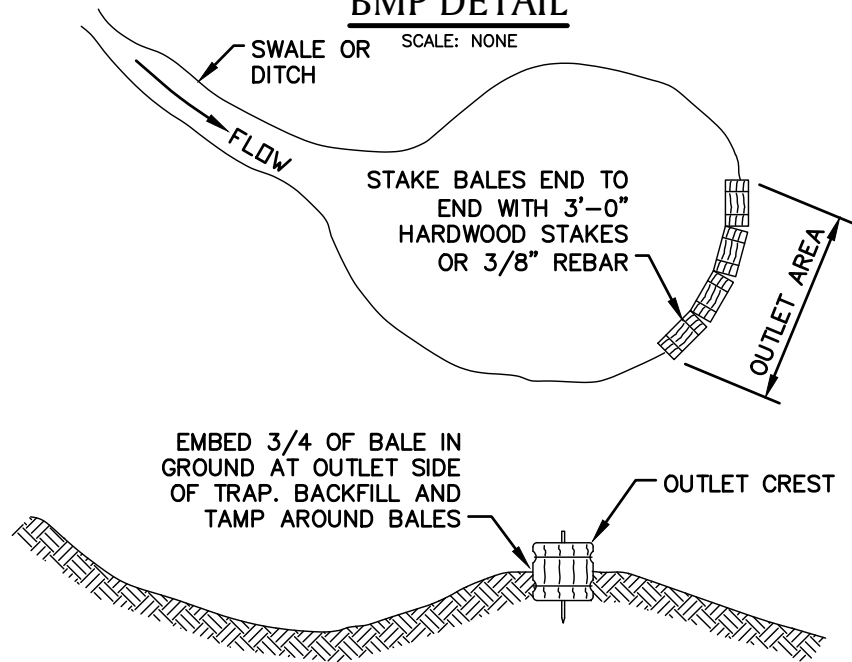
BMP PICTURE**AA-8****DRAINAGE SWALE AND
LINED DITCH****APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**PRINTED COPIES ARE NOT DOCUMENT CONTROLLED. FOR LATEST AUTHORIZED
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SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL**TYPICAL PROFILE****NOTES**

1. SIZE, SHAPE AND PROFILE OF SEDIMENT WILL VARY ACCORDING TO ANTICIPATED FLOW VOLUME AND SURROUNDING TERRAIN AND SHALL BE COORDIANATED WITH THE NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. THE BASIN SHALL BE CUT BELOW THE GROUNDLINE. FILL SHALL NOT BE USED TO HOLD WATER UNLESS ROLLED AND COMPACTED.
3. OUTLET AREA IS TO REMAIN FREE OF EXCAVATION SPOILS.
4. OUTLET CREST ELEVATION SHALL BE LOWER THAN INLET ELEVATION AND AT LEAST 1'-0" BELOW THE TOP OF THE BASIN. ARMOUR SLOPES >8% IN OUTLET AREA WITH STONE OF APPROPRIATE SIZE TO PREVENT SCOUR.
5. ARMOUR SLOPES >8% IN OUTLET AREA WITH STONE OF APPROPRIATE SIZE TO PREVENT SCOUR.

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AA-9
SEDIMENTATION BASIN

SUBJECT

Access, Maintenance and Construction
Best Management Practices

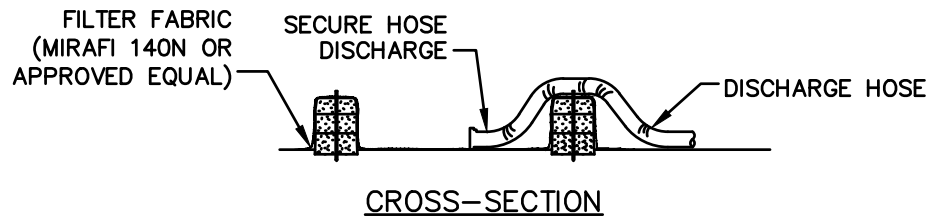
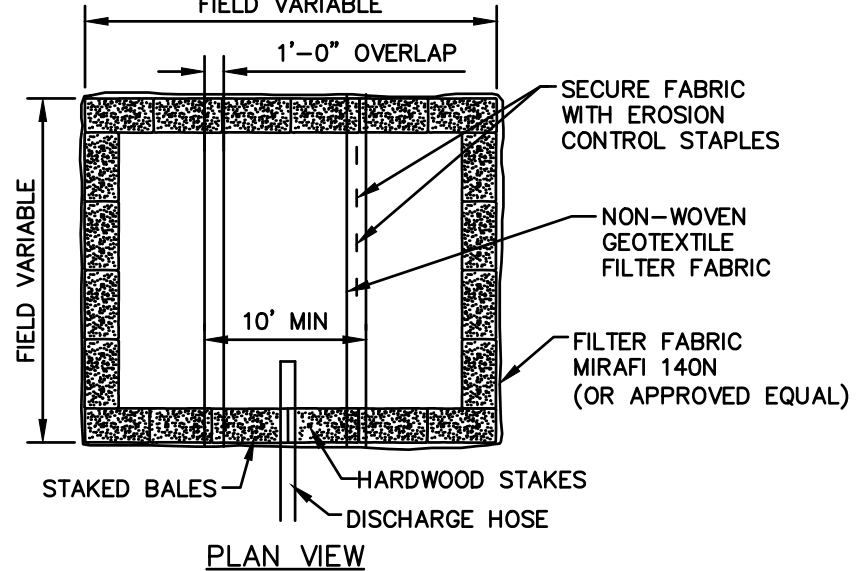
Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

FIELD VARIABLE

**NOTES:**

1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS,
2. THE BASIN TO BE SIZED TO PREVENT DISCHARGE WATER FROM OVERTOPPING BASIN.
3. KEEP AS FAR FROM WETLANDS AS PRACTICAL.
4. CLEAN AND REMOVE AS SOON AS DEWATERING IS COMPLETE.

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AA-10
DEWATERING BASIN
(SMALL SCALE)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURENOTE:

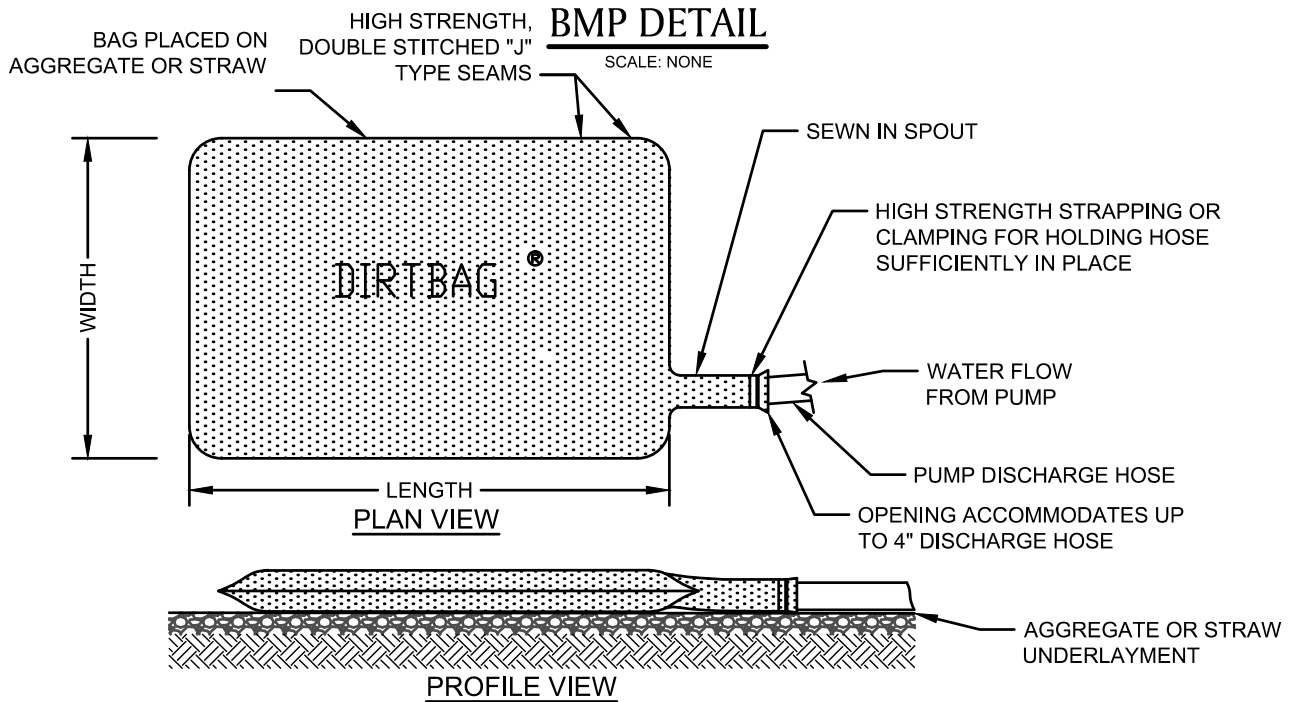
1. EXACT SIZE, LOCATION AND DESIGN IS DEPENDANT ON SITE CONDITIONS, AND LOCAL AND STATE REGULATIONS. COORDINATE THIS BMP WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST PRIOR TO CONSTRUCTION.

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

**NOTE:**

ONCE PUMPING COMMENCES, THE DIRT BAG SHALL BE MONITORED FREQUENTLY TO ASSURE THAT THE CONNECTIONS ARE SECURELY FASTENED AND THE RATE OF WATER DELIVERY TO THE STRUCTURE IS LOW ENOUGH TO PREVENT UNFILTERED WATER FROM FLOWING FROM THE HOSE CONNECTIONS OR BAG.

BMP PICTURE

* PICTURE AND DETAIL PROVIDED BY ACF ENVIRONMENTAL

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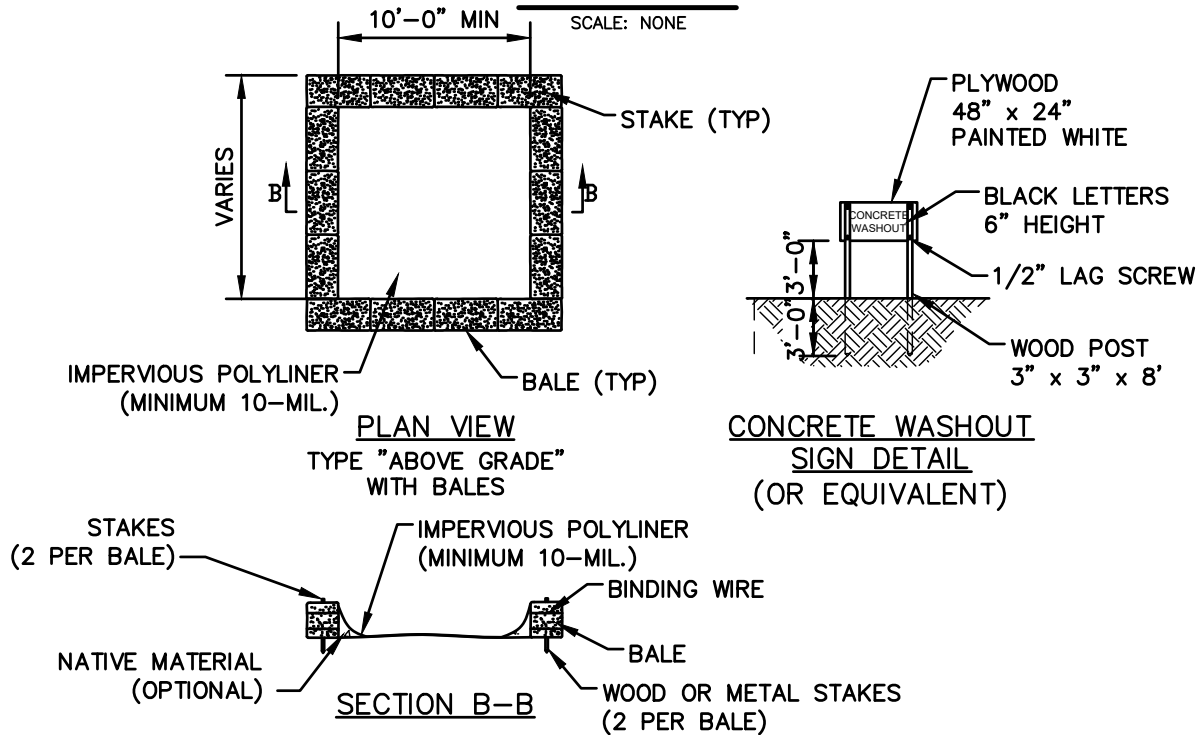
AA-12
DIRTBAG *

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL**NOTES:**

1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS. COORDINATE SIZE AND LOCATION OF CONCRETE WASTE SUMP WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. KEEP AS FAR FROM DRAINAGE CHANNELS AND WETLAND AREAS AS PRACTICAL.
3. SUMPS TO BE CLEANED AND WASTE CONCRETE REMOVED AND PROPERLY DISPOSED OF UPON COMPLETION OF WORK.
4. SEE ADDITIONAL NOTES ON DETAIL AA-14.

BMP PICTURE

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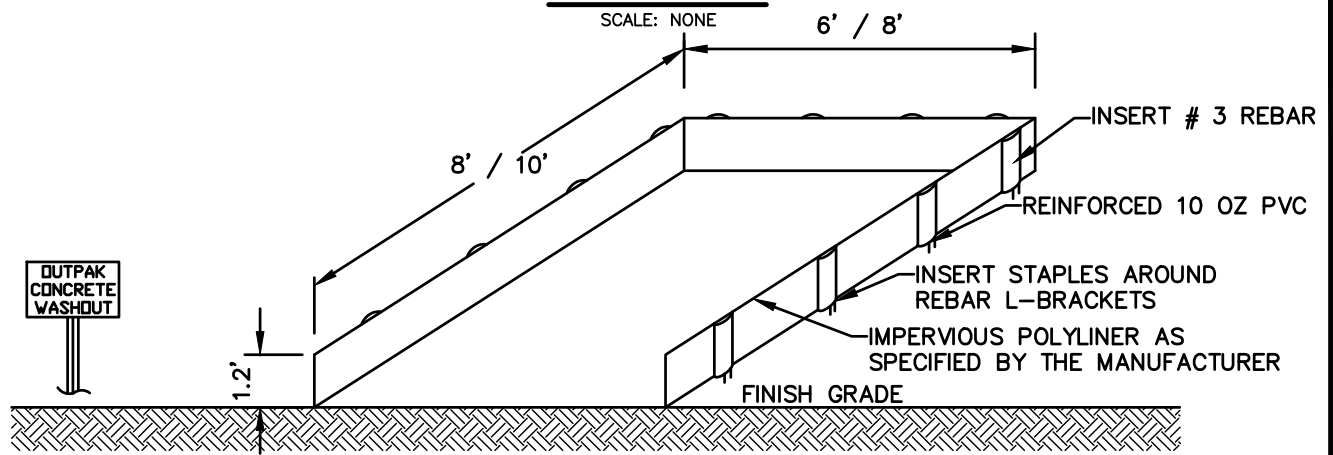
AA-13
CONCRETE WASTE SUMP

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL**NOTES:****CROSS SECTION**

1. PRODUCT TO BE OUTPAK PVC CONCRETE WASHOUT OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT.
3. SIGNS SHALL BE PLACED AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT.
4. THE CONCRETE WASHOUT AREA WILL BE REPLACED AS NECESSARY TO MAINTAIN CAPACITY FOR WASTE CONCRETE AND OTHER LIQUID WASTE.
5. WASHOUT RESIDUE SHALL BE REMOVED FROM THE SITE AND DISPENSED OF AT AN APPROVED WASTE SITE.
6. DO NOT MIX EXCESS AMOUNTS OF FRESH CONCRETE OR CEMENT ON-SITE.
7. DO NOT WASH OUT CONCRETE TRUCKS INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.
8. AVOID DUMPING EXCESS CONCRETE IN NON-DESIGNATED DUMPING AREAS.
9. LOCATE WASHOUT AREA AT LEAST 50' FROM STORM DRAIN, OPEN DITCHES, OR WATERBODIES. COORDINATE LOCATION WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.
10. WASH OUT WASTES INTO THE OUTPAK WASHOUT WHERE THE CONCRETE CAN SET, BE BROKEN UP, AND THEN DISPOSED OF PROPERLY.
11. A SECURE, NON-COLLAPSING, NON-WATER COLLECTING COVER MUST BE PLACED OVER CONCRETE WASHOUT PRIOR TO PREDICTED WET WEATHER TO PREVENT ACCUMULATION AND OVERFLOW OF PRECIPITATION.

