

E194 & U181 Structure Replacement Project
Portsmouth, New Hampshire

CITY OF PORTSMOUTH CONDITIONAL USE PERMIT

Eversource Energy
13 Legends Drive
Hooksett, New Hampshire

April 2023

E-5034-200-01
April 25, 2023

Ms. Barbara McMillan, Chair
City of Portsmouth Conservation Commission
1 Junkins Avenue
Portsmouth, New Hampshire 03801

Re: **Eversource E194 & U181 Structure Replacement Project
Wetland Conditional Use Permit Application
Portsmouth, NH**

Dear Ms. McMillan:

On behalf of Eversource Energy dba Public Service Company of New Hampshire (Eversource), Tighe & Bond is pleased to submit the following Conditional Use Permit (CUP) for the above referenced project. Eversource proposes to replace existing utility structures on the E194 and U181 lines within an existing maintained transmission right-of-way (ROW) in Portsmouth. These structures are being replaced due to overall age and condition to allow for continued reliable utility transmission. Enclosed is a project description and supporting documents including project mapping, a wetland resource area description and assessment, representative site photographs, and an application fee check (file copy) in the amount of \$1,000.

The proposed project is located on the Eversource Lines E194 and U181 Right-of-Way (ROW) in Portsmouth and Newington, New Hampshire. The transmission line within Portsmouth runs from Gosling Road to Echo Avenue, and between Borthwick Avenue and the Ocean Road Substation on the Greenland/Portsmouth town line. The ROW and access roads are surrounded by residential, industrial, and commercial buildings, wooded areas, and wetlands. The proposed project will consist of the replacement of forty-two (42) structures and associated static wire work at eight (8) structures on the E194 and U181 lines. Existing wooden utility structures will be replaced with new steel structures. In addition to the structure replacements, existing upland access roads and work pads will need to be established. Impacts to the 100-foot Buffer Zone will result from the creation of approximately 100-foot by 100-foot work pads and 16-foot-wide access roads. Wetlands and other sensitive areas are to be protected with timber matting along proposed access and surrounding the structures to be replaced.

We trust the enclosed information addresses the requirements for the CUP application. If you have any questions or require any additional information, please feel free to contact me at (413) 875-1305 or at KLWilkins@tighebond.com.

Respectfully,

TIGHE & BOND, INC.



Katherine Wilkins
Project Manager

Enclosures

Copy: Planning Board, City of Portsmouth
Ashley Friend, Licensing and Permitting, Eversource Energy



Filing Fee Check (File Copy)

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- B Wetland Resource Area Description and Assessment Report
- C Site Photographs

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Tighe & Bond, Inc.
53 Southampton Road
Westfield, MA 01085

This is a Deluxe eCheck. The PAY TO THE ORDER OF line designates the Payee. For questions call Deluxe Payment Exchange customer support at 1-877-633-6964. Ref: 7303-164F

6509

Date 03/23/2023
Void after 90 days

PAY TO THE ORDER OF City of Portsmouth

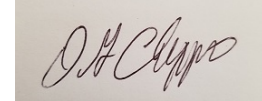
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TD Bank, NA

Memo _____



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Account numbers are concealed for your security

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Check Details

Check issued: 03/23/2023

Check number: 6509

From: Tighe & Bond, Inc.

Amount: \$1,000.00

Payable to: City of Portsmouth

Delivered to: jnovotny@tighebond.com

Documents: Yes - see Remittance below

Message from sender: Hi, attached is your Tighe & Bond electronic check. Any questions please email AP@tighebond.com.

Notes

Activity

ACTIVITY TYPE	TIME	DATE
Tracy Houle issued check 6509	10:40 AM EDT	03/23/2023
Check 6509 file copy printed by Julia Novotny	12:35 PM EDT	03/23/2023

Section 1

Project Description

Eversource Energy has determined that forty-five (45) wooden utility structures on the E194 and U181 Lines in Portsmouth and Newington need to be replaced with steel structures due to their overall age and condition. Forty-two (42) of these structures are located within Portsmouth. These include Structures 13-16, 19, 37-41, 43-45, 48-54, 65.5 and 66 on the U181 Line and Structures 12-14, 19, 41-53, 65.5, and 66 on the E194 Line. Additionally, static wire work will be conducted at STRs 65-67 on the U181 and STRs 65-67 on the E194. The proposed structure replacements are required to maintain the safety and reliability of the existing transmission system. All practicable alternatives to avoid or minimize impacts from this work have been assessed and incorporated into the project design.

As part of the work, the existing access roads will need to be regraded, and proposed access routes established. Work pads will also be established around the structures to be replaced or that require overhead work. This regrading and gravel placement will only be completed within upland areas. Portions of the access roads and work pads located in wetlands will be protected with timber matting, as will some uplands where the work is proposed within sensitive areas.

The following narrative describes existing conditions and proposed activities within jurisdictional areas. Representative photographs of the project area are found in Appendix C and Project Mapping is provided in Appendix A.

Section 2

Existing Conditions

2.1 Project Site

The E194 and U181 transmission lines originate at the Newington Substation off Gosling Road in Newington and run southwest of the Piscataqua River. The lines then extend southeast, parallel with Route 4 before turning southwest again, parallel with Interstate 95. The lines continue southwest through Great Bog in Portsmouth before turning west and terminating at the Ocean Road Substation in Greenland. The topography is generally flat throughout the right-of-way (ROW) with slight depressions and hills located in the less developed reaches. The areas surrounding the ROW are mostly commercial, industrial, and residential, with some large portions of forested and wetland areas closer to the Greenland town line.

The proposed limits of work, as shown on the Project Mapping, consist of the existing ROW corridor. The work proposed within Portsmouth is located between Gosling Road and Echo Avenue, and between Borthwick Avenue and the Ocean Road Substation on the Greenland/Portsmouth border. Representative site photographs are provided in Appendix C.

2.2 Jurisdictional Wetland Resource Areas

There are multiple wetland resource areas within the E194 and U181 ROW corridor. Jurisdictional wetland resource areas within the project area were identified and delineated on December 21, 2022, and January 4, 9, and 17, 2023 by Tighe & Bond wetland scientists, including a New Hampshire Certified Wetland Scientist. Refer to the Wetland Resource Area Description and Assessment Report provided in Appendix B for a detailed description of these areas.

2.2.1 Wetlands

Wetlands within the project area are characterized as a mixture of palustrine scrub-shrub (PSS) and palustrine emergent (PEM) systems. Several of these wetlands are situated within disturbed areas surrounded by development. The E194 and U181 ROW crosses through these wetlands and adjacent developed areas, in addition to Great Bog between Greenland Road and the Ocean Road Substation in Greenland. The wetlands adjacent to Borthwick Avenue near Structures 37 through 42, in addition to Great Bog, are designated as Prime Wetlands.

Approximately 208,734 square feet (SF) of temporary impacts to wetlands will result from the placement of timber matting for access to the structures. Several of the structures to be replaced are located within wetlands.

2.2.2 Pickering Brook

A tributary to Pickering Brook flows northeast to southwest through the project area within Great Bog. This stream flows adjacent to Structure 49 on the E194 and Structure 49 on the U181. Work at these structures will require temporary impacts of approximately 3,310

SF to span the stream with timber matting. This tributary flows to the main stem of the river, which is located west of the project site.

2.2.3 100-foot Buffer Zone

The 100-foot Buffer Zone within the project area is a mixture of impervious/paved, forested, residential, and commercial areas, as well as the existing maintained ROW.

Buffer Zone between Structures 12 and 16 and around Structure 19 on both lines is mainly comprised of impervious area (e.g., parking lots and roadways) and residential or commercial development, with some upland areas in and adjacent to the ROW. Additionally, Buffer Zone between Structures 37 and 41 is comprised nearly entirely of paved roadways or parking lots. Buffer Zone between Structures 45 and 54 on both lines and at the Ocean Road Substation is comprised entirely of upland maintained ROW and forested areas. Vegetation in this area is mainly scrub-shrub and a mixture of deciduous and coniferous forest.

Impacts to Buffer Zone total approximately 78,642 SF resulting from proposed clearing and grading for access to the structures.

Section 3 Proposed Activities

3.1 Structure Replacement and Maintenance

The structure replacements will consist of drilling holes up to four feet in diameter and the installation of a caisson (metal culvert) into each hole approximately 15 to 20 feet (10% of structure height plus 2 feet) below the ground surface. The new poles will be placed into the caissons and backfilled with clean, suitable materials. Spoils generated from the drilling operations will be disposed in appropriate upland areas at least 100 feet away from wetland areas and then stabilized.

Concrete block anchors will be installed by excavating trenches to a sufficient depth, installing the anchors, and backfilling the trenches. Where block anchors are required within a wetland, hydric soils will be segregated upon excavation and replaced to maintain the hydric soil profile. Any additional spoils will be disposed in upland areas away from wetland areas. Disturbed soil will be seeded with a conservation seed mix and mulched with straw.