BMP PICTURE

* PICTURE AND DETAIL PROVIDED BY OUTPAK WASHOUT
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AA-14
OUTPAK CONCRETE WASHOUT *

SUBJECT

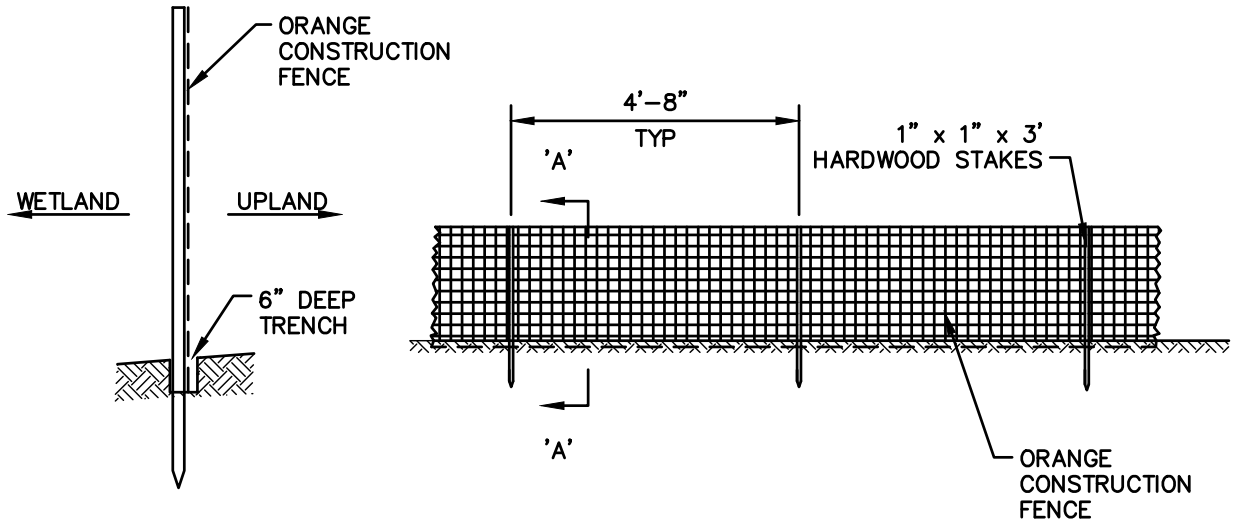
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE



SECTION A-A

BMP PICTURE



AA-15

**BARRIER FENCE
(CONSTRUCTION FENCE)**

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SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

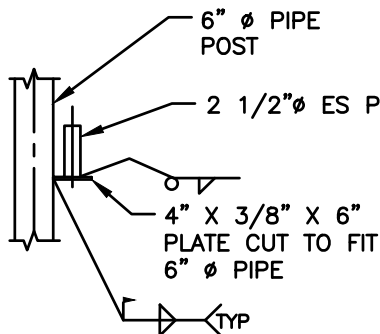
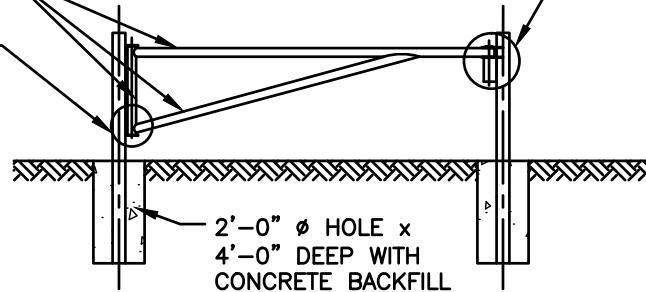
4" ϕ DES PIPE
GATE WELDMENT

BMP DETAIL

SCALE: NONE

DETAIL 2

DETAIL 1

DETAIL 1

SIMILAR DETAIL AT TOP

ROUND PIECE CUT FROM
1/4" PLATE AND WELDED

4" ϕ DES PIPE
1 1/4" ϕ ROD
(SLOTTED)

6" ϕ STD PIPE
WELDED TO 3/8"
PLATE

7" X 3/8" X 10" PLATE
WITH HOLE CUT TO FIT
6" ϕ PIPE & WELDED

6" ϕ PIPE
POST

DOUBLE LOCK
INSERT PLATE

DETAIL 2NOTES:

1. ALL GATE STEEL PIPES SHALL BE IN ACCORDANCE WITH ASTM A-501, PLATES SHALL BE ASTM A-36.
2. ALL STEEL PIPES SHALL BE PRIMED WITH ZINC-CHROMATE PRIMER AND FINISHED WITH AN APPROVED OSHA "SAFETY YELLOW" TOP COAT COMPATIBLE WITH THE PRIMER AND FOR EXTERIOR EXPOSURE.
3. REFLECTORS SHALL BE SPACED AT 3 FEET ALONG THE LENGTH OF THE CROSSBAR AND BRACE
4. BACKFILL AT POSTS TO BE COMPACTED.

BMP PICTURE

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AA-16
ROW GATE / FENCE

SUBJECT

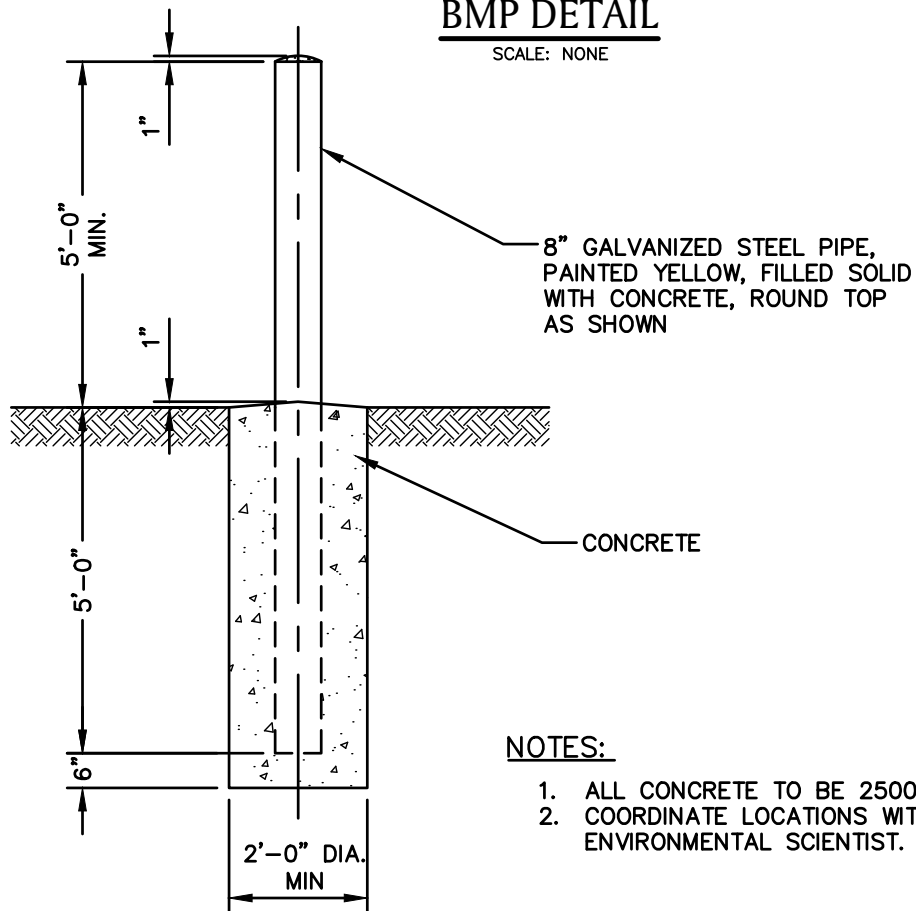
Access, Maintenance and Construction
Best Management Practices

Reference

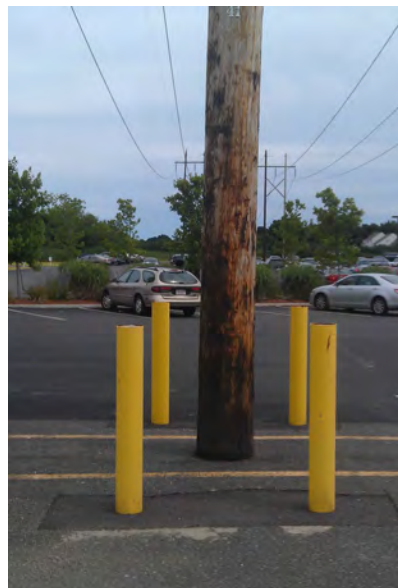
EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. ALL CONCRETE TO BE 2500 P.S.I. MINIMUM.
2. COORDINATE LOCATIONS WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP PICTURE**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**

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AA-17
BOLLARD

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP

**Definition**

The control of dust resulting from land-disturbing activities.

Purpose

To prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the local permitting authority.

Construction Specifications

A. Non-driving Areas – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

* BMP INFORMATION FROM "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (AUGUST, 2005)." INFORMATION OBTAINED VIA WEBSITE: <http://www.dec.ny.gov/chemical/29086.html>
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Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. Driving Areas – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access routes.

Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

Barriers – Woven geotextiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

SUBJECT

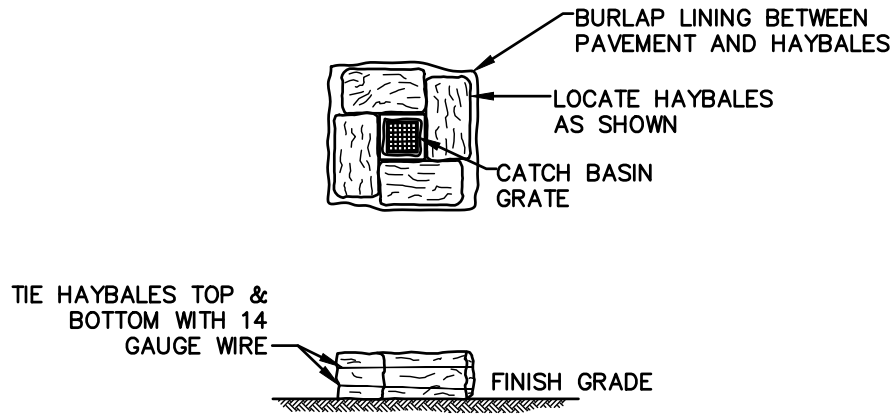
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. SURROUND STREET DRAINAGE STRUCTURE INLET WITH HAY BALES PRIOR TO CONSTRUCTION AND MAINTAIN UNTIL CONSTRUCTION IS COMPLETED. ACCUMULATED SEDIMENTS SHALL BE REMOVED.
2. HAYBALES PLACED ON PAVEMENT SHALL HAVE BURLAP PLACED BETWEEN PAVEMENT AND HAYBALE

BMP PICTURE**APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES**

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AA-19

CATCH BASIN INLET PROTECTION

SUBJECT

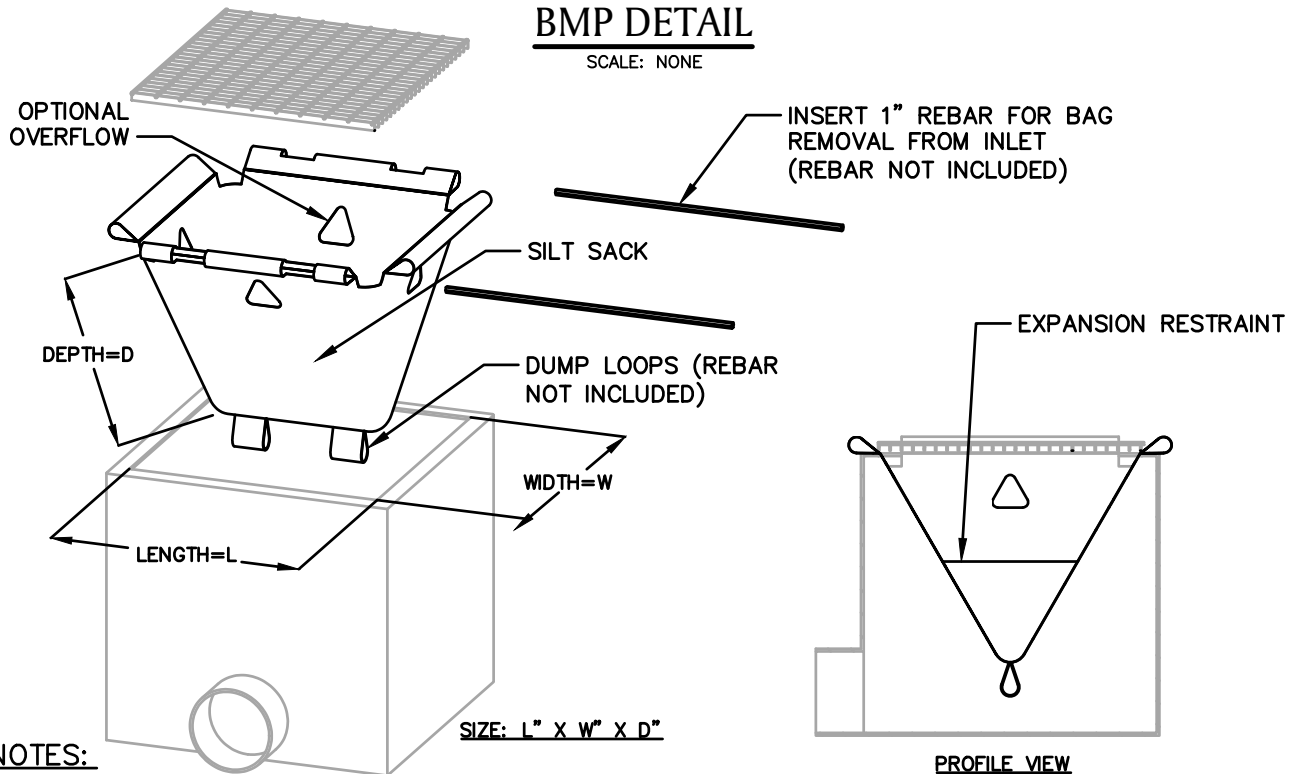
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**BMP PICTURE**

* DETAIL PROVIDED BY ACF ENVIRONMENTAL

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AA-20
SILT SACK *

SUBJECT

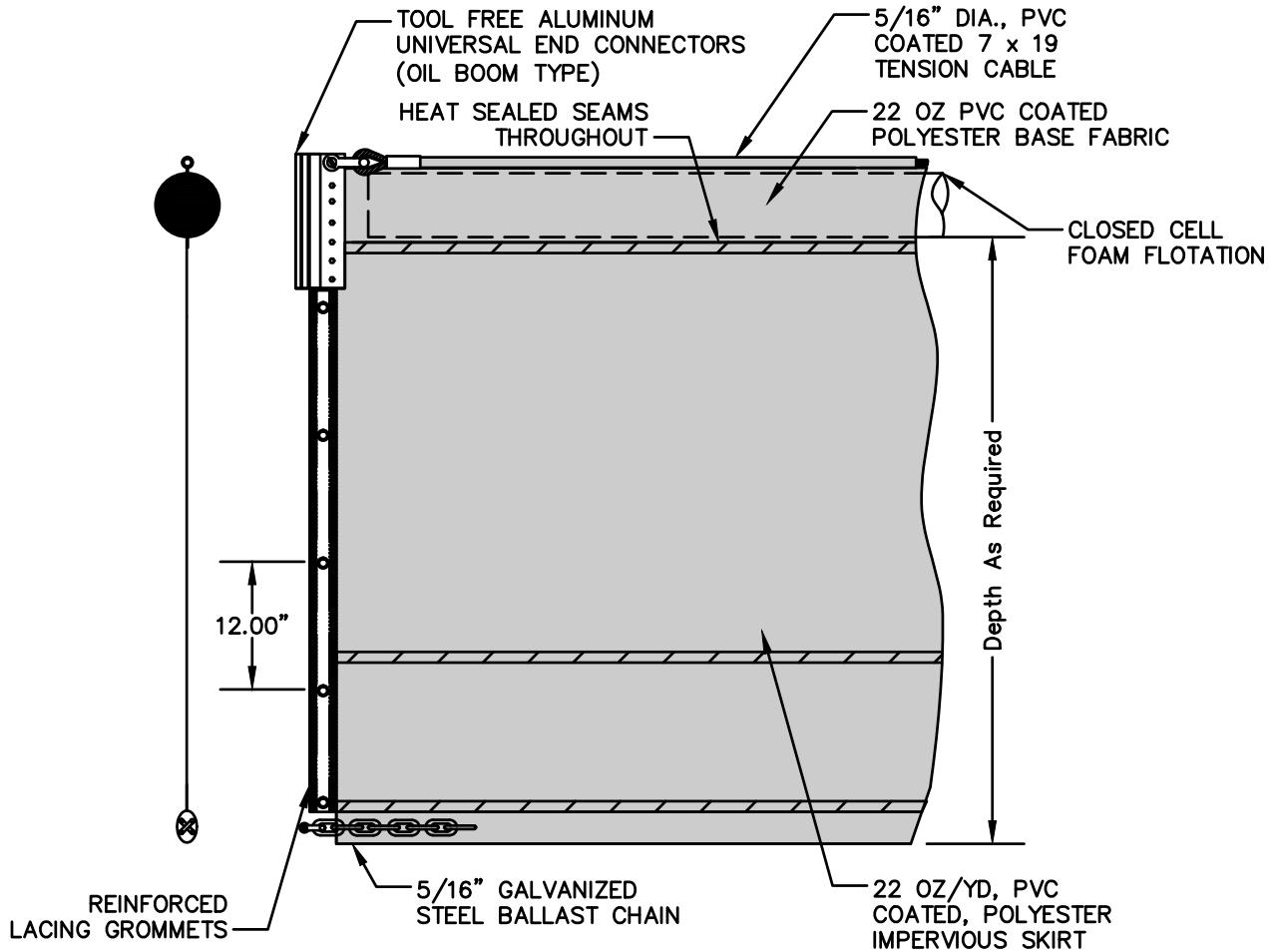
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE



BMP PICTURE



* DETAIL PROVIDED BY BROCKTON EQUIPMENT / SPILLDAM INC.