Once the new poles are installed, old poles will then be removed by cutting them below the ground surface. The old poles, cross-arms, wires, and accessory equipment will be removed and disposed off-site. The pole butts associated with the existing poles will only be removed if they impact the structural integrity of the new poles.

3.2 Access

Access road improvements and development are needed to provide reliable access for the proposed work, as well as for future maintenance and emergency repairs. The access routes will follow existing entrances onto and within the ROW and have been sited to minimize ground disturbance. Improvements will include regrading as needed with up to a 16-foot-wide disturbance. Disturbance of wetlands and sensitive upland areas will be minimized through the use of wooden timber matting.

3.3 Work Pad Construction

The proposed project includes the construction of 100-foot by 100-foot gravel work pads to provide level and stable surfaces needed to facilitate the structure installations. Work pads in upland areas will be constructed using crushed stone, top-dressed with 1.5- to 3-inch diameter clean stone. Where work pads overlap with wetlands and other sensitive areas, they will utilize temporary construction matting, which will be removed upon completion of the work. Any areas of soil disturbance around the work pads will be stabilized with seed and straw mulch. Matted upland work pads will be restored upon the removal of the timber mats, and exposed soils will be stabilized with seed and mulch.

3.4 Construction Sequence

The work is proposed to begin in September of 2023, with all work requiring regulatory approval beginning following the receipt of all applicable permits. The following is a description of the anticipated construction sequence. The actual sequence and schedule

will be determined by the selected contractor(s).

- Install sediment and erosion controls
- Upgrade access roads and build work pads, install construction mats where needed
- Conduct structure replacements
- Remove construction mats and stabilize/restore disturbed areas
- Stabilize exposed soils within the ROW
- Remove erosion and sedimentation controls following stabilization

3.5 Protective Measures

Work will be performed utilizing the latest *Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire* (NH DNCR 2019) to limit impacts to the environment. Where deemed necessary, perimeter protective measures consisting of silt fence, straw wattles, and or straw bales will be installed around the structure to minimize potential impacts to the nearby wetland resource areas. Water bars will be installed in areas of road improvements and in areas with steep slopes as identified by the Contractor. Any areas of disturbed soil will be mulched with hay or straw as necessary following the completion of work. No equipment or material will be stored within wetland resource areas or wellhead protection areas. Erosion controls will be implemented during construction, as noted on the project plans in Appendix A, to minimize the potential impacts during construction.

Timber matting will be removed promptly upon completion of work to avoid long-term impacts to wetland vegetation or hydrology. Once the project work is complete, any disturbed upland areas will be restored and stabilized. Areas of exposed soils will be seeded and/or mulched appropriately.

Section 4

Regulatory Compliance

4.1 City of Portsmouth Zoning Ordinance – Article 10

The proposed work will be completed in compliance with the requirements set forth in the City of Portsmouth Zoning Ordinance (Article 10, Environmental Protection Standards). The work complies with the criteria set forth in Article 10, Section 1017.60, Public and Private Utilities within Rights-of-Way in Wetlands and Wetland Buffers, discussed below.

(1) The proposed construction is in the public interest;

The proposed construction is in the public interest, as these structure replacements are necessary to continue reliable transmission of public utilities.

(2) Design, construction, and maintenance methods will utilize best management practices to minimize any detrimental impact of such use upon the wetland and will include restoration of the site as nearly as possible to its original grade, condition, and vegetated state;

Eversource will utilize Best Management Practices, as described in Section 3.5, during construction to mitigate impacts to wetland resource areas. Following construction, all disturbed areas will be restored to previously existing conditions, where feasible. Certain work pad areas and access roads (outside of wetlands) may not be restored to original grades if it is not feasible to achieve. These areas will be stabilized and previously vegetated areas will be mulched and seeded.

(3) No alternative feasible route exists which does not cross or alter a wetland or have less detrimental impact on a wetland; and

The proposed work has been designed in consideration of environmental impacts. The replacement activities are limited to the existing maintained ROW and limits of work have been established to allow only for work necessary to complete the structure replacements. Access to the structures will primarily be utilizing existing access routes in previously disturbed areas to replace existing infrastructure. Timber matting in wetlands has been limited to the extent practicable to complete the proposed utility maintenance. Due to the location of the existing structures, no feasible alternatives exist which would have less impact on wetlands.

(4) Alterations of natural vegetation of managed woodland will occur only to the extent necessary to achieve construction goals.

There is no proposed alteration of woodland vegetation as all work is within the maintained extent of the ROW. Alterations to wetland vegetation are temporary and timber matting will be removed promptly upon completion of work to avoid long-term impacts. As noted above, the limits of work have been established to allow work only necessary to complete the structure replacements.

4.1.1 Wetland Functions and Values Assessment

Pursuant to Article 10, Section 1017.22 of the City of Portsmouth Zoning Ordinance, a project that proposes the temporary or permanent alteration of greater than 1,000 square feet of wetland and greater than 250 square feet of wetland buffer requires a function and values assessment and wetland buffer description. A full description of the wetlands delineated within the project area and their respective buffers is provided in Appendix B.

4.1.2 Wetland Buffer Impervious Surface Impacts

Impacts resulting from the construction of access roads and work pads will be temporary and will not increase impervious surfaces within wetland buffers. A wetland buffer enhancement plan is not feasible due to the nature of the proposed work and the likelihood of future maintenance within the ROW. Vegetation within the ROW is routinely maintained and access will be necessary for future utility maintenance.

4.2 State Permits**4.2.1 Alteration of Terrain**

The proposed work exceeds 100,000 square feet of earth moving activities and as such requires an Alteration of Terrain (AoT) permit from the New Hampshire Department of Environmental Services (NHDES) AoT Bureau. This permit will be submitted after the filing of this CUP.

4.2.2 Utility Statutory Permit-by-Notification

This project includes direct impacts to wetlands and waters of the state, and thus requires authorization under NH RSA § 482-A. Utility Statutory Permit-by-Notification applications will be filed for each municipality where work is proposed after the filing of this CUP.

4.3 Federal Permits**4.3.1 EPA 2022 Construction General Permit**

The proposed work will exceed one acre of earth moving activities and will require a Construction General Permit (CGP) from the U.S. Environmental Protection Agency (EPA). A Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP) will be completed at least 14 days prior to the start of construction.

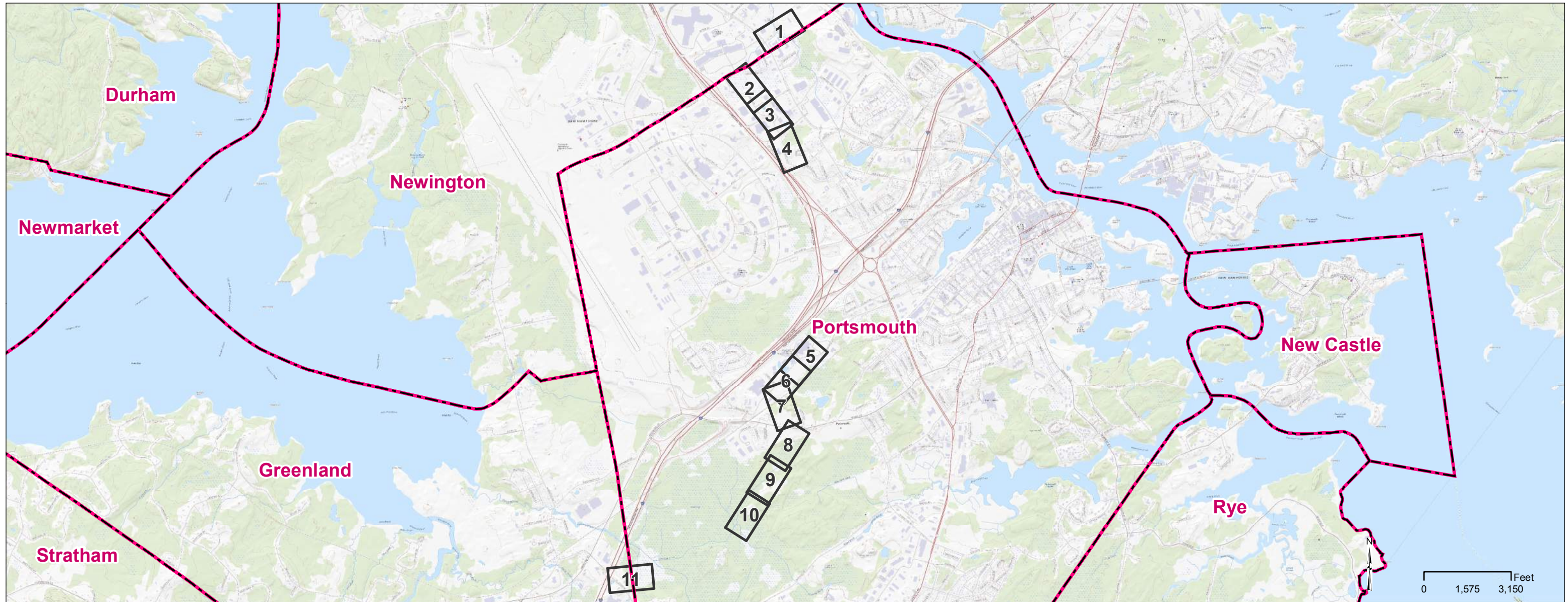
Tighe&Bond

APPENDIX A

Line E194 and U181 Structure Replacement Project

NEWINGTON AND PORTSMOUTH, NEW HAMPSHIRE Environmental Resources Map

Date: March 23, 2023



PREPARED FOR:

EVERSOURCE

13 Legends Drive
Hooksett, NH 03106

Legend

- Map Index
- Municipal Boundary

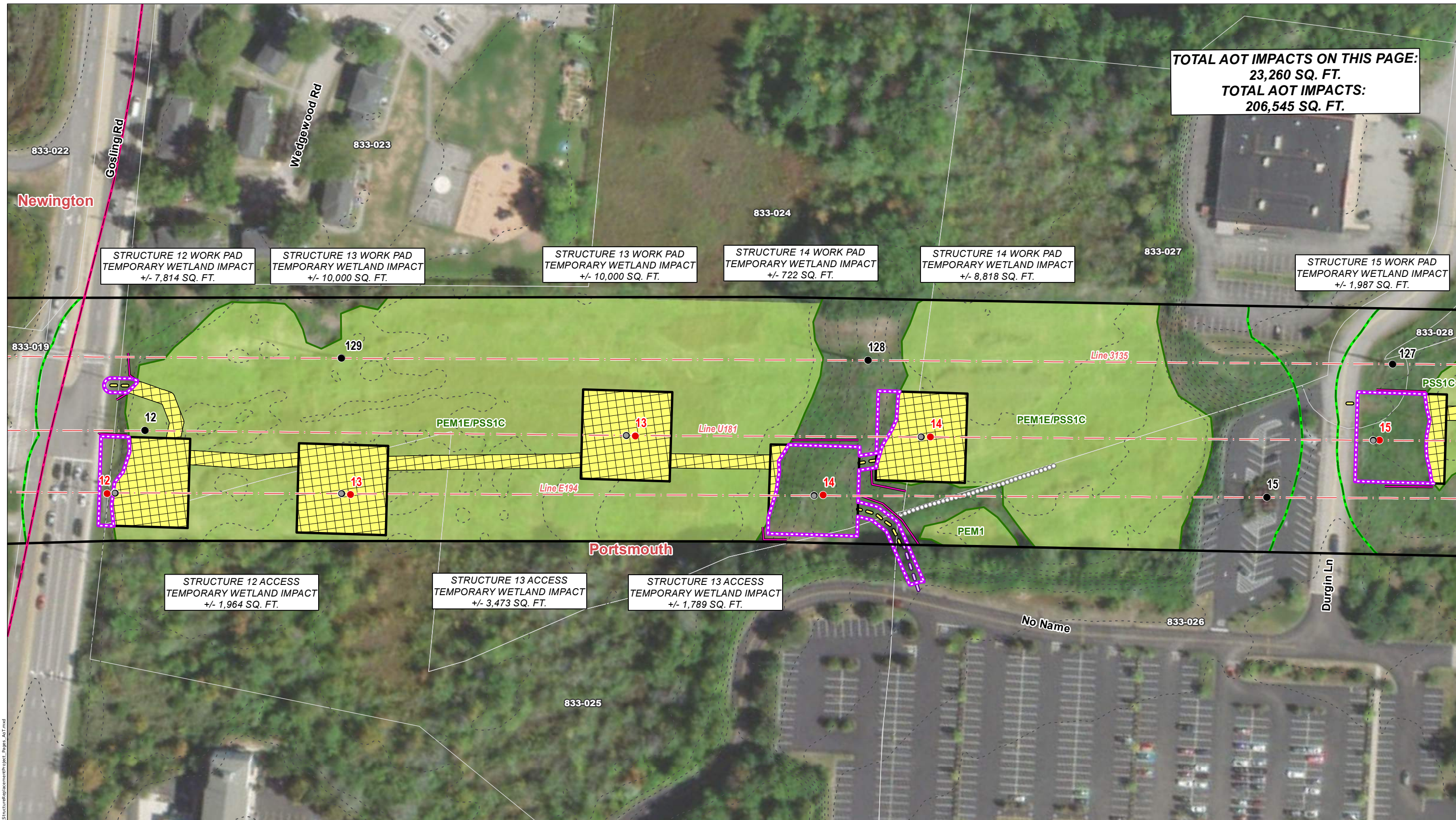
INDEX OF FIGURES

Title Sheet / Index Map
Map Sheets 1-11

PREPARED BY:

Tighe&Bond

53 Southampton Road
Westfield, MA 01085



TOTAL AOT IMPACTS ON THIS PAGE:
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TOTAL AOT IMPACTS:
206,545 SQ. FT.

STRUCTURE 12 WORK PAD
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STRUCTURE 13 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 10,000 SQ. FT.

STRUCTURE 13 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 10,000 SQ. FT.

STRUCTURE 14 WORK PAD
 TEMPORARY WETLAND IMPACT
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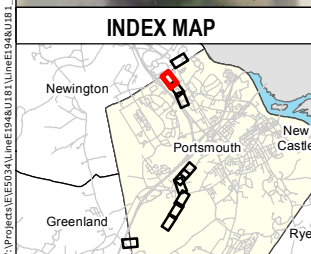
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 TEMPORARY WETLAND IMPACT
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STRUCTURE 15 WORK PAD
 TEMPORARY WETLAND IMPACT
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STRUCTURE 12 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 1,964 SQ. FT.

STRUCTURE 13 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 3,473 SQ. FT.

STRUCTURE 13 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 1,789 SQ. FT.



Legend	
● Proposed Structure	▭ Proposed Access
● Existing Structure to be Modified	▭ Off-ROW Access Pending Rights
● Existing Structure to be Removed	— Railroad
● Existing Structure	--- Contour Line (2 Ft.)
Ⓜ Gate	✕=✕ Fence
Ⓜ Culvert	— Overhead Eversource Line
— Existing Access	— Distribution Line
○ Stonewall	— Sediment Control Barrier
— 25' Wetland Buffer (Newington)	— 100' Buffer Zone (Portsmouth)
— Existing Right-of-Way	— Municipal Boundary
— Delineated Intermittent Watercourse	— Delineated Wetland Boundary Outline
	— Field Delineated Wetland*
	— Parcel Boundary
	▭ Work Pad
	▭ 100 Year Flood Zone
	▭ Wellhead Protection Areas
	▭ Alteration of Terrain

Map Notes:
 Data valid as of March 2023.
 Data source: New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT) and USFWS. Orthophotography courtesy of ESRI.
 Contours downloaded from New Hampshire GRANIT
 Parcels provided by New Hampshire GRANIT
 Figure intended to be printed on 11x17
 *Indicates datasets with a transparency setting of 30-70%
 This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.