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AA-21
TURBIDITY CURTAIN *

SUBJECT

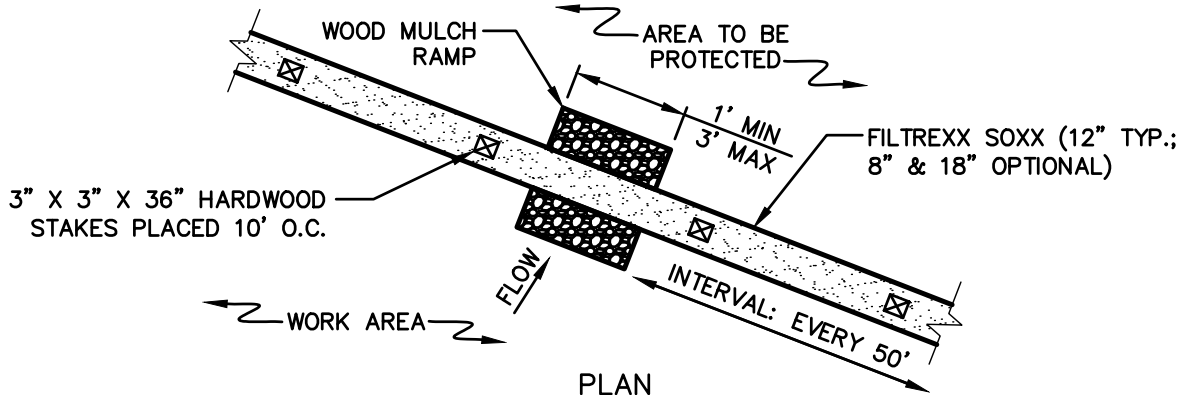
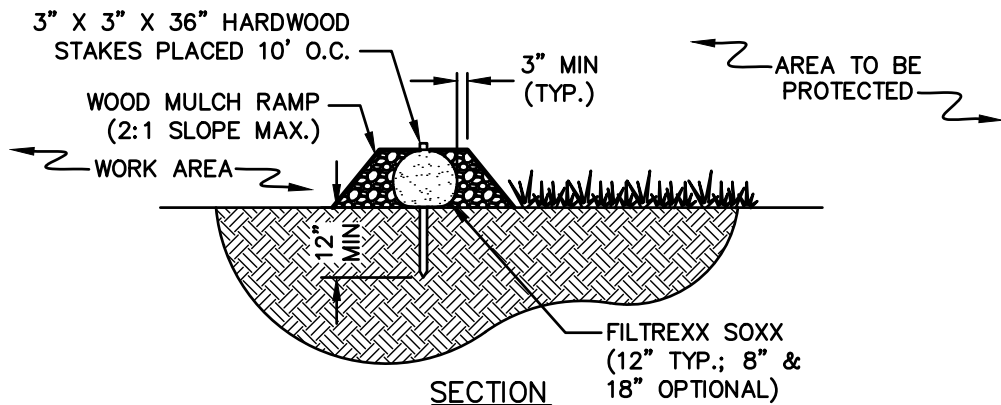
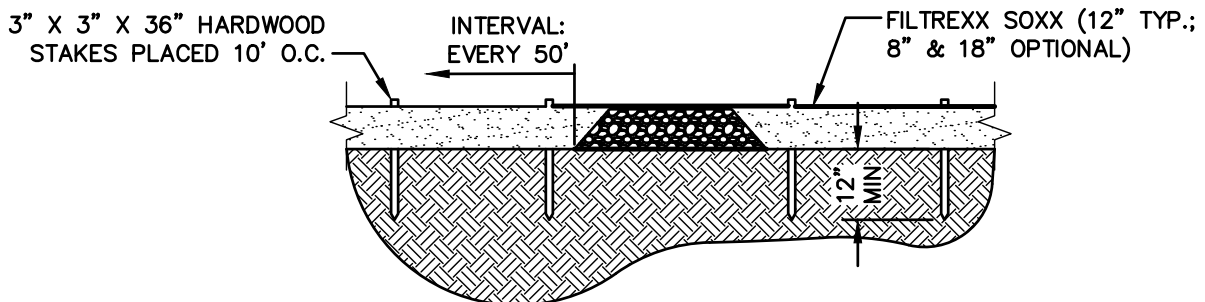
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

PLANSECTIONPROFILENOTES

1. PRODUCT TO BE FILTREXX SILT SOXX OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
4. NON-MONOFILAMENT CONTAINMENT MATERIAL SHOULD BE KNITTED PHOTODEGRADABLE OR BIODEGRADABLE MATERIAL, WITH OPENING SIZES BETWEEN 1/8" - 1/4".
5. COMPOST MEDIA SHOULD HAVE PARTICLE SIZE WHERE 99% < 2", 50% > 1/2".
6. COMPOST MATERIAL TO BE DISPOSED OF ON-SITE, OR IN ACCORDANCE WITH ENVIRONMENTAL PERMITS AS APPROVED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
7. WOOD MULCH RAMP IS OPTIONAL DEPENDING ON SUBSTRATE/SITE CONDITIONS, AND TO BE APPROVED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.

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BMP # AA-22
SILT SOXX AMPHIBIAN & REPTILE
CROSSING #1 (1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE

SALAMANDER AND SNAKE CROSSING #1

ALTERNATE WOOD MULCH RAMP SILTSOXX NOTES:

1. SILTSOXX, BY FILTREX INTERNATIONAL, OR APPROVED EQUAL PRODUCT SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES.
2. BMP SHOULD ONLY BE UTILIZED IN AREAS WHERE RARE SALAMANDER AND SNAKE HABITAT OCCURS, OR AT THE DIRECTION OF THE NATIONAL GRID ENVIRONMENTAL SCIENTIST.

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BMP # AA-22
SILTSOXX AMPHIBIAN & REPTILE
CROSSING #1 (2 OF 2)

SUBJECT

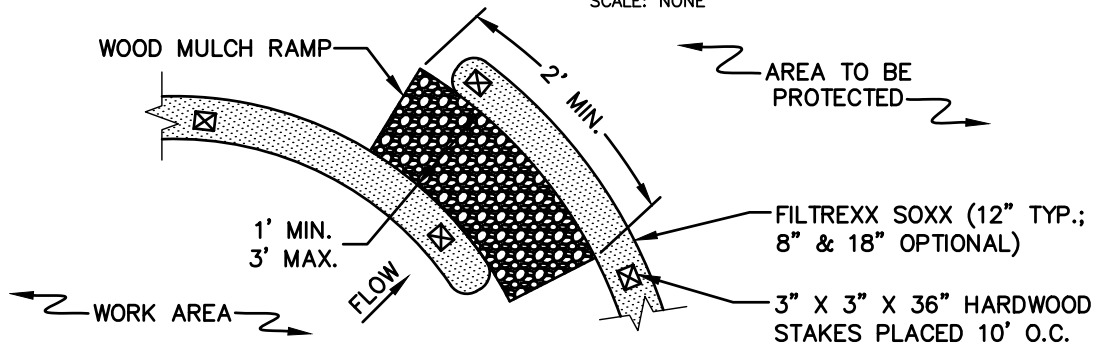
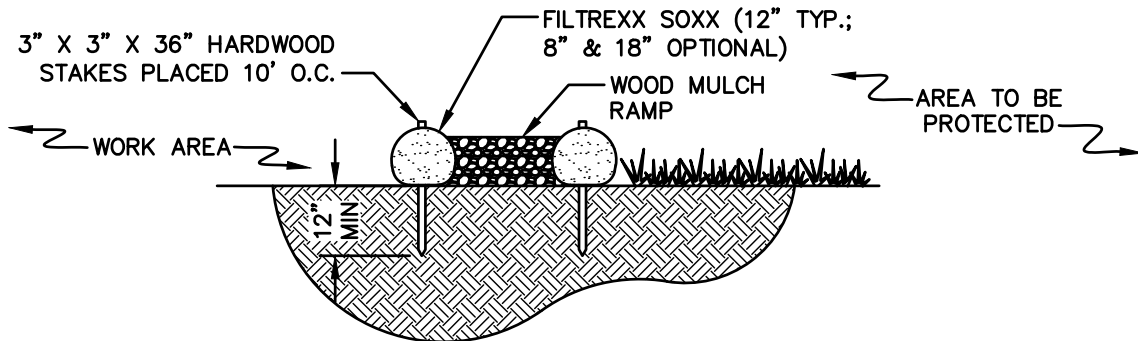
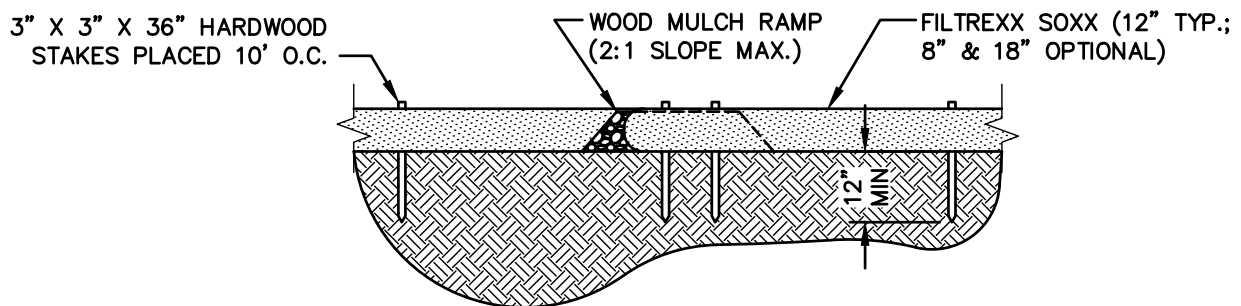
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

PLANSECTIONPROFILENOTES

1. PRODUCT TO BE FILTREXX SILT SOXX OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
4. NON-MONOFILAMENT CONTAINMENT MATERIAL SHOULD BE KNITTED PHOTODEGRADABLE OR BIODEGRADABLE MATERIAL, WITH OPENING SIZES BETWEEN 1/8" - 1/4".
5. COMPOST MEDIA SHOULD HAVE PARTICLE SIZE WHERE 99% < 2", 50% > 1/2".
6. COMPOST MATERIAL TO BE DISPOSED OF ON-SITE, OR IN ACCORDANCE WITH ENVIRONMENTAL PERMITS AS APPROVED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
7. WOOD MULCH RAMP IS OPTIONAL DEPENDING ON SUBSTRATE/SITE CONDITIONS, AND TO BE APPROVED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
8. GAPS TO BE SPACED EVERY 50 FT, IF POSSIBLE GIVEN WETLAND PERMIT CONDITIONS.

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BMP # AA-23
SILT SOXX AMPHIBIAN & REPTILE
CROSSING #2 (1 OF 2)

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURE

SILTSOXX AMPHIBIAN & REPTILE CROSSING #2

ALTERNATE WOOD MULCH RAMP SILTSOXX NOTES:

1. SILTSOXX, BY FILTREX INTERNATIONAL, OR APPROVED EQUAL PRODUCT SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES.
2. BMP SHOULD ONLY BE UTILIZED IN AREAS WHERE RARE SALAMANDER AND SNAKE HABITAT OCCURS OR AT THE DIRECTION OF THE NATIONAL GRID ENVIRONMENTAL SCIENTIST.

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BMP # AA-23

SILTSOXX AMPHIBIAN & REPTILE
CROSSING #2 (2 OF 2)

SUBJECT

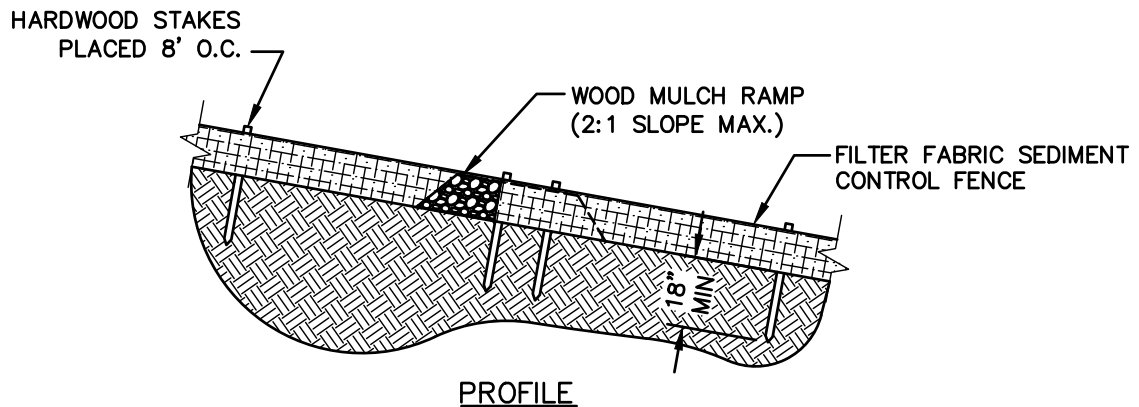
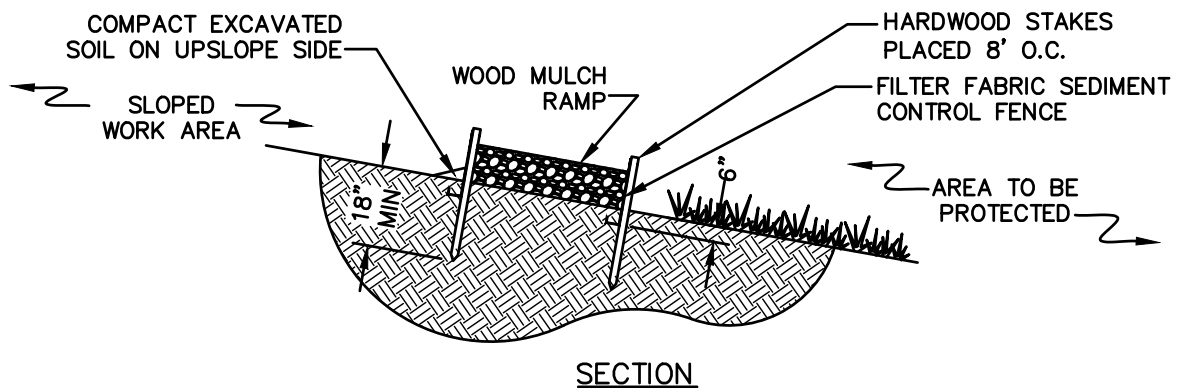
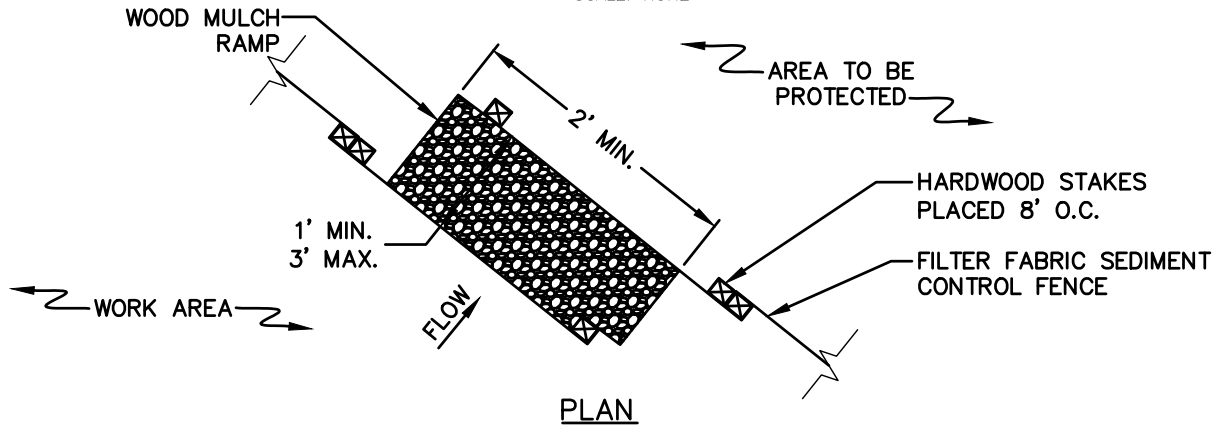
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES**

1. IN AREAS WHERE SLOPES OR RUN-OFF VOLUME PROHIBIT USE OF SILTSOXX, CROSSINGS CAN BE PROVIDED THROUGH TRENCHED SILT FENCE.
2. INTALL SILT FENCE TO SPECIFICATIONS IN EG303 APPENDIX 7 "SEC-2 SEDIMENT CONTROL FENCE."
3. WOOD MULCH RAMP IS OPTIONAL DEPENDING ON SUBSTRATE/SITE CONDITIONS, AND TO BE APPROVED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
4. GAPS TO BE SPACED EVERY 50 FT, IF POSSIBLE GIVEN WETLAND PERMIT CONDITIONS.

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BMP # AA-24
SILT FENCE AMPHIBIAN & REPTILE
CROSSING #3

SUBJECT

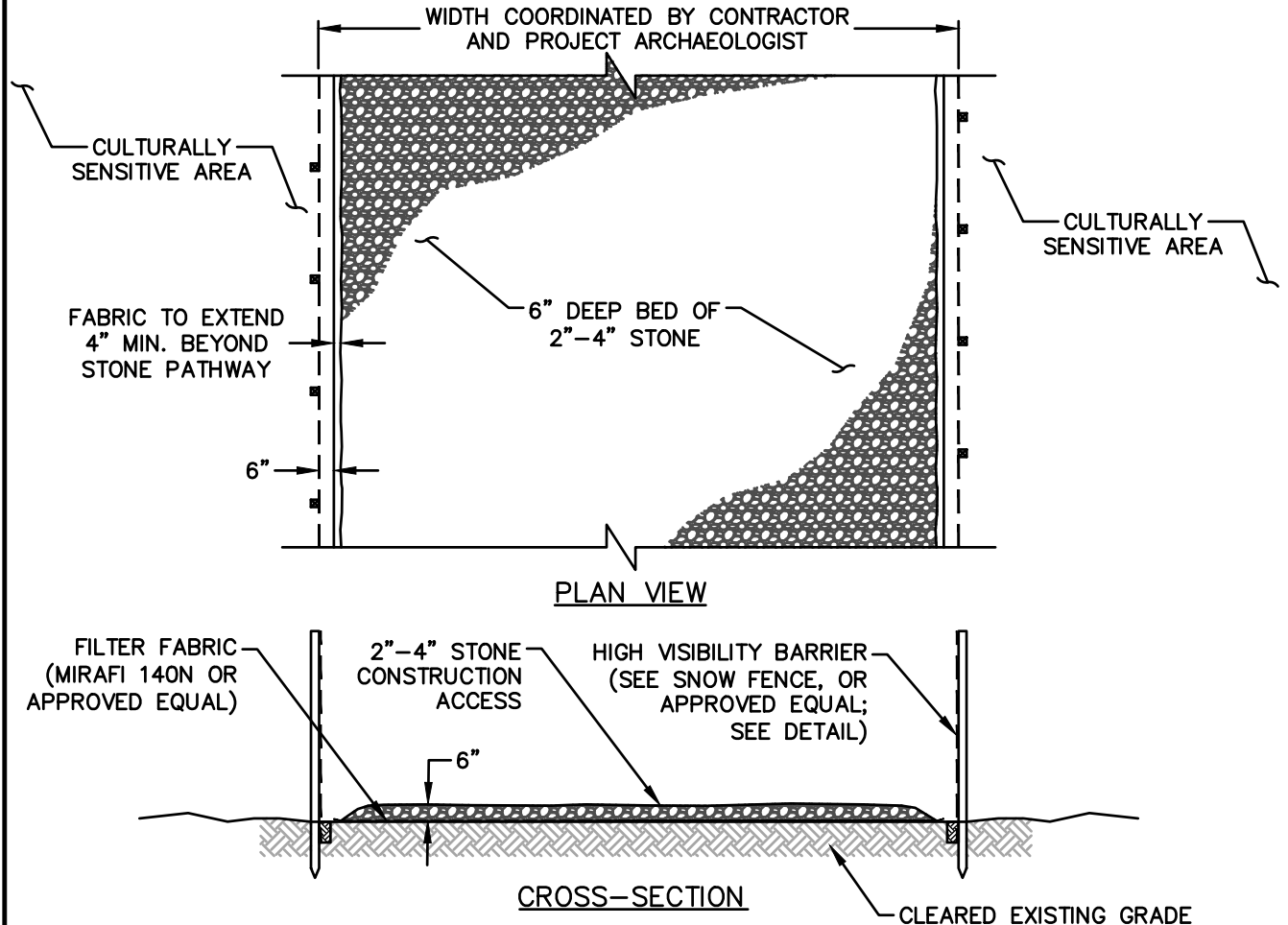
Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP DETAIL

SCALE: NONE

**NOTES:**

1. ARCHAEOLOGICAL SITE BOUNDARIES, AS DEFINED BY INTENSIVE ARCHAEOLOGICAL SURVEY AND SITE AVOIDANCE AND PROTECTION PLANS, WILL BE DEMARCATED BY STAKING BY THE PROJECT ARCHAEOLOGIST.
2. GEOTEXTILE AND STONE MAY REMAIN IN PLACE FOLLOWING CONSTRUCTION IF PERMANENT PROTECTION IS NECESSARY AND DEPENDENT ON EASEMENT RIGHTS.
3. WHERE APPROVED BY THE PROJECT-SPECIFIC SAPP, CONSTRUCTION MATTING MAY BE ADDED OVER, OR IN PLACE OF, THE FABRIC AND STONE.
4. INSTALLATION AND REMOVAL OF FABRIC AND STONE, EROSION CONTROLS, AND/OR CONSTRUCTION MATTING WILL BE MONITORED BY THE PROJECT ARCHAEOLOGIST AT EACH LOCATION(S).
5. INSTALLATION OF THESE MEASURES WILL BE CONDUCTED WITH LOW-GROUND PRESSURE VEHICLES WHERE FEASIBLE.
6. WHERE REQUIRED BY THE PROJECT-SPECIFIC SAPP, TEMPORARY, HIGH VISIBILITY PROTECTIVE FENCING (E.G., SNOW FENCE OR PLASTIC FENCE) WILL BE ERECTED ALONG THE SITE BOUNDARIES OUTSIDE OF THE WORKSPACE WITHIN THE ROW IN ORDER TO PREVENT VEHICLES FROM TRAVELING THROUGH THOSE SITE AREAS DURING CONSTRUCTION. THE PROTECTIVE FENCE WILL BE POSTED WITH "NO TRESPASSING" SIGNS, SO THAT THE SITES CAN BE AVOIDED BY ALL CONSTRUCTION RELATED ACTIVITIES. THE FENCING WILL BE REMOVED UPON COMPLETION OF THE PROJECT. THE INSTALLATION AND REMOVAL OF FENCING WILL BE MONITORED BY THE PROJECT ARCHAEOLOGIST.

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BMP # AA-25**CULTURAL AVOIDANCE (1 OF 2)**

SUBJECT

Access, Maintenance and Construction
Best Management Practices

Reference

EP No. 3 - Natural Resource
Protection (Chapter 6)

BMP PICTURES



 National Grid Environmental Guidance	Doc No.:	EG-303NE
	Rev. No.:	13
	Page No.:	48 of 49
	Date:	04/13/2020
SUBJECT ROW Access, Maintenance and Construction Best Management Practices for New England		REFERENCE EP-3; Natural Resource Protection

APPENDIX 5
CERTIFICATION FORM FOR INVASIVE SPECIES CONTROL

Certain permit conditions, therefore a Condition of Contracts for the Prime Contractor, any Subcontractors, and any equipment or mat vendors for **National Grid Projects** shall be required to Certify their equipment⁷ {each piece of equipment used on site} as 'clean'⁸.

_____ (name of firm) hereby Certifies that
 _____ (make, model, and/or type)
 _____ (equipment ID tag or #) meets the following

1. before entry on to the job site, has been sufficiently cleaned to remove all accumulated mud, debris, plant fragments, and detritus that could harbor seeds, roots, or plant fragments of so-called invasive plant species; and
2. that the above piece of equipment has neither been off-loaded nor operated in the interval between cleaning and delivery to the jobsite.
3. that equipment deployed in areas of invasive species (as identified in project plans) shall be cleaned prior to redeployment.

_____ (signed) _____ (dated)
 _____ (printed name) _____ (title)
 _____ (Firm)

The signed original of this form {one for each piece of equipment (or lot⁹ of mats)} is to be given to the NG Construction Supervisor assigned to the project.

⁷ Equipment may include, but is not limited to bulldozers, excavators, backhoes, bucket trucks (tracked or wheeled), pulling equipment, concrete trucks, compressors, drilling equipment, and mats (composite, wood, or other materials).

⁸ With regard to invasive species, the definition of clean means free of accumulated mud, debris, plant fragments, and detritus that could harbor seeds, roots, or plant fragments of so-called invasive plant species.

⁹ Lot of mats is the number of mats that may be transported by one forwarder/truck at a time.

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 National Grid Environmental Guidance		Doc No.:	EG-303NE_App6
		Rev. No.:	1
		Page No.:	1 of 2
		Date:	04/13/2020
SUBJECT ROW Access, Maintenance and Construction Best Management Practices for New England		REFERENCE EP-3; Natural Resource Protection	

APPENDIX 6

SNOW DISPOSAL GUIDELINES

Finding a place to dispose of collected snow poses a challenge. While we are all aware of the threats to public safety caused by snow, collected snow that is contaminated with road salt, sand, litter, and automotive pollutants such as oil also threatens public health and the environment.

As snow melts, road salt, sand, litter, and other pollutants are transported into surface water or through the soil where they may eventually reach the groundwater. Road salt and other pollutants can contaminate water supplies and are toxic to aquatic life at certain levels. Sand washed into water bodies can create sand bars or fill in wetlands and ponds, impacting aquatic life, causing flooding, and affecting our use of these resources.

There are several steps that should be taken to minimize the impacts of snow disposal on public health and the environment.

- **DO NOT** dump snow into any water body, including rivers, the ocean, reservoirs, ponds, or wetlands. In fact, a buffer of at least 50 feet between any snow disposal area and any the high-water mark of any surface water should be kept. A silt fence or equivalent barrier should be securely placed between the snow storage area and the high-water mark. In addition to water quality impacts and flooding, snow disposed in surface waters can cause navigational hazards when it freezes into ice blocks.
- **DO NOT** dump snow within a wellhead protection area (e.g., a Zone II), in a high or medium-yield aquifer, or within 75 feet of a private well, where road salt may contaminate water supplies. **Ask an Environmental Department representative for guidance in determining if a proposed disposal area is located within one of these sensitive areas.**
- Avoid disposing of snow on top of storm drain catch basins or in storm water drainage swales or ditches. Snow combined with sand and debris may block a storm drainage system, causing localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water.
- All debris in a snow storage area should be cleared from the site and properly disposed of no later than May 15 of each year the area is used for snow storage.

Under extraordinary conditions, when all land-based snow disposal options are exhausted, disposal of snow that is not obviously contaminated with road salt, sand, and other pollutants may be allowed near (within 50 feet) or even in certain water bodies under certain conditions.

In these dire situations, **notify the Environmental Department** so that the local Conservation Commission and the appropriate MassDEP Regional Service Center (in MA), RI DEM Office of Water Resources – RIPDES

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 National Grid Environmental Guidance		Doc No.:	EG-303NE_App6
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SUBJECT ROW Access, Maintenance and Construction Best Management Practices for New England		REFERENCE EP-3; Natural Resource Protection	

Program (in RI), NH Department of Environmental Services – NHDES (in NH) and VT Department of Environmental Conservation - VT DEC (in VT) can be contacted before disposing of snow in a water body.

In emergency situations and after consulting an Environmental Department representative the following guidance should be followed:

- Dispose of snow in open water with adequate flow and mixing to prevent ice dams from forming.
- Do not dispose of snow in saltmarshes, vegetated wetlands, certified vernal pools, shellfish beds, mudflats, drinking water reservoirs and their tributaries, wellhead protection areas, or other environmentally sensitive areas.
- Do not dispose of snow where trucks may cause shoreline or stream bank damage or erosion.

Appendix D: Stormwater Memo

Single Environmental Impact Report (SEIR)
J136S Tap Line Rebuild Project

To:	Tim Sullivan, Massachusetts Electric Company and TJ Roskelley, Anderson & Kreiger LLP	Date:	May 13, 2026
From:	Bryan Wentworth, P.E., BSC Group	Proj. No.	0101280.00
Re:	J136S Tap Line Rebuild Project – Stormwater Memo		

cc:

Pursuant to the Massachusetts Stormwater Standards, for the Massachusetts Electric Company's ("MECO") J136S Tap Line Rebuild Project (the "Project"), BSC Group, Inc. ("BSC") is providing this memorandum detailing the applicability and compliance with the Standards given the Project location, scope of work, and proximal resource areas.

MECO is proposing to conduct a rebuild of the existing J136S 115 kilovolt ("kV") overhead electric transmission Tap Line (the "Tap Line" or "Line"). The Project is located within the existing Tap Line Right-of-Way ("ROW"), which extends from Pratts Junction (#225) Substation (26 Pratts Junction Road in Sterling) and terminating at the Litchfield Street (#207) Substation (189 Litchfield Street in Leominster). The Project ROW traverses approximately 3 miles (from south to north), the Town of Sterling and the City of Leominster in Massachusetts.

Several structures along the Line were constructed in the late 1960's with some other structures having been replaced in 2007. The majority of the insulators were installed in 2006. The structures and wires are in need of replacement due to asset condition and age. Generally, the aging structures along the Line pose a threat to the reliability of the transmission system.

Activities will include offsetting the existing alignment by approximately 40 feet to the east; replacing the existing structures with new steel H-frame or single pole structures; the replacement of existing shield wire with OPGW; replacement of conductor hardware; and the construction and improvement of access and work areas, including grading, the addition of stone to access routes and work pads centered on the structure for future maintenance work, and vegetation management.

The condition of access varies throughout the ROW. In some areas, existing access is in need of repair and does not meet MECO's standard to safely support specialized equipment. New access is required in other areas where structures will be realigned and there is no existing access. Additionally, MECO will require work areas at the off-set structure locations to build and maintain the structures.

Where existing access is in generally good condition, these areas will not require significant grading or excavation, and improvements will consist of leveling/smoothing existing rutting and top dressing with gravel. In areas where historic access has deteriorated to a state which is insufficient to support the reconstruction of the Line, access improvements will consist of minor grading activities, vegetation management, and placement of clean gravel. MECO will perform access construction in compliance with the conditions and approvals of the appropriate federal, state, and local regulatory agencies. As needed based on site conditions, MECO crews will use water for dust suppression during construction. Crews will install crushed stone aprons at construction entrances to the ROW to reduce sediment tracking into public roadways.

The associated maintenance and re-establishment of access and work areas along the Line will not have a significant impact on the overall hydrology of the watersheds along the Project ROW. The addition of gravel access alignments and work areas is similar in nature, from a hydrologic perspective, to the development of single-family detached dwellings, which are exempt from compliance with the Stormwater Standards. Access and work areas are generally buffered by densely vegetated land which promotes recharge of runoff back to groundwater and protection of water quality. Gravel work pads at each replaced structure located within a graded pad will be allowed to passively revegetate over time; therefore, any minor impacts to hydrology will further diminish further over time. Areas that will be impacted temporarily (e.g., mowed access and work areas, access for OPGW underslung wire rope pulling, or matted access and work areas) will be loamed and seeded following construction to promote active revegetation or will be topped with

straw to protect soils, if alternative restoration is required under other permits; ruts will be filled; and changes to grade will be restored where needed.

The Project will comply with the applicable Massachusetts Stormwater Management Standards to the maximum extent practicable and will be subject to the standards and conditions of the NPDES Stormwater Construction General Permit (“CGP”). The Project will not have a significant impact on hydrology along the ROW. Rather, by controlling the run-on to and runoff from the constructed access and work areas, and by allowing that stormwater to recharge into the ROW ground surface in a controlled manner, the Project is meeting the intent of the Massachusetts Stormwater Handbook and the provisions of 310 CMR 10.05(6)(k) through (q).

In accordance with the requirements of 310 CMR 10.05, the following summarizes how the Project meets the Massachusetts Stormwater Standards to the maximum extent practicable.

Standard 1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

No new outfalls are proposed as part of the Project. By controlling the run-on to and runoff from the constructed access and work areas, and by allowing that stormwater to recharge into the ROW ground surface in a controlled manner, the Project will mitigate potential erosion and sedimentation to wetlands or waters of the Commonwealth.

Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

The access improvements proposed will result in *de minimis* impacts on post-development peak discharge rates and the proposed access and work areas will typically be buffered by densely vegetated lands within and surrounding the utility ROW.

MECO has conducted assessments to evaluate construction of gravel access and approximately 944 sf of impervious surfaces due to installation of concrete caisson foundations to replace existing structure foundations. By allowing the gravel work areas to revegetate over time, the minimal impact to hydrology will be further reduced. As the additional impervious area added by concrete caissons is spread over exceptionally large areas with each caisson consisting of a very small area (approximately 50 to 79 sf), this will not result in an increase in peak flow rates from the Project.

Standard 3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

While gravel work areas beneath structures on graded pads and improvements to access alignments will change cover type within the ROW, stormwater will still be able to recharge through the proposed gravel areas and within the surrounding undisturbed and vegetated areas within the ROW. The total area that will be occupied by proposed concrete caisson foundations will consist of a small amount of impervious area spread out over a very large ROW. Therefore, the proposed work will not result in a loss to annual recharge for the ROW or surrounding areas.

Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;

b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and

c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

The proposed construction of gravel access and work areas, and *de minimis* impervious area will not generate the pollutant loading typical of commercial and industrial development. As such, a long-term pollution prevention plan is not warranted. The construction of stormwater management features such as swales, water bars, plunge pools, and check dams will promote stability of the constructed access improvements, reducing the potential for significant erosion and washout, and protecting sensitive resource areas. As each concrete caisson is approximately 50 to 79 sf, runoff associated with the additional impervious surfaces in each watershed will be negligible and does not warrant specific measures for removal of TSS.

Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

This site is not considered a land use with higher potential pollutant loads (“LUHPPL”), therefore, Standard 5 does not apply.

Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook

Approximately 0.8 miles of the Project ROW overlaps with a Zone II Wellhead Protection Area. The J136S Tap Line ROW is not within the Zone I Wellhead Protection Area (400 feet of the public water supply well) but is within the Zone II aquifer recharge area. Changes to hydrology will be minimal, the Project will control potential for erosion and sedimentation, and there is no significant risk that pollutants will be generated from the project that could impact the critical areas in the vicinity. Therefore, Standard 6 is considered to be met by the Project.

Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6.

The Project is not a redevelopment, therefore Standard 7 does not apply.

Standard 8: A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

As construction will disturb more than one acre of land, coverage under the EPA’s NPDES Construction General Permit is required. MECO will submit a Notice of Intent (“NOI”) and prepare a Stormwater Pollution Prevention Plan (“SWPPP”) for the Project. During construction, MECO will employ stormwater BMPs, including sediment and erosion controls.

Standard 9: A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

No new stormwater management systems will be proposed that require long-term operation and maintenance for this project. Standard 9 is not applicable.

Standard 10: All illicit discharges to the stormwater management system are prohibited.

There are no known illicit discharges from the Project area and no new illicit discharges will be created.