1 inch = 100 feet

NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

Portsmouth, New Hampshire

Date: March 23, 2023

Map Sheet 2 of 11

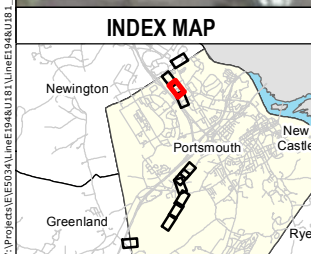
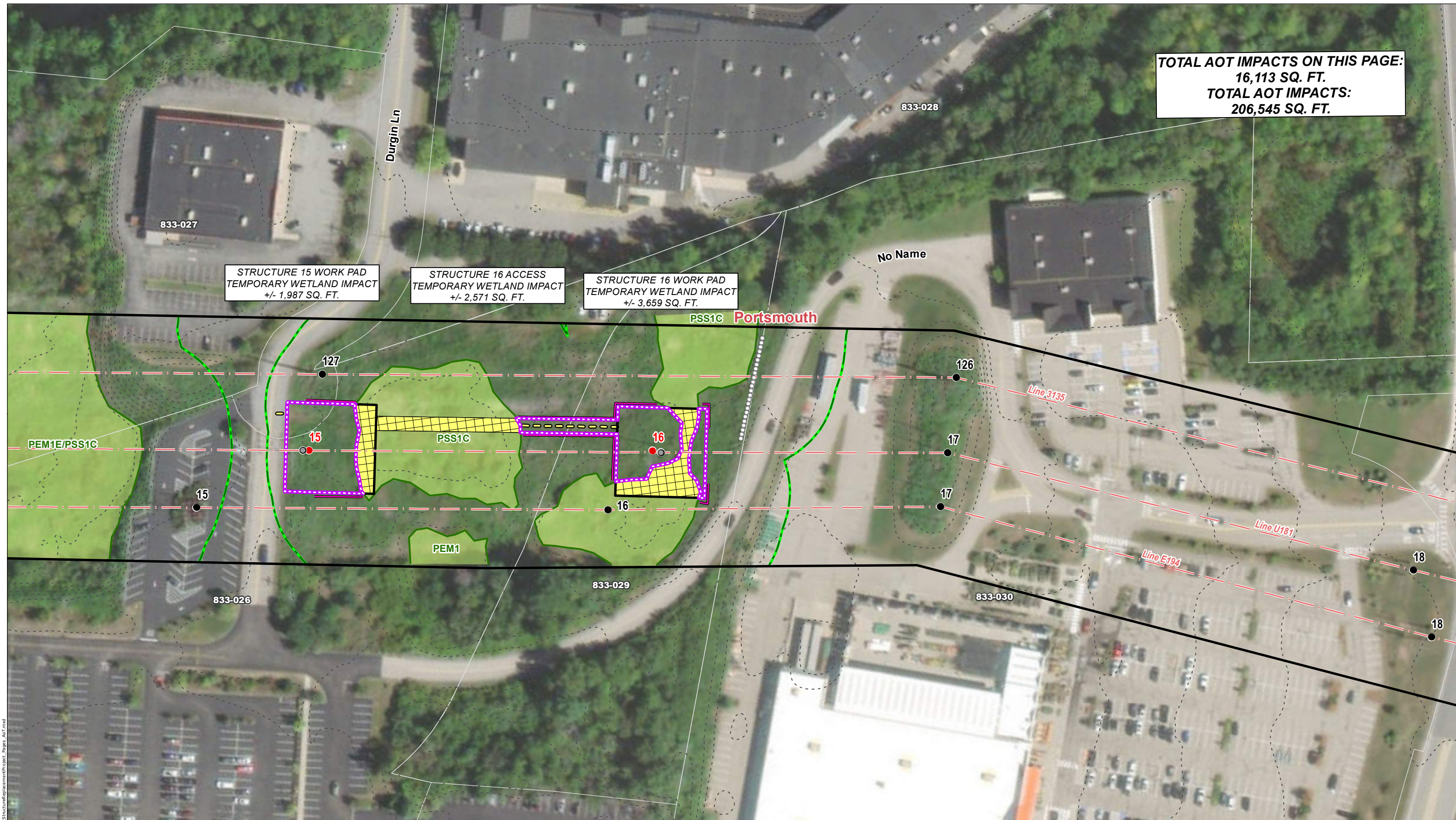
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STRUCTURE 16 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 2,571 SQ. FT.

STRUCTURE 16 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 3,659 SQ. FT.



- Legend**
- Proposed Structure
 - Existing Structure to be Modified
 - Existing Structure to be Removed
 - Existing Structure
 - Gate
 - Culvert
 - Existing Access
 - Proposed Access
 - Off-ROW Access Pending Rights
 - Railroad
 - Contour Line (2 Ft.)
 - X=X Fence
 - Overhead Eversource Line
 - Distribution Line
 - Stonewall
 - Sediment Control Barrier
 - 25' Wetland Buffer (Newington)
 - 100' Buffer Zone (Portsmouth)
 - Existing Right-of-Way
 - Municipal Boundary
 - Delineated Intermittent Watercourse
 - Delineated Wetland Boundary Outline
 - Field Delineated Wetland*
 - Parcel Boundary
 - Work Pad
 - 100 Year Flood Zone
 - Wellhead Protection Areas
 - Alteration of Terrain

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1 inch = 100 feet

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NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

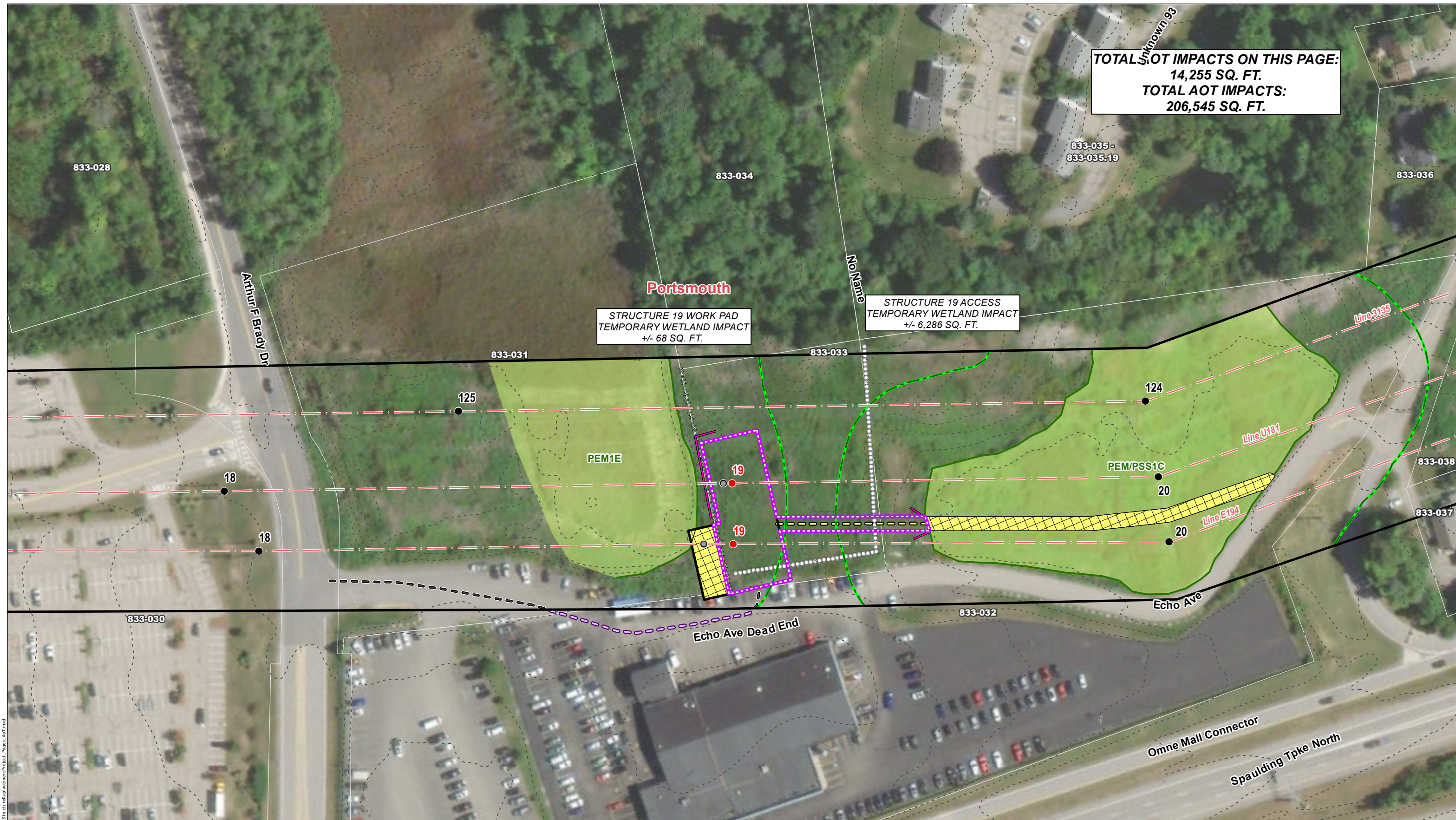
Portsmouth, New Hampshire

Date: March 23, 2023

Map Sheet 3 of 11

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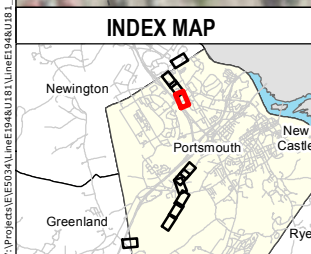
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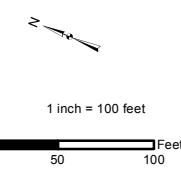
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STRUCTURE 19 ACCESS
TEMPORARY WETLAND IMPACT
+/- 6,286 SQ. FT.



Legend	
● Proposed Structure	▭ Proposed Access
● Existing Structure to be Modified	▭ Off-ROW Access Pending Rights
● Existing Structure to be Removed	▭ Sediment Control Barrier
● Existing Structure	▭ 25' Wetland Buffer (Newington)
● Gate	▭ 100' Buffer Zone (Portsmouth)
● Culvert	▭ Existing Right-of-Way
▭ Existing Access	▭ Municipal Boundary
○ Stonewall	▭ Delineated Intermittent Watercourse
▭ Delineated Wetland Boundary Outline	▭ Work Pad
▭ Field Delineated Wetland*	▭ 100 Year Flood Zone
▭ Parcel Boundary	▭ Wellhead Protection Areas
▭ Alteration of Terrain	

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NO.	DATE	REVISIONS

EVERSOURCE

Line E194 and U181
Structure Replacement Project

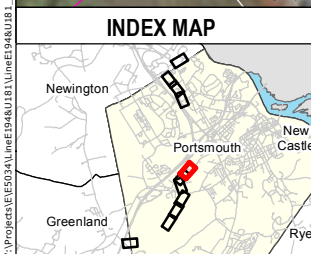
Portsmouth, New Hampshire

Date: March 23, 2023

Map Sheet 4 of 11

Tighe & Bond

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- Legend**
- Proposed Structure
 - Existing Structure to be Modified
 - Existing Structure to be Removed
 - Existing Structure
 - Gate
 - Culvert
 - Existing Access
 - Proposed Access
 - Off-ROW Access Pending Rights
 - Railroad
 - Contour Line (2 Ft.)
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1 inch = 100 feet

0 50 100 Feet

NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
Structure Replacement Project**

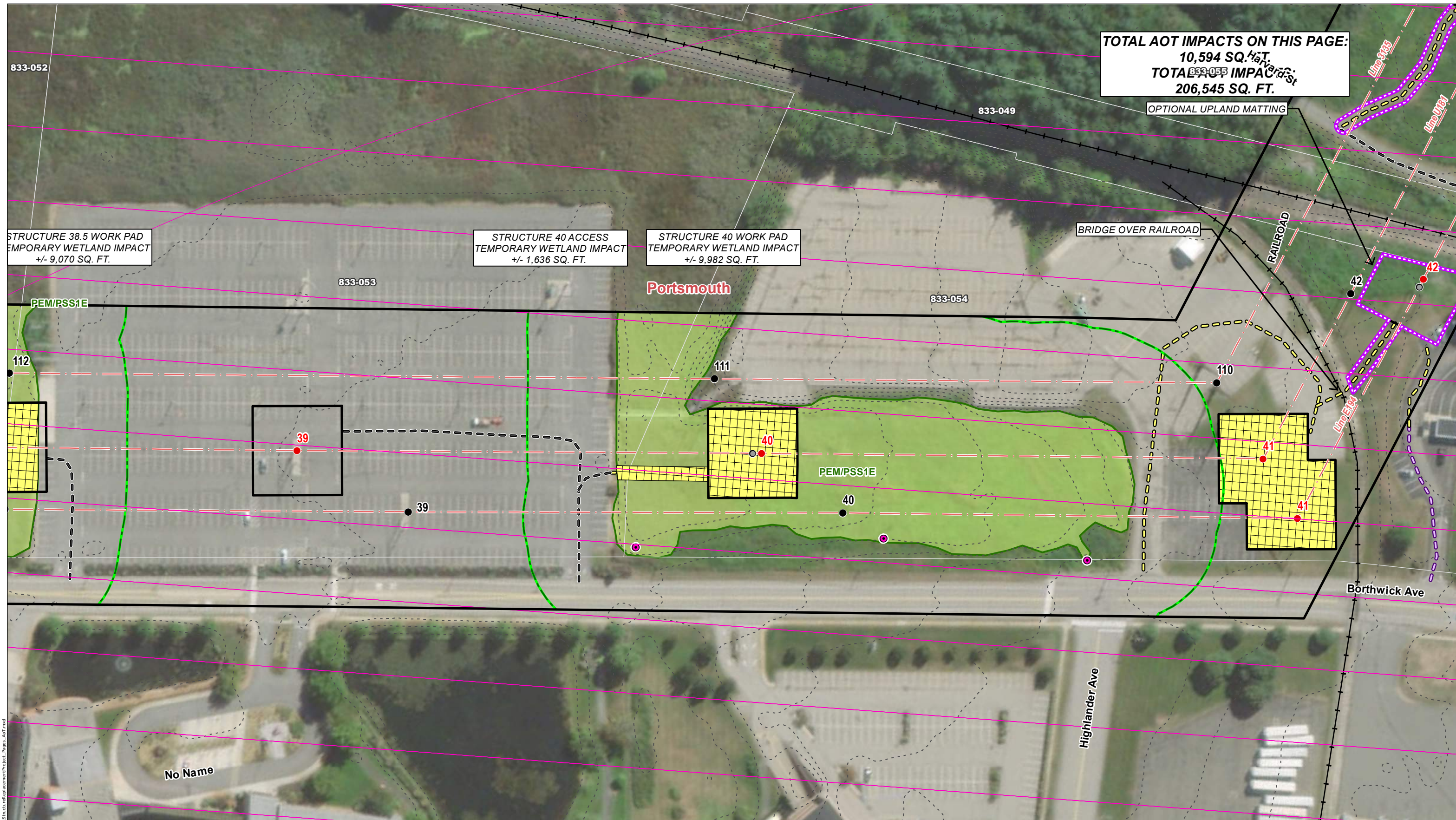
Portsmouth, New Hampshire

Date: March 23, 2023

Map Sheet 5 of 11

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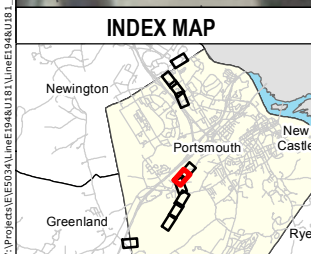
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 TEMPORARY WETLAND IMPACT
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STRUCTURE 40 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 1,636 SQ. FT.

STRUCTURE 40 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 9,982 SQ. FT.

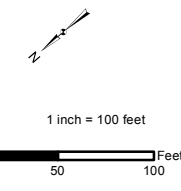
BRIDGE OVER RAILROAD

OPTIONAL UPLAND MATTING



- Legend**
- Proposed Structure
 - Existing Structure to be Modified
 - Existing Structure to be Removed
 - Existing Structure
 - Gate
 - Culvert
 - Existing Access
 - Proposed Access
 - Off-ROW Access Pending Rights
 - Railroad
 - Contour Line (2 Ft.)
 - Fence
 - Overhead Eversource Line
 - Distribution Line
 - Stonewall
 - Sediment Control Barrier
 - 25' Wetland Buffer (Newington)
 - 100' Buffer Zone (Portsmouth)
 - Existing Right-of-Way
 - Municipal Boundary
 - Delineated Intermittent Watercourse
 - Delineated Wetland Boundary Outline
 - Field Delineated Wetland*
 - Parcel Boundary
 - Work Pad
 - 100 Year Flood Zone
 - Wellhead Protection Areas
 - Alteration of Terrain

Map Notes:
 Data valid as of March 2023.
 Data source: New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT) and USFWS. Orthophotography courtesy of ESRI.
 Contours downloaded from New Hampshire GRANIT
 Parcels provided by New Hampshire GRANIT
 Figure intended to be printed on 11x17
 *Indicates datasets with a transparency setting of 30-70%
 This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.



NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

Portsmouth, New Hampshire

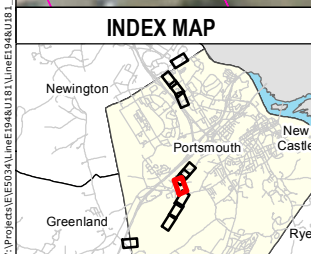
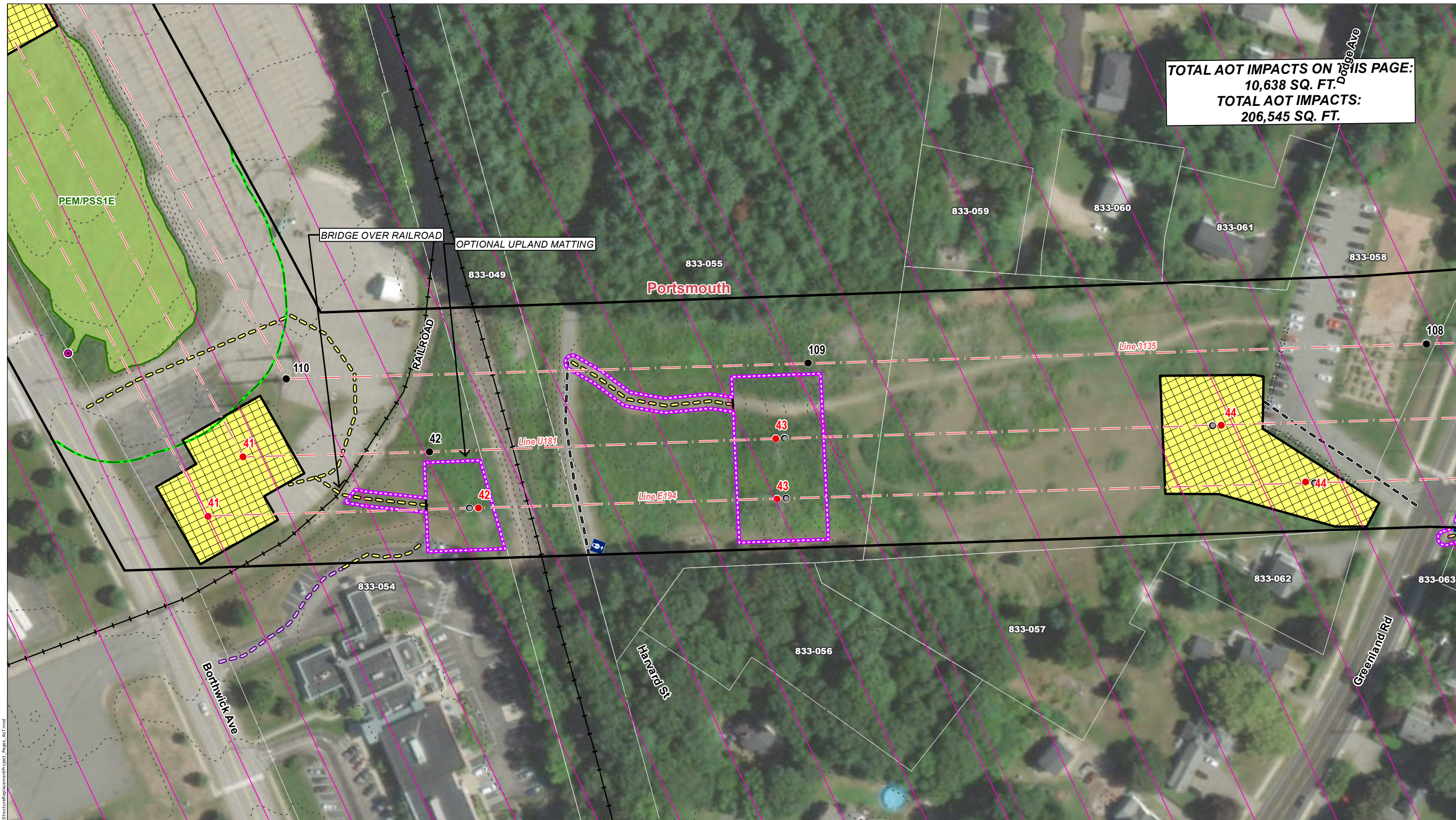
Date: March 23, 2023

Map Sheet 6 of 11

Tighe & Bond

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TOTAL AOT IMPACTS ON THIS PAGE:
 10,638 SQ. FT.
TOTAL AOT IMPACTS:
 206,545 SQ. FT.



Legend	
● Proposed Structure	— Proposed Access
● Existing Structure to be Modified	— Off-ROW Access Pending Rights
● Existing Structure to be Removed	— Railroad
● Existing Structure	— Contour Line (2 Ft.)
● Gate	— X=X Fence
● Culvert	— Overhead Eversource Line
— Existing Access	— Distribution Line
○ Stonewall	— Sediment Control Barrier
— 25' Wetland Buffer (Newington)	— 100' Buffer Zone (Portsmouth)
— Existing Right-of-Way	— Municipal Boundary
— Delineated Intermittent Watercourse	— Delineated Wetland Boundary Outline
	— Field Delineated Wetland*
	— Parcel Boundary
	— Work Pad
	— 100 Year Flood Zone
	— Wellhead Protection Areas
	— Alteration of Terrain

Map Notes:
 Data valid as of March 2023.
 Data source: New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANT) and USFWS. Orthophotography courtesy of ESRI.
 Contours downloaded from New Hampshire GRANIT
 Parcels provided by New Hampshire GRANIT
 Figure intended to be printed on 11x17
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1 inch = 100 feet

0 50 100 Feet

NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

Portsmouth, New Hampshire

Date: March 23, 2023

Map Sheet 7 of 11

Tighe & Bond

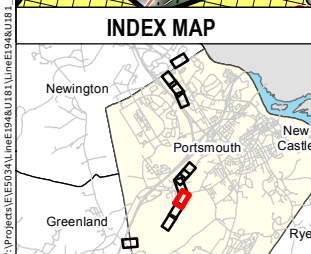
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TOTAL AOT IMPACTS:
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STRUCTURE 46 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 6,583 SQ. FT.

STRUCTURE 47 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 10,000 SQ. FT.

STRUCTURE 48 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 19,799 SQ. FT.



Legend	
● Proposed Structure	— Proposed Access
● Existing Structure to be Modified	— Off-ROW Access Pending Rights
● Existing Structure to be Removed	— Railroad
● Existing Structure	— Contour Line (2 Ft.)
Ⓜ Gate	— X=X Fence
Ⓜ Culvert	— Overhead Eversource Line
— Existing Access	— Distribution Line
Ⓜ Stonewall	— Sediment Control Barrier
— 25' Wetland Buffer (Newington)	— 100' Buffer Zone (Portsmouth)
— Existing Right-of-Way	— Municipal Boundary
— Delineated Intermittent Watercourse	— Delineated Wetland Boundary Outline
— Field Delineated Wetland*	— Parcel Boundary
— Work Pad	— 100 Year Flood Zone
— Wellhead Protection Areas	— Alteration of Terrain

Map Notes:
 Data valid as of March 2023.
 Data source: New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT) and USFWS. Orthophotography courtesy of ESRI.
 Contours downloaded from New Hampshire GRANIT
 Parcels provided by New Hampshire GRANIT
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1 inch = 100 feet

0 50 100 Feet

NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

Portsmouth, New Hampshire

Date: March 23, 2023

Map Sheet 8 of 11

Tighe & Bond

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TOTAL AOT IMPACTS:
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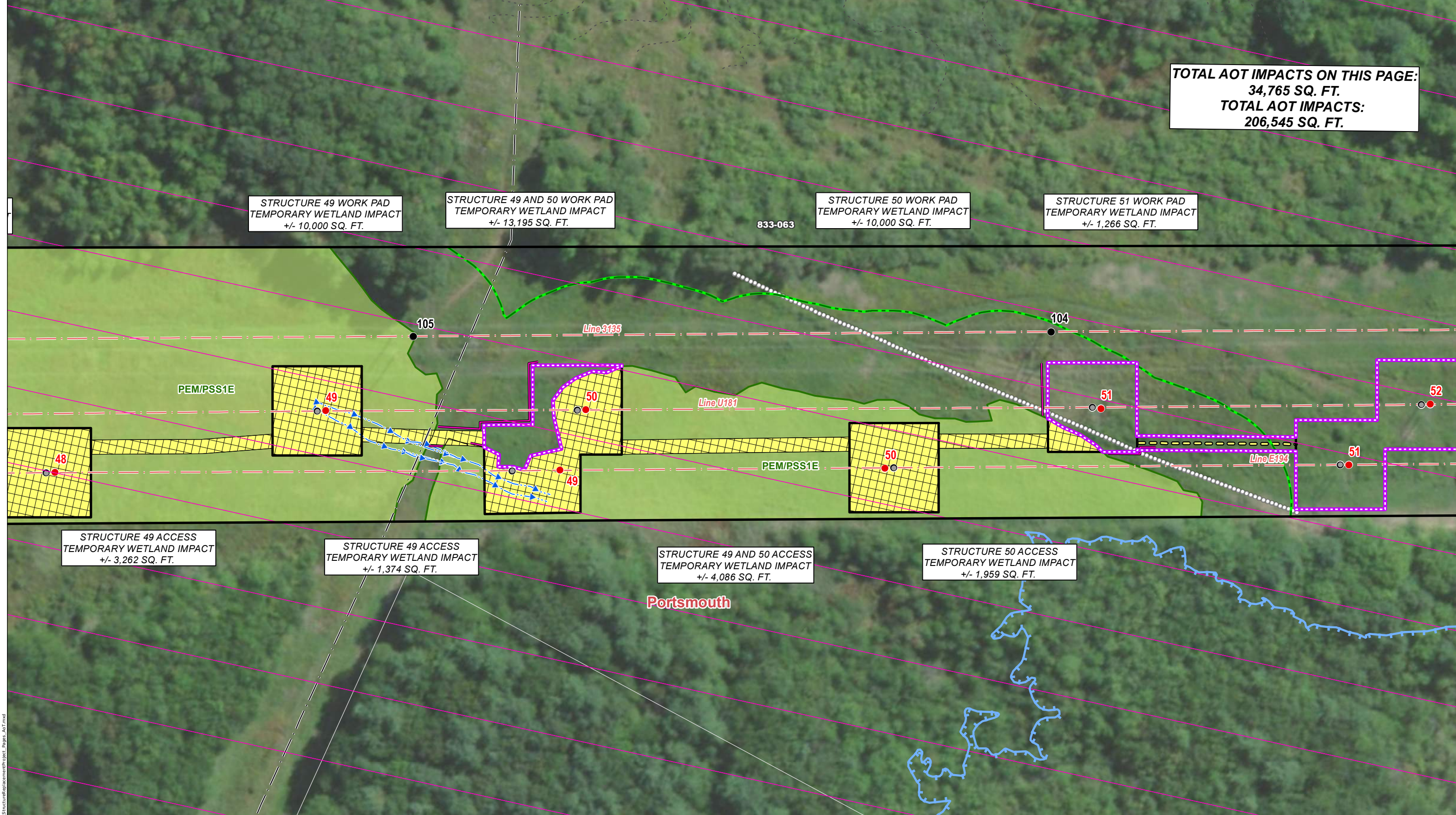
STRUCTURE 49 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 10,000 SQ. FT.