Appendix E: Annotated Secretary's Certificate (in response to the EENF)

Single Environmental Impact Report (SEIR)
J136S Tap Line Rebuild Project



The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs

100 Cambridge Street, Suite 900, Boston, MA 02114

www.Mass.gov/EEA | **Tel:** (617) 626-1000 | **Fax:** (617) 626-1081

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

November 14, 2025

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS ON
THE EXPANDED ENVIRONMENTAL NOTIFICATION FORM

Project Name	: J136S Tap Line Rebuild Project
Project Municipality	: Sterling, Leominster
Project Watershed	: Nashua
EEA Number	: 17004
Project Proponent	: Massachusetts Electric Company (d/b/a National Grid)
Date Noticed in Monitor	: October 8, 2025

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62L) and Section 11.06 and 11.11 of the MEPA Regulations (301 CMR 11.00), I have reviewed the Expanded Environmental Notification Form (EENF) and hereby determine that this project **requires** the submission of an Environmental Impact Report (EIR). In accordance with Section 11.06(8) of the MEPA regulations, the Proponent requested that I allow a Single EIR to be submitted in lieu of the usual two-stage Draft and Final EIR process. I hereby grant the request to file a Single EIR, which the Proponent should submit in accordance with the Scope included in this Certificate.

Project Description

As described in the EENF, the project proposes to rebuild the Massachusetts Electric Company's (Proponent's) J136S 115 kilovolt (kV) overhead electric transmission tap line¹ (J136S Tap Line) along the existing tap line right of way (ROW) beginning at the Pratts Junction (#225) Substation in Sterling and ending at the Litchfield Street (#207) Substation in Leominster. The project consists of replacing the existing tap line structures with new structures along the ROW in an off-set alignment from the existing tap line, reconductoring the line with a higher-capacity aluminum and steel conductor, and replacing the shieldwire with an optical ground wire (OPGW) that will provide high-speed communication between substations. The project also includes tree removal in select areas and permanent access and work pad improvements to

¹ "Tap Lines," in terms of utility infrastructure, refer to transmission lines that serve as a connection between a primary utility transmission line (i.e., the mainline) and a substation facility.

facilitate project construction and future operations and maintenance work. The goal of the project is to replace deteriorating and damaged infrastructure, mitigate potential risks of electric failure, provide a higher capacity for future power demands, and improve system reliability and resilience.

As described in the EENF, the 42 existing (mostly wooden) H-frame structures will be replaced with a combination of 40 new steel single pole davit arm and steel H-frame structures (a reduction of two structures) supported by concrete caisson foundations (15 structures supported by 18 concrete caissons) and direct embed (25).² The new structures will range in height from 40 feet (ft) to 135 ft, a general increase of 20 ft to 35 ft from the existing, with a maximum increase of 85 ft. The new replacement tap line will be installed entirely within the existing ROW and be offset approximately 40-ft east of the existing tap line from Structure 3 to Structure 38.³ Approximately 13 acres of tree removal will be required in select areas along the length of the ROW, extending up to 40-ft into the eastern forested edge to support installation of the new structures. The line will continue to be operated at 115 kV.

As noted above, improvements, re-establishment, and construction of new access will be required within the existing, maintained ROW to support the rebuild work. The EENF states that these improvements are necessary to provide access to the proposed structure locations, safe work sites for personnel, and safe travel surfaces for vehicles and equipment during both construction and future maintenance work. Improvements include vegetation management (mowing and tree trimming), which will be conducted in accordance with the Proponent's Massachusetts Department of Agriculture approved Vegetation Management Plan (VMP). Access improvements along existing access include light grading and gravel installation. The Proponent may also re-establish access that was historically used, but which have become overgrown. Temporary construction matting will be used to provide equipment access and prevent rutting and disturbance of wetland soils in areas where tree removal is required within wetlands. All improved or established access will be maintained following the completion of the project, with the exception of temporary access areas which will be restored post-construction. Upgrades and improvements to existing off-ROW access are not proposed. Work pads will also be constructed and utilized to facilitate the removal of existing structures and installation of new structures. As described in the EENF, work pads constructed in wetlands will consist of temporary construction mats and will be restored after construction is complete. Work pads in the remaining upland areas will be constructed through grading and installation of gravel. All work is proposed within the existing, maintained ROW.

Project Corridor

The 92.45-acre project corridor extends approximately three miles along the J136S Tap Line ROW, between the Pratts Junction (#225) Substation in Sterling and the Litchfield Street

² A caisson foundation is a watertight, box-like deep foundation which is typically made up of steel or reinforced concrete that is installed by sinking into the ground. A direct embed is a type of foundation technique used primarily in utility and pole construction, where the pole is installed directly into the ground without the use of a concrete foundation like caisson.

³ The existing tap line provides electricity to the City of Leominster and must remain in operation throughout most of the rebuild activities. As described in the EENF, the offset is necessary to allow the existing line to remain in service during construction.

(#207) Substation in Leominster. In addition, the project corridor includes owned/easement areas outside of the existing ROW. The project corridor runs south to north, traversing through Sterling and Leominster, and currently has a total of 42 structures primarily supported on wood H-frame structures directly embedded in the ground, with some structures supported on concrete foundations. The existing ROW is generally 250-ft wide in easement width (or located within parcels fee-owned by the Proponent) and has a cleared width that is generally 150 ft, but ranges from 100 ft to 175 ft. As described in the EENF, several structures along the ROW are original structures constructed in the late 1960's, with other structures having been replaced in 2007.

Conditions within the project corridor include moderately level terrain, with some hills of gentle to moderate slope and a large "ravine" at the south end of the ROW between Structures 3 and 4. Upland portions of the ROW consist of closed-scrub and open heath communities interspersed with occasional gramineous and herbaceous pioneer communities. Where undeveloped, the vegetative community occupying the edge of the ROW is best characterized as typical southern New England transitional upland forest and forested wetland. Land use types within and adjacent to the project corridor predominantly consist of industrial properties, with some residential properties and transportation and commercial land uses. The ROW crosses multiple streams and wetland systems within the Nashua watershed. The EENF indicates that there are two Natural Heritage and Endangered Species Program (NHESP) mapped Potential Vernal Pools (PVPs) located within the ROW, with temporary construction matting proposed over one of the PVPs.⁴

According to the EENF, while all work will be contained within the existing, maintained ROW, there are Article 97 Lands⁵ within and adjacent to the project corridor (as further described below). The project includes work in *Estimated and Priority Habitat of Rare Species* as delineated by NHESP in the 15th Edition of the Massachusetts Natural Heritage Atlas. The EENF states that several historic and archaeological sites listed in the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth are located adjacent to the project corridor, as further discussed below. Wetland resource areas within the ROW include Bordering Vegetated Wetland (BVW), Bordering Land Subject to Flooding (BLSF), Inland Bank (Bank), Land Under Water Bodies and Waterways (LUWW), and Riverfront Area (RA). As shown on the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map (FIRM) number 25027C0451F (effective July 8, 2025) and 25027C0288F (effective July 8, 2025), portions of the project corridor are within a designated Zone A and Zone AE, associated with six perennial streams and three intermittent streams.

Pursuant to the M.G.L. Chapter 21E and the Massachusetts Contingency Plan (MCP; 310 CME 40.00), a release that occurred at the project site (Pratts Junction Substation) was assigned Release Tracking Number (RTN) 2-0012349. The Pratts Junction Substation in Sterling has an

⁴ As provided by Síona Patisteas, BSC Group, to Katherine Miller, MEPA Office, via email on November 7, 2025, field surveys in May 2024 indicate that the PVP mapped by NHESP appears to have a permanently flowing inlet and outlet and also contained juvenile and adult rainbow trout. The presence of adult and juvenile fish indicates permanent ponding/flooding or flow, which supports that there are no certifiable vernal pools within the project footprint in this area.

⁵ Article 97 refers to Article 97 of the amendments to the state constitution, which require a 2/3 vote of the General Court to authorize any change in use or disposition of land or interest in land that was acquired for the purposes set forth in Article 97, such as park and conservation land.

Activity and Use Limitation (AUL); however, no work is proposed within the boundaries of the AUL.

The project corridor crosses three Environmental Justice (EJ) populations⁶ in Leominster characterized by Minority (2) and Minority and Income (1) and is within one mile of eight additional EJ populations in Leominster and Lancaster characterized by Minority (2); Minority and Income (5); and Minority, Income, and English Isolation (1). The site is located within five miles of 34 additional EJ populations located in Leominster, Shirley, Fitchburg, Clinton, and Harvard designated as Minority (20); Minority and Income (12); Minority and English Isolation (1); and Minority, Income, and English Isolation (1). As described below, the EENF identified the “Designated Geographic Area” (DGA) for the project as one mile around EJ populations, included a review of potential impacts and benefits to the EJ populations within this DGA, and described public involvement efforts undertaken to date.

Environmental Impacts and Mitigation

According to the EENF, potential environmental impacts associated with the project include the alteration of ±36 acres of land, including 3.3 acres of access upgrades and installation, 21 acres of permanent gravel and grading for work and pull pads, 3 acres of temporary gravel and grading of work and pull pads (to be restored following completion of construction), and 13 acres of tree removal and vegetation cover type conversion.⁷ Potential impacts to wetland resource areas are listed in the table below.⁸

Wetland Resource Area	Permanent (New Structure Foundations)	Permanent (Tree removal)	Permanent (Work pads/Access)	Temporary (Construction Matting)	Temporary (Work pads/Access)
BVW	0	50,810 sf	0	35,950 sf	0
100-ft Buffer Zone to BVW and Bank	173 sf	73,990 sf	62,600 sf	3,610 sf	40,460 sf
RA	125 sf	46,495 sf	0	38,646 sf	57,810 sf

The project will involve work in 12.64 acres of Article 97 Land, though the EENF indicates that no legislative authorization is needed as no disposition or change in use of such land will result from the project (as discussed further below). Greenhouse Gas (GHG) emissions and other air pollutants are associated with construction vehicles and tree clearing.

Measures to avoid, minimize, and mitigate project impacts include use of best management practices (BMPs) during construction, such as use of erosion and sedimentation controls and an Environmental Monitor to supervise and inspect construction activities within

⁶ “Environmental Justice Population” is defined in M.G.L. c. 30, § 62 under four categories: Minority, Income, English Isolation, and a combined category of Minority and Income.

⁷ As noted in the EENF, as some activities overlap with others, the sum of the individual activities is not equal to the total.

⁸ Note that impacts located within the limits of RA overlap with impacts to BVW and the 100-ft Buffer Zone. Therefore, the total impacts are not equal to the sum of alterations.

resource areas. Additionally, the project will relocate one structure outside of BVW; use existing access roads, where feasible; use temporary construction mats where crossing wetlands or water courses is unavoidable; spanning of streams to avoid impacts to Bank and LUWW; restore disturbed areas to allow for revegetation; and restore temporarily impacted wetland resources to pre-construction conditions. As provided in the EENF Attachment C, the Proponent will adhere to an internal set of environmental guidelines and procedures designed to avoid and minimize impacts to resource areas.

As noted in the EENF, the Proponent anticipates mitigation to include one or more of the following: in situ restoration of wetland resource areas impacted by temporary construction matting; restoration of work area and access modifications within uplands in RA; restoration of wetland where structure will be removed; Section 404 compensatory mitigation for secondary impacts – In Lieu Fee Program payment; and voluntary funding contribution to compensate for tree loss. The Single EIR should provide more detail on the mitigation plan for unavoidable impacts to wetland areas. The Single EIR should clarify whether mitigation will be provided for tree clearing, and if so, provide a firm commitment.

Jurisdiction and Permitting

The project is subject to MEPA review and preparation of mandatory EIR pursuant to MEPA regulations (301 CMR 11.00) because it requires an Agency Action and exceeds the EIR threshold at 301 CMR 11.03(3)(a)(1)(a), alteration of one or more acres of salt marsh or bordering vegetating wetlands. The project also exceeds ENF thresholds at 301 CMR 11.03(3)(1)(b)(1) Direct alteration of 25 or more acres of land, unless the Project is consistent with an approved conservation farm plan or forest cutting plan or other similar generally accepted agricultural or forestry practices and 301 CMR 11.03(3)(b)(1)(d) alteration of 5,000 or more sf of bordering or isolated vegetated wetlands. The project is also required to prepare an EIR pursuant to 301 CMR 11.06(7)(b) because it is located within a DGA of one or more EJ Populations. The project will require a 401 Water Quality Certification (WQC) from the Massachusetts Department of Environmental Protection (MassDEP).

The project requires Orders of Conditions (OOC) from the Sterling and Leominster Conservation Commissions (or in the case of an appeal of any OOC, a Superseding Order of Conditions from MassDEP). The project also requires a Section 404 Pre-Construction Notification (PCN) from the U.S. Army Corps of Engineers (USACE) and a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) from the U.S. Environmental Protection Agency (EPA).

Because the project is not seeking Financial Assistance from an Agency, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required Permits and are likely, directly or indirectly, to cause Damage to the Environment.

Request for Single EIR

The MEPA regulations indicate a Single EIR may be allowed provided I find that the EENF:

- a) describes and analyzes all aspects of the project and all feasible alternatives, regardless of any jurisdictional or other limitation that may apply to the Scope;
- b. provides a detailed baseline in relation to which potential environmental impacts and mitigation measures can be assessed; and,
- c. demonstrates that the planning and design of the project use all feasible means to avoid potential environmental impacts.

For any Project for which an EIR is required in accordance with 301 CMR 11.06(7)(b), I must also find that the EENF:

- d. describes and analyzes all aspects of the Project that may affect EJ Populations located in whole or in part within the Designated Geographic Area around the project; describes measures taken to provide meaningful opportunities for public involvement by EJ Populations prior to filing the EENF, including any changes made to the project to address concerns raised by or on behalf of EJ Populations; and provides a detailed baseline in relation to any existing unfair or inequitable Environmental Burden and related public health consequences impacting EJ Populations in accordance with 301 CMR 11.07(6)(n)(1)

Consistent with this request, the EENF was subject to an extended comment period under 301 CMR 11.05(7).

For the reasons stated below, I hereby grant the request to file a Single EIR.

Review of the EENF

The EENF included a project description, alternatives analysis, existing and proposed conditions plans including cross-sections, estimates of project-related impacts, a copy of the Proponent's construction BMPs ("Maintenance and Construction Best Management Practices for New England" (EG-303NE)), and copies of correspondence with MHC. It identified measures to avoid, minimize and mitigate environmental impacts. Consistent with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency, the EENF contained an output report from the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the "MA Resilience Design Tool"),⁹ together with information on climate resilience strategies to be undertaken by the project.

Alternatives Analysis

The EENF included an evaluation of several alternatives, including: a No-Build Alternative, Partial Rebuild Alternative, and a Complete Rebuild Alternative. The EENF also

⁹ https://resilientma.org/rmat_home/designstandards/

included design alternatives. The No-Build Alternative would not involve any improvements to the tap line to address performance and physical issues. The Proponent would continue to address issues, such as the repair and replacement of structures, on an as-needed basis. As described in the EENF, over 40 percent of the existing structures require replacement due to deterioration and/or woodpecker damage. Due to the extent of the current required repairs, the No-Build Alternative would not be economically practical or the least environmentally impactful given the need for multiple large mobilization efforts. Additionally, this alternative would not upgrade the conductor and OPGW, which would not support the project goals of increasing resiliency or providing fiber optic capabilities that would add communications between substations. Therefore, this alternative was dismissed.

The Partial Rebuild Alternative would consist of replacing almost half of the wood pole structures, reconductoring the tap line from Pratts Junction Substation to Litchfield Street Substation, and performing other overhead maintenance. Under this alternative, the tap line would have to be reconstructed adjacent to the existing alignment so service can be maintained for the duration of work. However, due to constructability limitations, this would not be feasible, as the line cannot be taken out of service for a prolonged period. Additionally, this alternative would not add the OPGW and communication between the substations. Therefore, as this alternative did not meet all the project needs, it was eliminated from further consideration.

The Complete Rebuild Alternative (Preferred Alternative) consists of replacing the entire tap line within the existing ROW, offset approximately 40-ft to the east of the current alignment. This alternative would also include replacing the existing wood structures with a new steel structure type, reconductoring with a higher capacity steel and aluminum conductor, and replacing the shieldwire with OPGW. As described in the EENF, replacing the existing wooden H-frame structures with steel single pole structures will reduce the overall number of foundations and result in long term cost savings by improving reliability, reducing maintenance needs (thereby improving personnel and public safety), and increasing the service life (when comparing to wood poles, as steel poles are not susceptible to woodpecker damage). Reconductoring will increase tap line capacity by allowing for operation at a higher temperature, while also addressing future demand without increasing the voltage. Additionally, the fiber optic cable will fulfill strategic and operational needs which will increase reliability and capacity and improve communication between stations. As the Complete Rebuild Alternative meets the project goal for improved performance, it was selected as the Preferred Alternative.

Following selection of the Preferred Alternative but prior to this MEPA filing, the Proponent continued to evaluate engineering and design alternatives that would further reduce impacts. As described in the EENF, the project initially considered rebuilding the line using H-frame structures similar in design to the existing structures. A monopole-based design was then considered, which would decrease the required tree removal width by approximately 10-ft, decrease in the total number of poles, avoid and reduce impacts to streams and wetlands, and minimize the overall footprint associated with foundation installation. As detailed in the EENF, the monopile-based design would reduce impacts associated with tree clearing by approximately two acres (reflected in the 13-acre estimate stated above). It would also allow for increasing span widths between existing Structure 24 to 27, which would allow removal of one structure within BVW and avoid impacts to Bank and LUWW. Given that the monopile-based structures design

alternative provides a feasible and environmentally less impactful alternative that meets the needs of the project while minimizing long term environmental impacts, it was incorporated into the design of the Preferred Alternative, as presented in the EENF.