STRUCTURE 49 AND 50 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 13,195 SQ. FT.

STRUCTURE 50 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 10,000 SQ. FT.

STRUCTURE 51 WORK PAD
 TEMPORARY WETLAND IMPACT
 +/- 1,266 SQ. FT.

833-063



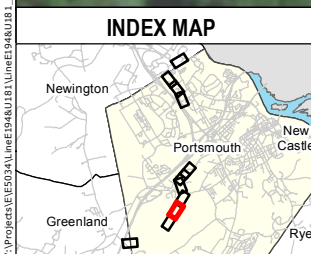
STRUCTURE 49 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 3,262 SQ. FT.

STRUCTURE 49 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 1,374 SQ. FT.

STRUCTURE 49 AND 50 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 4,086 SQ. FT.

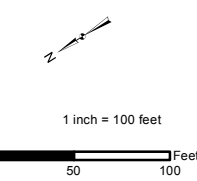
STRUCTURE 50 ACCESS
 TEMPORARY WETLAND IMPACT
 +/- 1,959 SQ. FT.

Portsmouth



Legend	
● Proposed Structure	— Proposed Access
● Existing Structure to be Modified	— Off-ROW Access Pending Rights
● Existing Structure to be Removed	— Railroad
● Existing Structure	— Contour Line (2 Ft.)
● Gate	— Fence
● Culvert	— Overhead Eversource Line
— Existing Access	— Distribution Line
○ Stonewall	— Sediment Control Barrier
— 25' Wetland Buffer (Newington)	— 100' Buffer Zone (Portsmouth)
— Existing Right-of-Way	— Municipal Boundary
— Delineated Intermittent Watercourse	— Delineated Wetland Boundary Outline
— Field Delineated Wetland*	— Parcel Boundary
— Work Pad	— 100 Year Flood Zone
— Wellhead Protection Areas	— Alteration of Terrain

Map Notes:
 Data valid as of March 2023.
 Data source: New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT) and USFWS. Orthophotography courtesy of ESRI.
 Contours downloaded from New Hampshire GRANIT
 Parcels provided by New Hampshire GRANIT
 Figure intended to be printed on 11x17
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NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

Portsmouth, New Hampshire

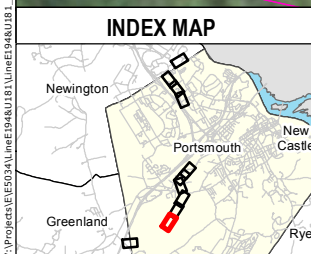
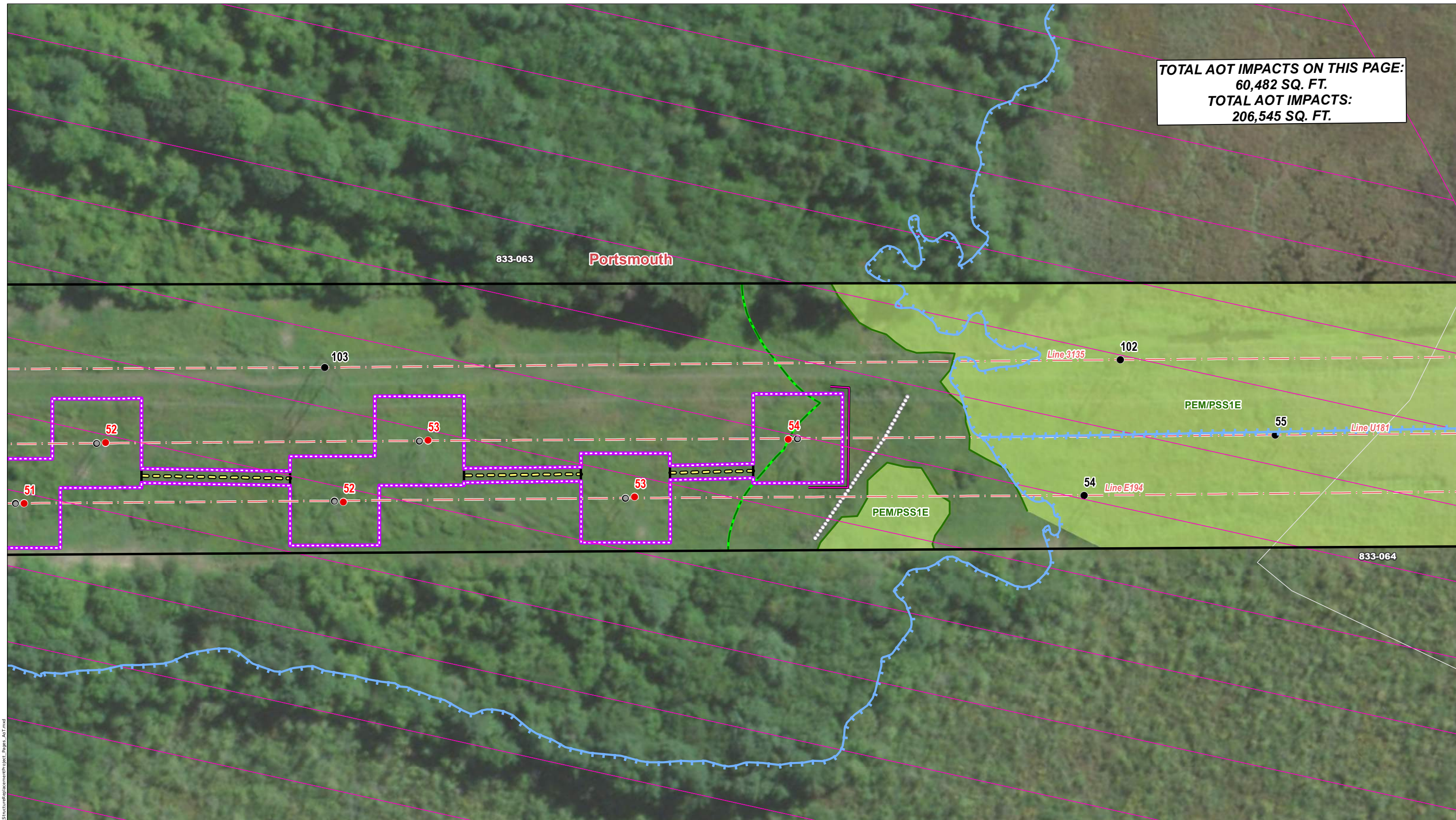
Date: March 23, 2023

Map Sheet 9 of 11

Tighe & Bond

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TOTAL AOT IMPACTS ON THIS PAGE:
60,482 SQ. FT.
TOTAL AOT IMPACTS:
206,545 SQ. FT.



Legend

● Proposed Structure	— Proposed Access	○ Stonewall	— Delineated Wetland Boundary Outline
● Existing Structure to be Modified	— Off-ROW Access Pending Rights	— Sediment Control Barrier	— Field Delineated Wetland*
● Existing Structure to be Removed	— Railroad	— 25' Wetland Buffer (Newington)	— Parcel Boundary
● Existing Structure	— Contour Line (2 Ft.)	— 100' Buffer Zone (Portsmouth)	— Work Pad
● Gate	— X=X Fence	— Existing Right-of-Way	— 100 Year Flood Zone
● Culvert	— Overhead Eversource Line	— Municipal Boundary	— Wellhead Protection Areas
— Existing Access	— Distribution Line	— Delineated Intermittent Watercourse	— Alteration of Terrain

Map Notes:
 Data valid as of March 2023.
 Data source: New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT) and USFWS. Orthophotography courtesy of ESRI.
 Contours downloaded from New Hampshire GRANIT
 Parcels provided by New Hampshire GRANIT
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1 inch = 100 feet

0 50 100 Feet

NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

Portsmouth, New Hampshire

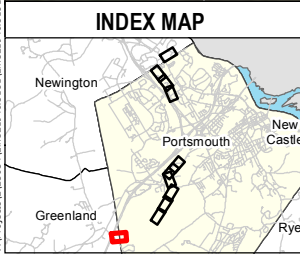
Date: March 23, 2023

Map Sheet 10 of 11

Tighe & Bond

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TOTAL AOT IMPACTS ON THIS PAGE:
1,675
TOTAL AOT IMPACTS:
206,545 SQ. FT.