Environmental Justice / Public Health

As noted above, the project corridor crosses three EJ populations in Leominster characterized by Minority (2) and Minority and Income (1) and is within one mile of eight additional EJ populations in Leominster and Lancaster characterized by Minority (2); Minority and Income (5); and Minority, Income, and English Isolation (1). The site is located within five miles of 34 additional EJ populations located in Leominster, Shirley, Fitchburg, Clinton, and Harvard designated as Minority (20); Minority and Income (12); Minority and English Isolation (1); and Minority, Income, and English Isolation (1). Within one mile of the project site, Spanish was identified as spoken by 5% or more of residents who also identify as not speaking English very well (Limited English Proficiency (LEP) individuals). The EENF identifies the DGA as 1-mile.

Effective January 1, 2022, all new projects within a DGA, as defined in 301 CMR 11.02, around EJ populations are subject to new requirements imposed by Chapter 8 of the Acts of 2021: *An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy* (“Climate Roadmap Act”) and amended MEPA regulations at 301 CMR 11.00. Two related MEPA protocols – the MEPA Public Involvement Protocol for Environmental Justice Populations (“MEPA EJ Public Involvement Protocol”) and MEPA Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations (“MEPA Interim Protocol for Analysis of EJ Impacts”) – are also in effect for new projects filed on or after January 1, 2022. Under the new regulations and protocols, all projects located in a DGA around one or more EJ populations must take steps to enhance public involvement opportunities for EJ populations and must submit analysis of impacts to such EJ populations in the form of an EIR.

Community Engagement

Prior to filing the EENF, the Proponent provided advance notification of the project to a list of project-specific community-based organizations (CBOs) and tribes/indigenous organizations (the “EJ Distribution List”) provided by the MEPA Office. The EJ Screening Form was translated into Spanish and distributed to these entities with an overview of the project and information on ways to request a community meeting. The Proponent also created a project-specific website,¹⁰ which provides background on the project, a document library, project updates, and contact information. According to the EENF, the Proponent hosted a virtual community meeting on August 19, 2025; Spanish interpretation was provided. One community member attended. The EJ Distribution List and municipal administrators were notified via email, and the community was notified via advertisement in the Sentinel and Enterprise on August 6, 2025 and the Worcester Telegram and Gazette newspaper on August 7, 2025. An email address for Joe Carroll (Joseph.Carroll1@nationalgrid.com) was also provided for community members to ask any questions they may have or to request translated materials. However, no questions or

¹⁰ <https://www.nationalgridus.com/construction-projects/Community-Projects/J136S-TapReplacement/J136S-Tap-Line>

comments have been raised by the public. As described in the EENF, the Proponent intends to continue providing notifications of the availability of relevant notices and materials throughout the MEPA review.

A MEPA remote consultation session was held at 11:00 AM on October 22, 2025. Notice of the MEPA remote consultation session was translated into Spanish and distributed to the EJ Reference List. The Proponent offered to provide oral language interpretation upon request; however, no requests were received. No residents attended the MEPA remote consultation session. An in-person site visit was held at three locations starting at 11:30 AM on October 23, 2025 to promote public involvement; two of the locations were held within EJ populations in Leominster. No residents attended the in-person MEPA site visit.

Baseline Conditions Assessment / Project Impacts

The EENF included a baseline assessment of any existing “unfair or inequitable Environmental Burden and related public health consequences” impacting the identified EJ population in accordance with 301 CMR 11.07(6)(n)(1) and the MEPA Interim Protocol for Analysis of EJ Impacts. According to the EENF, the data surveyed show some indication of an existing “unfair or inequitable” burden impacting the identified EJ populations. The DPH EJ Tool identified two municipalities and one Census Tract within the 1-mile DGA as exhibiting “vulnerable health EJ criteria”; this term is defined in the DPH EJ Tool to include any one of four environmentally related health indicators that are measured to be 110% above statewide rates based on a five-year rolling average.¹¹ Specifically, vulnerable health EJ criteria are met for the following parameters:

- Heart attack (Leominster and Lancaster)
- Low birth weight (Census Tract 7191 – Sterling)

The EENF indicated that the following sources of potential pollution exist within the DGA, based on data available in the DPH EJ Tool:

- Major Air and Waste facilities: 9
- M.G.L. c. 21E sites: 5
- Tier II toxics use reporting facilities: 19
- Sites with Activity and Use Limitations (AULs): 7
- Wastewater Treatment Plants: 1
- Underground storage tanks (USTs): 7
- EPA Toxic Release Inventory (TRI) facilities: 4
- Road and Other Transportation Infrastructure: 7
- Regional Transit Agencies: 32 (7 stops and 25 routes)
- Energy Generation and Supply: 14

¹¹ See <https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html>. Four vulnerable health EJ criteria are tracked at the municipal level in the DPH EJ Viewer (heart attack hospitalization, childhood asthma, childhood blood lead, and low birth weight); of these, two (childhood blood lead and low birth weight) are also available at the census tract level.

According to the output report from the MA Resilience Design Tool included in the EENF, the project site has a “High” exposure rating based on the project’s location for extreme precipitation (riverine flooding) and extreme heat and a “Moderate” exposure rating for extreme participation (stormwater flooding). EJ populations near the sites are likely also exposed to these climate risks. According to the EENF, the project will improve the overall reliability and climate resiliency of the power transmission system, which will benefit both EJ and non-EJ populations in the area. The proposed foundations are more robust structures with improved lightning protection and higher strength conductor and OPGW. Therefore, the proposed infrastructure will be better suited to withstand strong winds and storm events and better serve communities during these events. In addition, improvements to the access roads will result in improved response time during storm-related emergencies and outages thereby improving public safety. As detailed in the EENF, the project will implement construction period BMPs to mitigate any adverse effects resulting from construction period impacts. Based on these measures, the EENF indicates that the project is not likely to materially exacerbate existing environmental burdens in surrounding EJ neighborhoods.

Land Alteration

The EENF indicates that the land area within the project ROW is approximately 92.45 acres, within which work is proposed on approximately 36 acres. Land uses were evaluated within the ROW and for a 300-ft buffer on either side of the ROW and consist primarily of industrial (66 percent), “Exempt Property”¹² (15 percent), residential (6 percent), transportation (6 percent), and commercial (6 percent). The ROW crosses three Open Space properties, as discussed further below. According to the EENF, the new land alteration will consist of 3.3 acres of access upgrades and installation, 21 acres of permanent gravel and grading for work and pull pads, 3 acres of temporary gravel and grading of work and pull pads (to be restored following completion of construction), and 13 acres of tree removal and vegetation cover type conversion. The EENF states that project activities and impacts are proposed within the existing ROW and will not significantly alter land use conditions. Part of the project is located within the Zone II of Leominster’s Southeast Wells and must comply with Leominster’s Groundwater Protection Bylaw. In addition, comments from MassDEP state that portions of the project may have petroleum or Volatile Organic Compounds impacted soil, groundwater, and/or surface water. Therefore, an LSP should be retained to determine if submittals to MassDEP are required to conduct the work or if notification is required.

Access

The EENF describes the need for improvements to, re-establishment of, and construction of new access to meet the access requirements for the project (to accommodate construction materials and equipment). There are currently 6,848 linear feet (lf) (~1.3 miles) of existing gravel access roads on ROW and 3,987 lf (~0.8 miles) of existing access roads off ROW.

¹² Exempt Property qualifies for tax exemption under various provisions of the law and include public land and facilities, hospitals, schools, churches and cultural institutions, M.G.L. Ch. 59 §5. This category of land use includes federal, state, and local land (municipal and authorities); charitable (hospitals, cemeteries); and educational institutions.

Approximately 1,477 lf (~0.3 mi) of new permanent gravel access roads are proposed on ROW only. All newly constructed gravel roads will be approximately 16 feet in width.

Work and Pull Pads

The EENF describes work envelopes that will be placed at all structures where work is proposed and will require grading and the placement of stone (or, in sensitive resource areas, temporary construction matting). The EENF proposes both permanent and temporary work pads, which will generally be approximately 125 ft by 125 ft in size, but will vary depending on work needs and site constraints. In total, approximately 908,256 square feet (sf) (21 acres) of new permanent graded and gravel work pads/pull pads, 132,024 sf (3 acres) of temporary work pads/pull pads, and 19,814 sf (0.5 acres) of temporary construction matting are proposed. As stated in the EENF, work envelopes outside of sensitive wetland resource areas will remain in place permanently for any future maintenance/emergency work. All access routes and work envelopes within wetlands will be matted only, and the temporary matting will be removed once construction is complete.

Tree Clearing/Vegetation Removal

As stated above, approximately 13 acres of tree removal will be required in select areas along the length of the ROW, extending up to 40-ft into the eastern forested edge to support installation of the new structures. Trees will be cut at stump, and root balls will be left intact to provide soil stabilization (with the exception of areas being graded for access or work areas). Following tree removal, large woody debris will be left on-site and used to create wood piles and overwintering habitat within the ROW (both on the forested and cleared side). The EENF indicates that the proposed clearance is the minimum required for safe clearance distances for the project, which is dictated largely by line voltage, but also by structure height and site topography. Lines must not only be clear of falling trees and limbs, but also from the risk of “arcing” (when electric current jumps the air gap between a conductor and nearby vegetation), due to associated safety and fire risks. The EENF states that all vegetation removal will be conducted in accordance with the Proponent’s Massachusetts Department of Agriculture approved VMP.

Wetlands and Waterways

Wetland resources were delineated between fall 2022 and spring 2023, identifying BVW, BLSE, Bank, LUWW, and RA within the ROW and along off-ROW access. No vernal pools were identified within the project area. As noted above, field surveys in May 2024 indicate that the PVP mapped by NHESP appears to have a permanently flowing inlet and outlet and contained juvenile and adult rainbow trout. The presence of adult and juvenile fish indicates permanent ponding/flooding or flow, which supports that there are no certifiable vernal pools within the project footprint in this area. According to the EENF, the project is proposed to result in the permanent alteration of 1.2 acres of BVW, 2.46 acres of RA (a total of 1.13 acres following restoration), and 3.77 acres of the 100-ft Buffer Zone to BVW and Bank (a total of 2.84 acres following restoration). In addition, temporary alteration of wetland resources associated with construction and staging includes 0.8 acres of BVW, 1.33 acres of RA, and 0.93 acres of the 100-ft Buffer Zone to BVW and Bank. The EENF indicates that the project will be

reviewed as a Limited Project pursuant to 310 CMR 10.53(3)(d) for the construction, reconstruction, operation and maintenance of underground and overhead public utilities. The Sterling and Leominster Conservation Commissions will review the project for its consistency with the Limited Project provisions of the Wetlands Protections Act (WPA), the Wetland Regulations (310 CMR 10.00), and associated performance standards. MassDEP will review the project for its consistency with the 401 WQC regulations (314 CMR 9.00). The EENF states that the Proponent will file a 401 WQC application in conjunction with the Section 404 (USACE) Massachusetts General Permit filing.

According to the EENF, the proposed tree clearing, while defined as an “alteration” or a “secondary impact” under state and federal regulation, does not constitute a loss of BVW or a discharge of fill material into Waters of the United States (WOTUS). The EENF indicates that there is no requirement in the WPA or the 401 WQC regulations to compensate for conversion of wetlands from one vegetation cover type to another, as no BVW or WOTUS within the Commonwealth is “lost” following vegetation removal. MassDEP comments state, however, that the EENF does not make clear whether activities proposed in BVW would result in permanent loss of more than 5,000 sf such that an individual 401 WQC may be required under 314 CMR 9.04(1) or (11), for instance, if tree removal may result in drying out of the wetland areas or other impacts to water quality. Comments from MassDEP state that the 0.8 acres of alteration to BVW appears to qualify for the Comprehensive Water Quality Certification for Utility Maintenance, which requires notification to MassDEP. The Proponent should coordinate with MassDEP regarding the applicability of the Individual 401 WQC for project impacts prior to the filing of the Single EIR and provide an update to the MEPA Office before filing.

As described in the EENF, the above-listed permanent impacts to wetland resource areas from the project are associated with tree clearing, the construction and widening of access roads within the ROW, and the construction of stone and gravel work pads within the ROW. No structures are proposed within BVW; one (1) existing structure within BVW will be removed and relocated outside of this resource area. Temporary impacts to wetland resource areas are primarily associated with the use of construction mats. This includes the placement of matting within wetlands and over waterways (completely spanning streams and associated banks), resulting in temporary impacts to these resource areas and to wildlife. The construction mats will be installed to allow access for heavier equipment and vehicles to support the road building and line work and are considered a BMP to reduce wetland impacts by avoiding soil compaction. Construction mats will be removed from all resource areas once construction is completed, and disturbed areas will be restored. As described above, the EENF includes a commitment to provide mitigation for wetland resource impacts which may include one or more of the following: in situ restoration of wetland resource areas impacted by temporary construction matting; restoration of work area and access modifications within uplands in RA; restoration of wetland where structure will be removed; Section 404 compensatory mitigation for secondary impacts – In Lieu Fee Program payment; and voluntary funding contribution to compensate for tree loss. The Single EIR should provide more detail on the mitigation plan for unavoidable impacts to wetland areas and should clarify the extent of mitigation provided for tree clearing.

As described in the EENF, the ROW crosses wetland areas and streams. The EENF states that impacts on small streams will be minimal and limited to equipment crossings during the

construction phase only. These impacts consist of temporarily spanning streams with construction mats to allow construction equipment to cross. Construction mats will be placed to fully span the stream and associated banks, minimizing disturbance and obstruction. The EENF states that no permanent or temporary impacts to LUWW or Bank are anticipated from waterways crossings. As described in the EENF, project crossings will be constructed and maintained in accordance with the National Electrical Safety Code (NESC) and 220 CMR 125.00 Installation and Maintenance of Electric Transmission Lines. Additionally, there will be an increase in the crossing height above the waterway surface and the project will not “reduce the space available for navigation” or cause any obstruction in the waterway. Comments from MassDEP Waterways Regulation Program (WRP) state that provided that the project obtains all necessary OOCs and complies with the other standards described herein, the overhead wires appear to meet the thresholds at 310 CMR 9.05(3)(g)1. as work that does not require a Chapter 91 (c.91) license or permit. Comments from MassDEP WRP add that the EENF does not include details or an explanation to support that the temporary work (placement of temporary construction matting) within c. 91 jurisdiction is exempt from licensing or other c. 91 authorization. The Proponent should coordinate with MassDEP WRP to ensure the project description includes adequate information about the scope of work as it relates to c. 91, and that any necessary c. 91 review and/or authorization is obtained. The Single EIR should contain an update on this discussion and whether c. 91 review is required.

Article 97

The EENF identifies three municipal-owned open space lands located within or adjacent to the ROW, consisting of a total of approximately 12.64 acres of open space within the ROW and 27.26 acres within 300-feet of the ROW. Two of the parcels are managed by the City of Leominster Water Department and one (the Nashua Valley Conservation Area) is managed by the City of Leominster Conservation Commission. All three parcels are associated with Community Groundwater Wells and associated wellhead protection areas and the project corridor is located within the Zone II aquifer recharge area. As described in the EENF, project activities within these parcels will be limited to the existing ROW. To mitigate impacts to the Community Groundwater Wells, the Proponent will implement BMPs during both construction and maintenance, including reduced spray and treatment restrictions for use of pesticides in the Zone II aquifer recharge area. There are no public trails or parking areas within or adjacent to the ROW and there will be no impacts on public access to protected land and recreational open space. The EENF indicates that no legislative authorization is needed as no disposition or change in use of such land will result from the project.

Rare Species

As described in the EENF, the project ROW falls outside NHESP mapped Priority or Estimated Habitat; however, off-ROW access to a single structure in Leominster (Structure 7) will cross through Priority Habitat and is covered by the Proponents’ Operations and Maintenance Plan with NHESP. No improvements to off-ROW access are proposed. Comments from NHESP state that the proposed work is outside of Priority Habitat for rare species as currently mapped and therefore a MESA Project Review Checklist is not required. Comments add that provided the Proponent implements all applicable best management practices for use of

the existing access roadway in Priority Habitat, as prescribed in the current Division-approved annual Operation and Maintenance Plan (NHESP 25-19522), that portion of the project is exempt from MESA Review, pursuant to 321 CMR 10.14(11).

Historic and Archaeological Resources

The project is subject to review under Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800) and M.G.L. c. 9, ss. 26-27C (950 CMR 71.00). As described in the EENF, a cultural resources due diligence review was completed in December 2022 which did not identify archaeological sites within the project study area (1 kilometer, 0.62 miles around the ROW). A subsequent intensive (locational) archaeological survey was then performed under a State Archaeologist's Permit approved by MHC on June 9, 2023, amended August 9, 2023, and extended on July 29, 2024. The survey was conducted between October 2023 and September 2024 and found that no archaeological resources were located within the study area, with a recommendation for no further archaeological investigations. MHC concurred with the finding, as detailed in a letter dated May 23, 2025 included in the EENF.

A supplemental architectural survey of inventoried above ground historic resources was also conducted to determine whether National Register of Historic Places (NRHP)-eligible or -listed and/or MHC inventoried resources located within the project study area were in the viewshed of the proposed structure replacements and, if so, to evaluate whether the project would have adverse impacts on the above ground historic resources. The EENF indicates that while some resources were partially within the viewshed, the Proponent asserts that there are no adverse effects because the project will not alter the setting or alter the physical appearance or other characteristics of significance that make the properties NRHP-eligible. A report documenting findings was submitted to MHC in June 2025, a response from MHC is pending.

Climate Change

Adaptation and Resiliency

Effective October 1, 2021, all MEPA projects are required to submit an output report from the MA Resilience Design Tool to assess the climate risks of the project. Based on the output report attached to the EENF, the project has a "High" exposure rating based on the project's location for extreme precipitation (riverine flooding) and extreme heat and a "Moderate" exposure rating for extreme participation (stormwater flooding). Based on the 50-year useful life identified for the project and the self-assessed criticality of the project, the MA Resilience Design Tool recommends a planning horizon of 2070, and a return period associated with a 50-year (2% chance) storm event when designing the new assets for extreme precipitation. The Tool recommends planning for the 90th percentile when designing for extreme heat.

The EENF indicates that portions of the project corridor are located within the 100-year floodplain; however, no structures are proposed within the 100-year floodplain and access through the floodplain will be accomplished through the use of temporary construction matting. To reduce vulnerability to extreme weather, including wind and ice, the project is designed to meet the NESC and the Proponent's Design Loads for Overhead Transmission Structures. The

project incorporates materials, such as steel structures and conductors, that have long useful lives and respond well to corrosive environments, such as riverine flooding. The conductors are also designed to operate at higher maximum operating temperatures at a higher carrying capacity and under fluctuations in air temperature. The EENF states that the project will create a stronger electrical transmission system that is vital to the area's safety, security, and economic prosperity.

Greenhouse Gas Emissions

This project is subject to review under the May 2010 MEPA Greenhouse Gas Emission (GHG) Policy and Protocol (Policy) because it exceeds thresholds for a mandatory EIR. The GHG Policy includes a de minimis exemption for projects that are expected to produce minimal GHG emissions. The EENF indicates that GHG emissions associated with the project will be limited to the construction period and are de minimis. The Proponent therefore was not required to submit a GHG analysis in conjunction with the EENF.

Construction Period

Construction of the project is proposed to commence in the first quarter of 2027 and be completed by the fourth quarter of 2027. As described in the EENF, since the existing tap line must remain in service during the construction, work will be sequenced such that the new tap line will be constructed and put in service, the existing tap line will be removed, and then restoration activities will occur. The EENF included a description of the Proponent's transmission line construction procedures for each project activity (tree removal, access road improvements, OPGW installation, etc.) and listed BMPs that will be implemented. The EENF also indicates that the project will be overseen by an Environmental Monitor, a qualified environmental professional designated by the Proponent who can capably monitor on-site construction conditions in relation to permit and regulatory requirements. The Proponent will submit a Stormwater Pollution Prevention Plan (SWPPP) for the project in compliance with the EPA's NPDES program under the Stormwater CGP.

SCOPE

General

The Single EIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent will avoid, minimize, and mitigate Damage to the Environment to the maximum extent practicable through project alternatives and design. C-1
C-2

Project Description and Permitting

The Single EIR should include updated site plans for existing and post-development conditions at a legible scale and a detailed description of all project components. It should identify any changes since the filing of the EENF. The Single EIR should identify and describe state, federal and local permitting and review requirements associated with the project, provide an update on the status of each of these pending actions, analyze applicable statutory and C-3
C-4

regulatory standards and requirements, and provide a discussion of the project's consistency with those standards.

C-4

The information and analyses identified in this Scope should be addressed within the main body of the Single EIR and not in appendices. In general, appendices should be used only to provide raw data, such as wetland delineations, that is otherwise adequately summarized with text, tables and figures within the main body of the Single EIR. Information provided in appendices should be indexed with page numbers and separated by tabs, or, if provided in electronic format, include links to individual sections. Any references in the Single EIR to materials provided in an appendix should include specific page numbers to facilitate review.

C-5

Environmental Justice / Public Health

The Proponent should continue outreach and engagement efforts prior to the next filing, specifically augmenting outreach to EJ populations within Leominster and focusing on neighborhoods intersected by project activities. The Single EIR should contain a description of these efforts, including a discussion of any of the best practices listed in the MEPA EJ Public Involvement Protocol that the project employed/intends to employ. Specifically, the Proponent should consider door-to-door education efforts within specific EJ neighborhoods closest to project activities. The Proponent should thoughtfully consider the extent of project impacts when conducting these efforts to ensure that not only direct abutters are notified of the project, but also those in proximity to construction activities, access routes, and/or planned tree clearing. The Single EIR, or a summary thereof, should be distributed to all CBOs and tribes included in an updated project-specific "EJ Reference List." An updated "EJ Reference List" should be obtained from the MEPA Office to ensure contacts are up to date, and the project-specific EJ Reference List should be developed and returned to the MEPA Office.

C-6

C-7

The Single EIR should provide additional information regarding measures to mitigate any potential impacts to EJ populations during the construction period. Specifically, the Single EIR should provide more details regarding construction period activities, including the estimated number of construction period truck trips that are anticipated for the project, and the potential for increased emissions within EJ populations near and within the ROW. The Single EIR should indicate whether any significant tree clearing/trimming or vegetation management will occur near EJ populations and/or identified "Hot Spots," as indicated in the Climate Change section below. If "Hot Spots" are identified, the project should propose mitigation to offset the effects of tree removal adjacent to those locations. The distance for this assessment should be extended to 500 feet. Mitigation could take the form of tree plantings in the affected neighborhoods or within the larger EJ populations.

C-8

C-9

Land Alteration

The Single EIR should provide an update of total of land alteration, distinguishing between temporary and permanent impacts. The Single EIR should identify the total existing and proposed gravel areas, including access roads and work pads. It should describe any stormwater management that will be constructed as part of the project and include a copy of the Stormwater Report.

C-10

C-11

C-12

Wetlands and Waterways

The Single EIR should describe to what extent the construction matting would necessitate alteration of Bank or LUWW and should detail the amount of Bank impact at each crossing location and further describe the restoration process. The EENF includes a commitment to provide mitigation for wetland resource impacts which may include one or more of the following: in situ restoration of wetland resource areas impacted by temporary construction matting; restoration of work area and access modifications within uplands in RA; restoration of wetland where structure will be removed; Section 404 compensatory mitigation for secondary impacts – In Lieu Fee Program payment; and voluntary funding contribution to compensate for tree loss. The Single EIR should provide further detail about the mitigation plan for unavoidable impacts to wetland areas and include a commitment to provide wetland replication, including identification of approximately locations if available. The Single EIR should evaluate offsite mitigation and/or restoration of onsite degraded areas to mitigate impacts.

C-13

C-14

As noted above, the EENF does not make clear whether activities proposed in BVW would result in permanent loss of more than 5,000 sf such that an individual 401 WQC may be required under 314 CMR 9.04(1) or (11). The Proponent should coordinate with MassDEP regarding the applicability of the individual 401 WQC for project impacts prior to the filing of the Single EIR and provide an update to the MEPA Office prior to filing. The Single EIR should indicate whether mitigation for tree removal will be provided, whether through wetlands replication, in lieu payment, or other contribution, and provide a firm commitment in the filing.

C-15

As discussed above, the Proponent should coordinate with MassDEP WRP to ensure the project description includes adequate information about the scope of work as it relates to c. 91, and that any necessary c. 91 review and/or authorization is obtained. The Single EIR should contain an update on this discussion and whether c. 91 review is required.

C-16

Historic and Archaeological Resources

The EENF indicates that the Proponent will continue to consult with MHC to identify historic, archaeological, or cultural resources prior to construction and to avoid, minimize, or mitigate impacts on cultural and historic resources. The Single EIR should provide an update on coordination with MHC and provide any additional documentation received in response to the viewshed analysis.

C-17

Climate Change

While the EENF describes the general resiliency benefits of the project achieved by updating aging infrastructure to current design standards, it does not specifically address the design recommendations from the MA Resilience Design Tool. Where impervious/semi-pervious area is created and stormwater management is required, the Single EIR should address the recommendations from the MA Resilience Design Tool, including whether the stormwater management designs will be resilient to future climate conditions including the 50-year (2% chance) storm as of 2070 (9.1 inches). The Single EIR should include a Stormwater Management Report.

C-18

Construction Period

The Single EIR should provide an update on construction staging and timing. All construction activities should be managed in accordance with applicable MassDEP regulations regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The project should include measures to reduce construction period impacts (e.g., noise, dust, odor, solid waste management, etc.) and emissions of air pollutants from equipment, including anti-idling measures in accordance with the Air Quality regulations (310 CMR 7.11). I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards, or select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment. Off-road vehicles are required to use ultra-low sulfur diesel fuel (ULSD). All construction activities should be undertaken in compliance with the conditions of all State and local permits. I encourage the Proponent to reuse or recycle C&D debris to the maximum extent. Proposed construction-period mitigation measures are listed below. The Single EIR should include updated commitments reflecting construction best practices.

C-19

C-20

Mitigation and Draft Section 61 Findings

The Single EIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase.

C-21

C-22

C-23

C-24

Responses to Comments

The Single EIR should contain a copy of this Certificate and a copy of each comment letter received. The Single EIR should contain a direct response to the scope items in this Certificate. To ensure that the issues raised by commenters are addressed, the Single EIR should also include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the Single EIR beyond what has been expressly identified in this certificate.

C-25

C-26

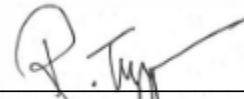
Circulation

The Proponent should circulate the Single EIR to each Person or Agency who previously commented on the EENF, each Agency from which the Project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. The Proponent may circulate copies of the Single EIR to commenters other than Agencies in a digital format (e.g., CDROM, USB drive) or post to an online website. However, the Proponent should make available a reasonable number of hard copies to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. A copy of the Single EIR should be made available for review in the Sterling and Leominster Public Libraries.

C-27

November 14, 2025

Date

Rebecca L. Tepper**Comments received**

11/13/2025 Massachusetts Department of Environmental Protection (MassDEP)
11/13/2025 MassDEP Waterways Regulation Program (WRP)
11/14/2025 Natural Heritage and Endangered Species Program (NHESP)

RLT/KKM/kkm



The Commonwealth of Massachusetts Department of Environmental Protection

Address: 100 Cambridge Street, Suite 900, Boston, MA 02114

Phone: 617-292-5500

**Maura T. Healey
Governor**

**Kim Driscoll
Lieutenant Governor**

**Rebecca Tepper
Secretary**

**Bonnie Heiple
Commissioner**

November 13, 2025

Secretary Rebecca Tepper
Executive Office of Environmental Affairs
100 Cambridge Street, 9th Floor
Boston, MA 02114

Attention: MEPA Unit – Katherine Miller

Re: Expanded Environmental Notification Form (EENF)
J136S Tap Line Rebuild Project
Leominster and Sterling
EEA #17004

Dear Secretary Tepper,

The Massachusetts Department of Environmental Protection's ("MassDEP") Central Regional Office has reviewed the EENF for the J136S Tap Line Rebuild Project (the "Project") to be executed in Leominster and Sterling. Massachusetts Electric Company (MECO, the "Proponent") is proposing various refurbishment activities and system improvements along the three-mile J136S Tap Line overhead electrical utility line. The Tap Line will be entirely rebuilt, and all existing structures will be replaced. Impacts



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Phone: 617-292-5500

from Project construction are associated with permanent land alteration from conversion of vegetative cover types due to tree removal, access road and work area establishment and improvements, and the installation of replacement structures. The Project will result in temporary impacts related to the use of construction matting within wetland resource areas.

The Project is under MEPA review because it meets or exceeds the following review thresholds:

- 301 CMR 11.03 (3)(a)(1)(a) - Alteration of one or more acres of Bordering Vegetated Wetlands;
- 301 CMR 11.03(1)(b)(1) - Direct alteration of 25 or more acres of land, unless the Project is consistent with an approved conservation farm plan or forest cutting plan or other similar generally accepted agricultural or forestry practices;
- 301 CMR 11.03(3)(b)(1)(d) - Alteration of 5,000 or more square feet ("sf") of BVW.

The Project requires the following State Agency Permits:

- MassDEP – 401 Individual Water Quality Certification [if needed];
- MassDEP - Superseding Order of Conditions (if local Orders of Conditions are appealed);
- Massachusetts Historical Commission - Consultation under General Laws of Massachusetts c. 9 in accordance with 950 70-71.

The Project requires the filing of an Environmental Impact Report (EIR). The Proponent is requesting permission to prepare a Single EIR. The Project is within one or more Designated Geographic Areas. MassDEP offers the following comments:

Wetlands

The Project will alter 86,758 square feet (sf) of Bordering Vegetated Wetlands (BVW) of which 50,810 sf will be permanent. The Project proposes 107,217 sf of alteration to Riverfront Area (RA) of which 57,312 sf will be permanent. The Project proposes 164,221 sf



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of impacts to the 100-foot Buffer Zone (BZ) to Bank and Bordering Vegetated Wetlands (BVW) of which 123,710 sf will be permanent.

Permanent impacts associated with the Project are primarily related to tree removal, which the Proponent states is necessary for the safe and reliable operation of the line. Tree removal in BVW, RA and BZ is considered a permanent impact due to the change in vegetative cover type. Other permanent impacts specific to BZ and RA include new and improved access, installation of structure foundations, and grading and gravelling for work envelopes. Temporary impacts within jurisdictional wetland resource areas are associated with the placement of construction mats for access, construction work envelopes and pull pads, and vegetative management activities within the existing right-of-way (ROW). The Project proposes restoring the site to pre-construction conditions after completing the work and removing the construction mats.

The Proponent states that tree removal is limited to the extent practicable but cannot be avoided to construct the Project and to provide adequate clearance between transmission lines and the edge of the ROW. The Proponent proposes to minimize impacts by using construction matting, specialty forestry equipment, construction period BMPs and monitoring, the restoration of disturbed areas, and the retention of understory where feasible.

The Proponent will file Notices of Intent (NOI) with the Leominster and Sterling Conservation Commissions and MassDEP. MassDEP will review the NOIs and may issue Project specific technical comments as a part of the File Number Issuance Notification Letter. The Project may be eligible for review under the Limited Project Provisions found at 310 CMR 10.53(3)(d).

Stormwater

The ENF states that the Project will meet the Massachusetts Stormwater Standards to the maximum extent practicable. The ENF states that a Stormwater Report is included under Attachment G, but attachment G is the Legal Ad Confirmation. The EIR should include the Stormwater Report.



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Other Permits

The Project's 0.8 acres of alteration to BVW may qualify for the Comprehensive Water Quality Certification for Utility Maintenance ("Water Quality Certification") which requires notification to MassDEP. The EENF does not make clear whether activities proposed in BVW would result in permanent loss of more than 5,000 sf such that an individual 401 WQC may be required under 314 CMR 9.04(1) or (11).

DEP-2

Water Supply

Part of the Project is located within the Zone II of Leominster's Southeast Wells, therefore the Proponent must comply with Leominster's Groundwater Protection Bylaw. The new overhead power lines will cross some public streets in the City of Leominster where there will be existing underground water pipes, but there is nothing that would appear to conflict with these existing underground utilities in the existing roadways.

Bureau of Waste Site Cleanup (BWSC)

In the EENF, the Proponent acknowledged that the Pratt's Junction Substation (#225) has an associated Release Tracking Number (RTN 2-0012349). Polychlorinated biphenyls (PCBs) and Extractable Petroleum Hydrocarbons were detected at the Pratts Junction Substation in July 1998 during construction activities. Response actions included excavation and off-site disposal of 3,730.39 tons of petroleum impacted soil and 66.69 tons on PCB impacted soil and debris. A Class A-3 RAO was submitted on August 5, 2002, which relied on the implementation of an Activity Use Limitation (AUL) to restrict property use and limit exposure and/or disturbance of soils within specific areas of the property. According to the EENF, no work is proposed within the limits of the AUL, nor will there be subsurface work within the Pratts Junction Substation (#225). If work is done in the AUL, the Proponent must hire a Licensed Site Professional (LSP) to oversee the work.

DEP-3

Portions of the Project may have petroleum or Volatile Organic Compounds impacted soil, groundwater, and/or surface water. Therefore, an LSP should be retained to determine

DEP-4



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if submittals to MassDEP are required to conduct the work or if notification is required. If oil and/or hazardous materials are identified during the implementation of the Project, notification to MassDEP may be required pursuant to M.G.L. c. 21E and the Massachusetts Contingency Plan (MCP).

DEP-4

The Proponent is advised that excavating, removing and/or disposing of contaminated soil, pumping of contaminated groundwater, or working in contaminated media must be done under the provisions of MGL c.21E (and, potentially, c.21C) and OSHA and may require the submittal of a Release Abatement Measure Plan. Excavating contaminated soil or pumping contaminated groundwater could be considered response actions under the MCP. Conducting response actions without MassDEP approval may result in a penalty.

DEP-5

MassDEP appreciates the opportunity to comment on the Project. If you have any questions regarding these comments, please do not hesitate to contact JoAnne Kasper-Dunne, Central Regional Office MEPA Coordinator, at joanne.kasper-dunne@mass.gov.

Very truly yours,

Mary Jude Pigsley
Regional Director

cc: Commissioner's Office, MassDEP

Miller, Katherine (EEA)

From: Glorioso, Lauren (FWE)
Sent: Friday, November 14, 2025 2:11 PM
To: Miller, Katherine (EEA)
Cc: Cheeseman, Melany (FWE)
Subject: EEA#17004 J136S TAP LINE REBUILD PROJECT - STERLING AND LEOMINSTER; NHESP 25-19522

J136S Tap Line Rebuild Project
Mass Electric Company (MECO)
Expanded Environmental Notification Form (EENF)
EEA 17004
NHESP 25-19522

Katherine,

The Division has reviewed the EENF for the J136S Tap Line Rebuild Project and would like to provide the following comments:

Based on the information in the EENF and in our database, the proposed work is outside of Priority Habitat for rare species as currently mapped by the Division, therefore a MESA Project Review Checklist is not required. Regarding the use of an existing access roadway in Priority Habitat, provided that the Proponent implements all applicable best management practices for that location as prescribed in the current Division-approved annual Operation and Maintenance Plan (NHESP 25-19522), that portion of the project is exempt from MESA Review, pursuant to 321 CMR 10.14(11).

NHESP-1

Sincerely,

Lauren Glorioso (she/her)
Endangered Species Review Biologist
Natural Heritage & Endangered Species Program
Division of Fisheries & Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
o: (508) 389-6361 | **c: (857) 278-6481 NEW**
[mass.gov/masswildlife](https://www.mass.gov/masswildlife) | facebook.com/masswildlife

2025 Updated Schedule: Mon. – Thurs.

**Please note that within 30 days of receipt, all MESA & WPA regulatory filings will be reviewed by Regulatory Review staff and a response to the application will be provided. Due to volume and staffing, regulatory filings are anticipated to take the full 30-day period allotted by the regulations. Pending review deadlines and recent decisions can be found on our website here: <https://www.mass.gov/service-details/recent-mesa-decisions-permits-and-applications> (updated weekly). Thank you.*



Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

Memorandum

To: Katherine Miller, MEPA Office

From: Chrissy Hopps, Waterways Regulation Program, MassDEP/Boston

cc: Daniel J. Padien, Program Chief, Waterways Regulation Program, MassDEP/Boston

Re: Comments from the Chapter 91 Waterways Regulation Program
EEA #17004 – Expanded Environmental Notification Form, J136S Tap Line Rebuild Project, Leominster and Sterling

Date: November 13, 2025

The Department of Environmental Protection Waterways Regulation Program (the “Department”) has reviewed the Expanded Environmental Notification Form (EENF) #17004 submitted by Massachusetts Electric Company (the “Proponent”).

Chapter 91 Jurisdiction

The project includes activities over and within several rivers and streams acknowledged in the EENF to be jurisdictional pursuant to Chapter 91 and the regulations at 310 CMR 9.00: *“Activities within jurisdictional non-tidal rivers or streams will be limited to the replacement of existing overhead electric lines and construction matting”*.

Regulatory Review

The EENF describes sections of the Chapter 91 regulations at 310 CMR 9.03 as being applicable to the subject work. However, the referenced citations appear to include typographical errors, and the Department is providing the following corrections/clarifications based on review of the EENF. The EENF states that all of the jurisdictional overhead wire crossings will require an Order of Conditions from the applicable local Conservation Commissions and that the Project crossings will be “overhead wires ... constructed and maintained in accordance with the National Electrical Safety Code”. In addition, due to the increase in the height of the replacement structures, there will be an increase in the crossing height above the waterway surface and thus the crossings will not “reduce the space available for navigation”. Provided that the project obtains all necessary Orders of Conditions and complies with the other standards described herein, the overhead wires appear to meet the thresholds at 310 CMR 9.05(3)(g)1. as work that does not require a Chapter 91 license or permit.

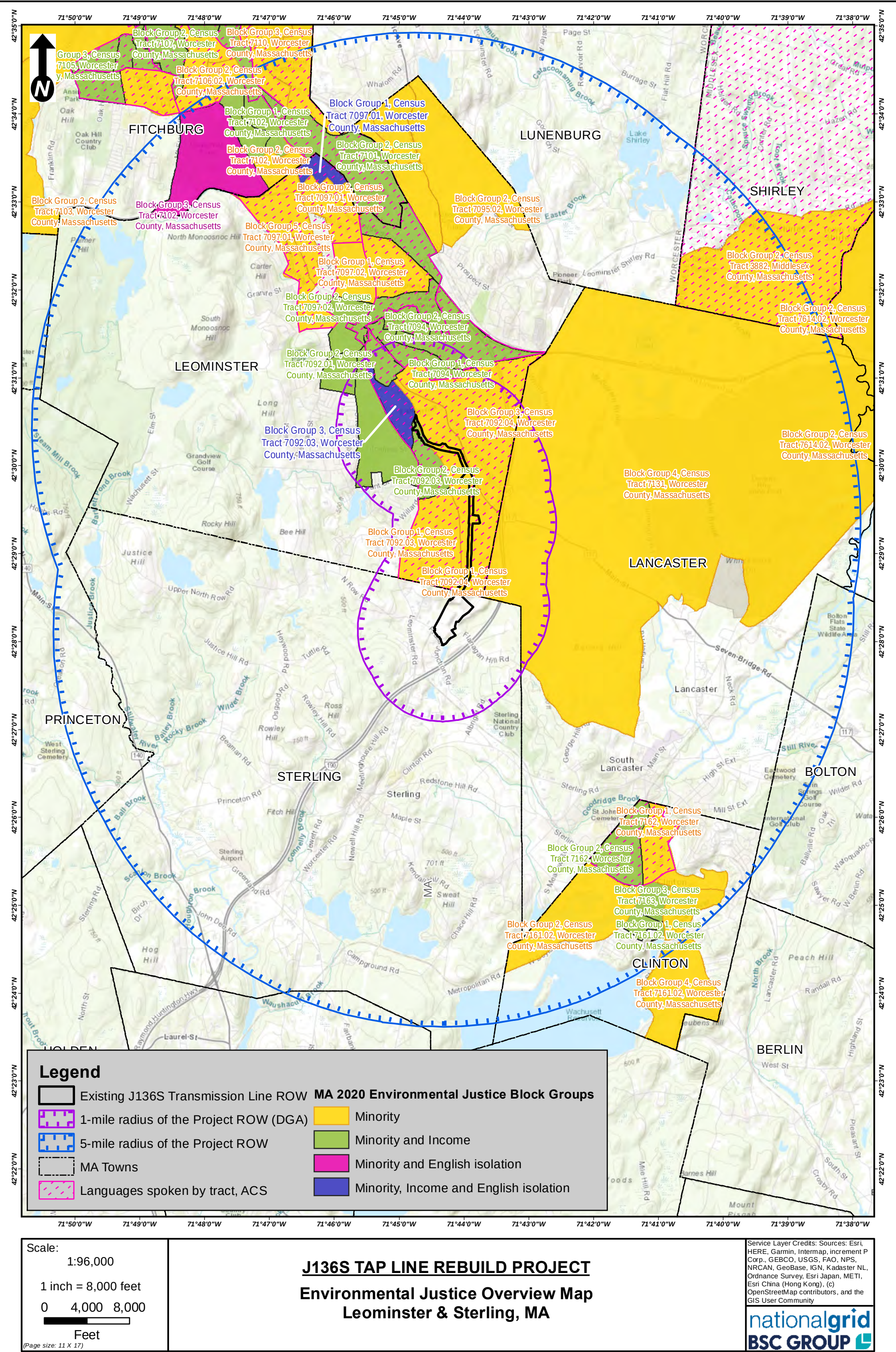
EEA#17004/EENF - J136S Tap Line Rebuild Project
MassDEP Chapter 91 Waterways Comments

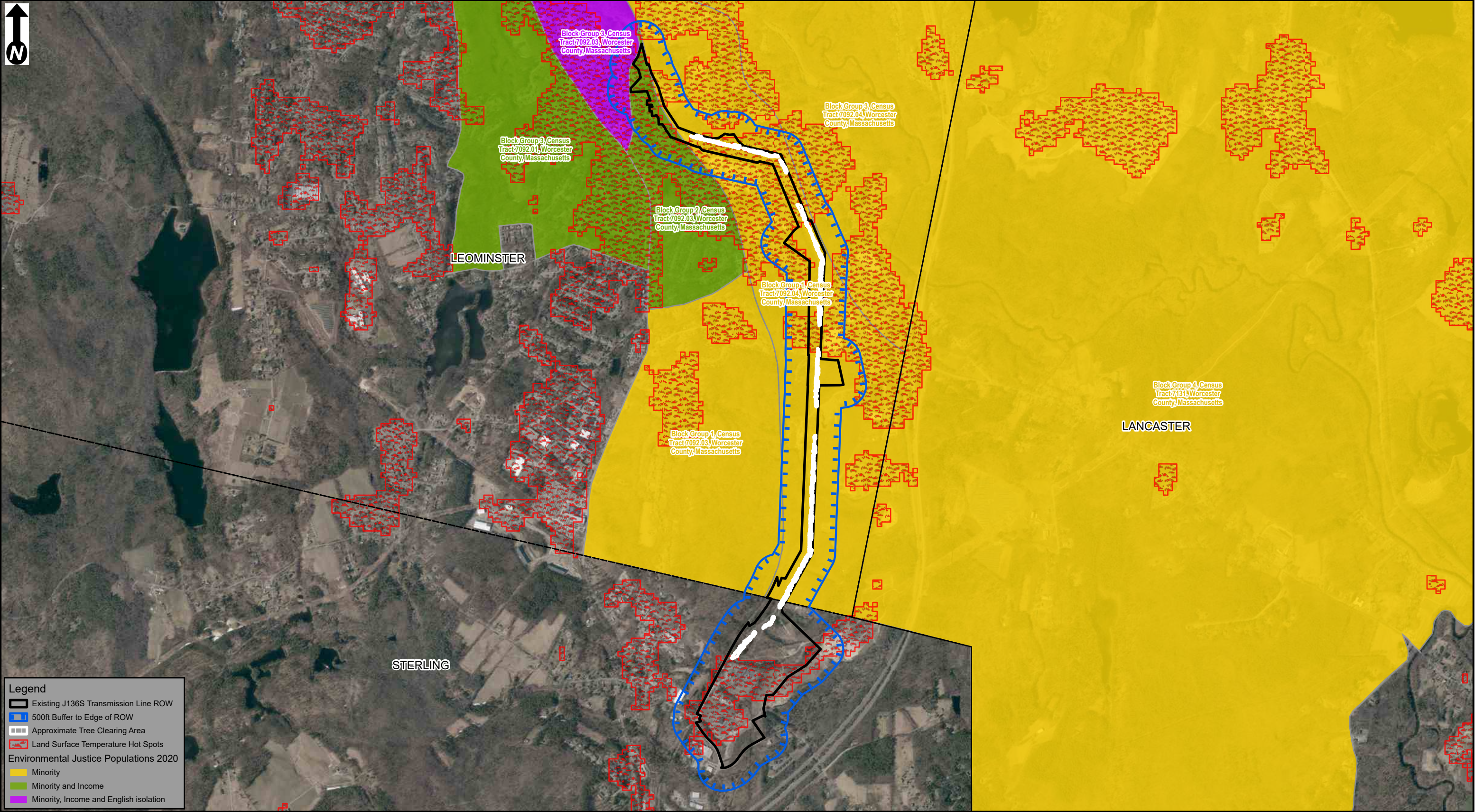
However, the project description also includes the temporary placement of construction matting within jurisdictional waterways, contrary to the description in the EENF that, “*No structure fill is proposed within any rivers or streams*”. The EENF does not include details or an explanation to support that the temporary work within Chapter 91 jurisdiction is exempt from licensing or other Chapter 91 authorization. Therefore, it is recommended that the Proponent coordinate with the Department to ensure the project description includes adequate information about the scope of work as it relates to Chapter 91, and that any necessary Chapter 91 review and/or authorization is obtained. If there are any questions regarding the Department’s comments, please contact dep.waterways@mass.gov.

WRP-1

Appendix F: Environmental Justice Hot Spot Analysis

Single Environmental Impact Report (SEIR)
J136S Tap Line Rebuild Project





Legend

- Existing J136S Transmission Line ROW
- 500ft Buffer to Edge of ROW
- Approximate Tree Clearing Area
- Land Surface Temperature Hot Spots

Environmental Justice Populations 2020

- Minority
- Minority and Income
- Minority, Income and English isolation

Scale: 1 inch = 2,000 feet
(page size: 11 X 17)

0 2,000 4,000

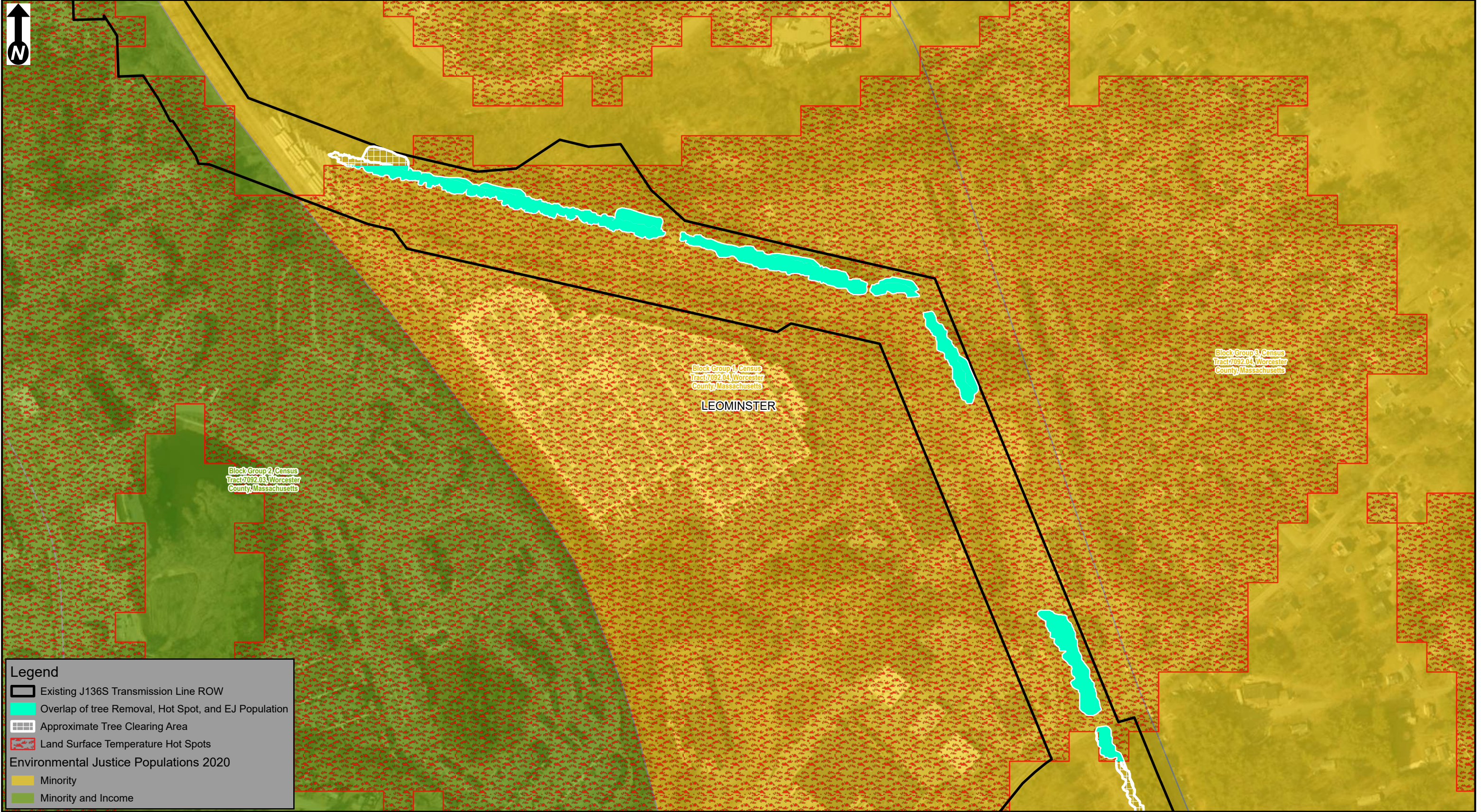
Feet

J136S TAP LINE REBUILD PROJECT
Environmental Justice Overview Map
Leominster & Sterling, MA

Source: 2013
National Geographic
Society, i-cubed

nationalgrid

BSC GROUP



Legend

- Existing J136S Transmission Line ROW
- Overlap of tree Removal, Hot Spot, and EJ Population
- Approximate Tree Clearing Area
- Land Surface Temperature Hot Spots

Environmental Justice Populations 2020

- Minority
- Minority and Income

Scale: 1 inch = 300 feet
(page size: 11 X 17)

0 300 600
Feet

J136S TAP LINE REBUILD PROJECT
Proposed tree Removal in EJ Block Groups and Hot Spots within 500ft of Project Area
Leominster & Sterling, MA
Page 1 of 2

Source: 2013
National Geographic
Society, i-cubed

nationalgrid

BSC GROUP



Block Group 2, Census
Tract 7092.03, Worcester
County, Massachusetts

Block Group 3, Census
Tract 7092.04, Worcester
County, Massachusetts

Block Group 1, Census
Tract 7092.03, Worcester
County, Massachusetts

LEOMINSTER

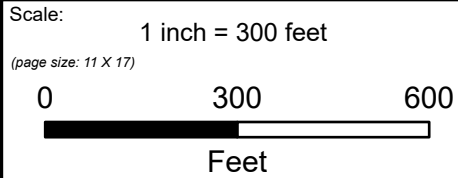
Block Group 1, Census
Tract 7092.04, Worcester
County, Massachusetts

LANCASTER

Block Group 4, Census
Tract 7131, Worcester
County, Massachusetts

Legend

- Existing J136S Transmission Line ROW
- Overlap of tree Removal, Hot Spot, and EJ Population
- Approximate Tree Clearing Area
- Land Surface Temperature Hot Spots
- Environmental Justice Populations 2020
 - Minority
 - Minority and Income



J136S TAP LINE REBUILD PROJECT
Proposed tree Removal in EJ Block Groups and Hot Spots within 500ft of Project Area
Leominster & Sterling, MA
Page 2 of 2

Source: 2013
National Geographic
Society, i-cubed

nationalgrid

BSC GROUP