Legend	
● Proposed Structure	— Proposed Access
● Existing Structure to be Modified	— Off-ROW Access Pending
● Existing Structure to be Removed	— Railroad
● Existing Structure	--- Contour Line (2 Ft.)
Ⓜ Gate	××× Fence
Ⓜ Culvert	— Overhead Eversource Line
— Existing Access	— Distribution Line
Ⓜ Stonewall	— Sediment Control Barrier
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	— Field Delineated Wetland*
	— Parcel Boundary
	— Work Pad
	— 100 Year Flood Zone
	— Wellhead Protection
	— Alteration of Terrain

Map Notes:
 Data valid as of April 2023.
 Data source: New Hampshire Geographically Referenced Analysis and Information Transfer System (GRANIT) and USFWS. Orthophotography courtesy of ESRI.
 Contours downloaded from New Hampshire GRANIT
 Parcels provided by New Hampshire GRANIT
 Figure intended to be printed on 11x17
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1 inch = 100 feet

0 50 100 Feet

NO.	DATE	REVISIONS

EVERSOURCE

**Line E194 and U181
 Structure Replacement Project**

Portsmouth, New Hampshire

Date: April 17, 2023

Map Sheet 11 of 11

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Tighe&Bond

APPENDIX B

E194 & U181 Structure Replacement Project

Wetland Resource Area Description and Assessment

TO: Katy Wilkins, Project Manager, Tighe & Bond, Inc.

FROM: Julia Novotny, Environmental Scientist, Tighe & Bond, Inc.
Jeremy Degler, Project Environmental Scientist, CWS, PWS, CWB,
Tighe & Bond, Inc.

DATE: March 22, 2023

On December 21, 2022 and January 4, 9, and 17, 2023, Tighe & Bond wetland scientists conducted a wetland resource area investigation within and adjacent to the location of the E194 and U181 transmission line right-of-way (ROW) in support of a structure replacement project proposed by Eversource Energy (Eversource). This memorandum presents a summary of the wetland resource areas investigated at the Project Site and a functions and values assessment for these resource areas.

Project Location

The project area consists of the existing maintained transmission line ROW that contains the E194 and U181 Lines. This ROW is comprised of a mixture of impervious area, maintained upland, and wetland. The surrounding landscape areas are comprised of impervious surfaces (e.g., roadways and parking lots), industrial, commercial, and residential areas, in addition to forest and wetlands. The ROW runs from the Newington Substation off Gosling Road to the Ocean Road Substation on the Greenland/Portsmouth border.

Methodology of Wetland Resource Investigations

The wetland delineation was conducted in accordance with the procedures outlined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 (January 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (January 2012). Locations of wetland boundaries were surveyed using a global positioning system (GPS) unit with sub-meter accuracy.

Summary of Jurisdictional Wetland Resource Areas

The following sections discuss the wetland resource areas identified in the project area and summarize their characteristics.

Vegetated Wetlands

Multiple wetlands were identified within the E194 and U181 ROW, adjacent to the limits of work. Wetlands identified within the ROW were classified as having the characteristics of both palustrine emergent system with persistent vegetation, and a palustrine scrub-shrub system with broad-leaved deciduous vegetation (PEM1/PSS1).

Common vegetation observed included common reed (*Phragmites australis*; FACW), cattail (*Typha sp.*; OBL), purple loosestrife (*Lythrum salicaria*; OBL), sensitive fern (*Onoclea sensibilis*; FACW), curly dock (*Rumex crispus*; FAC), winterberry (*Ilex verticillata*; FACW), willow (*Salix spp.*), glossy buckthorn (*Frangula alnus*; FAC), red maple (*Acer rubrum*; FAC), common rush (*Juncus effusus*; OBL), reed canary grass (*Phalaris arundinacea*; FACW), white meadowsweet (*Spiraea alba*; FACW), red osier dogwood (*Cornus sericea*; FACW), speckled

alder (*Alnus incana*; FACW), tussock sedge (*Carex stricta*; OBL), brambles (*Rubus spp.*), and goldenrod (*Solidago spp.*)

Two streams were identified in association with the delineated wetlands: an unnamed tributary to the Piscataqua River (Newington) and an unnamed tributary to Pickering Brook in Great Bog (Portsmouth). Many of the wetlands within the project area are disturbed from previous ROW work and surrounding development including from commercial, industrial, and residential areas.

100-foot Buffer Zone (Locally Regulated)

The 100-foot Buffer Zone associated with the wetlands identified in the project area consists of a mixture of impervious area (e.g., paved parking lots, roadways), residential, industrial, and commercial areas, as well as forested areas, and maintained ROW. The percentage of Buffer Zone that is developed, including impervious paved areas, is approximately 40 percent. Non-impervious 100-foot Buffer Zone is mainly comprised of maintained shrubby vegetation within the existing ROW and mixed deciduous and coniferous forest on the ROW boundaries.

Functions and Values Assessment

Gosling Road and Durgin Lane Wetlands

Wetlands off Gosling Road and Durgin Lane are surrounded by residential and commercial development. They are classified as palustrine emergent and scrub-shrub systems, mostly dominated by common reed, purple loosestrife, and cattail. These wetlands are situated in depressions and flat, low lying areas and are densely vegetated with pockets of standing water. Flood storage, sediment and toxicant retention, and nutrient retention/removal are likely functions of these wetlands. Due to the location of these wetlands in highly developed areas and the dominance of invasive species, they do not provide good aesthetic qualities and are unlikely to provide good wildlife habitat.

Echo Avenue Wetlands

Echo Avenue wetlands are characterized as palustrine emergent and palustrine scrub-shrub systems. These wetlands are located directly adjacent to commercial and residential development. They are also located approximately 330 feet northeast of Route 4. These wetlands are densely vegetated and some portions are situated in depressions. Functions associated with these areas include flood storage and sediment and toxicant retention. Due to the location of these wetlands in a developed area and the dominance of invasive species, they do not provide good aesthetic qualities and are unlikely to provide good wildlife habitat.

Borthwick Avenue Wetlands

The wetlands adjacent to Borthwick Avenue are situated in highly disturbed areas. These wetlands are mainly palustrine emergent systems dominated by common reed and cattail. These wetlands are designated as Prime Wetlands pursuant to NH RSA § 482-A:15.

Dense emergent vegetation and organic soils in these wetlands allow for sediment and toxicant retention. Given the proximity of these wetlands to surrounding development and impervious surfaces and their position on the landscape they are likely important in providing flood storage. These wetlands provide little aesthetic qualities as they are dominated by invasive species that obstruct clear views and are surrounded by impervious area and commercial development.

Great Bog Wetlands

The wetlands associated with Great Bog are predominantly palustrine emergent and palustrine scrub-shrub systems. These wetlands are associated with Pickering Brook, which flows northeast to southwest through Great Bog. These wetlands are designated as Prime Wetlands.

Due to the dense vegetation in this wetland and the presence of deep water and organic soils, it likely provides sediment and toxicant retention, as well as nutrient retention and transformation. Additionally, the large size of this wetland complex and its position on the landscape allows for flood storage. Great Bog has historic known occurrences of rare, threatened, and endangered plant species, and has aesthetic qualities and recreational opportunities via adjacent trails. This area likely provides good wildlife habitat as Great Bog is large and relatively unfragmented. The aesthetic quality is partially compromised by the dominance of invasive common reed and purple loosestrife, and the proximity of Great Bog to major roads and highways.

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APPENDIX C

Photographic Log

Client: Eversource Energy
E194 & U181 Structure Replacement Project
Site: Portsmouth and Newington, NH

Job Number: 14-5034-200

Photograph No.: 1	Date: 1/9/2023	Direction Taken: Southwest
Description: Overview of the E194 & U181 right-of-way in Great Bog (Portsmouth), facing southwest.		
		


Photograph No.: 2	Date: 1/9/2023	Direction Taken: Southeast
Description: View of Great Bog in the E194 & U181 right-of-way from an adjacent upland area immediately southeast of Greenland Road (Route 33) in Portsmouth where access will be constructed.		
		

Photographic Log

Client: Eversource Energy
E194 & U181 Structure Replacement Project
Site: Portsmouth and Newington, NH

Job Number: 14-5034-200

Photograph No.: 3	Date: 1/9/2023	Direction Taken: Southeast
Description: View of the E194 & U181 right-of-way in Great Bog looking at Structures 49 and 50, facing northwest.		
		

Photograph No.: 4	Date: 1/18/2023	Direction Taken: East
Description: View of the structures on the E194 and U181 Lines where static wire work is proposed at the Ocean Road Substation in Greenland/Portsmouth, facing east.		
		

Photographic Log

Client: Eversource Energy

Job Number: 14-5034-200

E194 & U181 Structure Replacement Project

Site: Portsmouth and Newington, NH

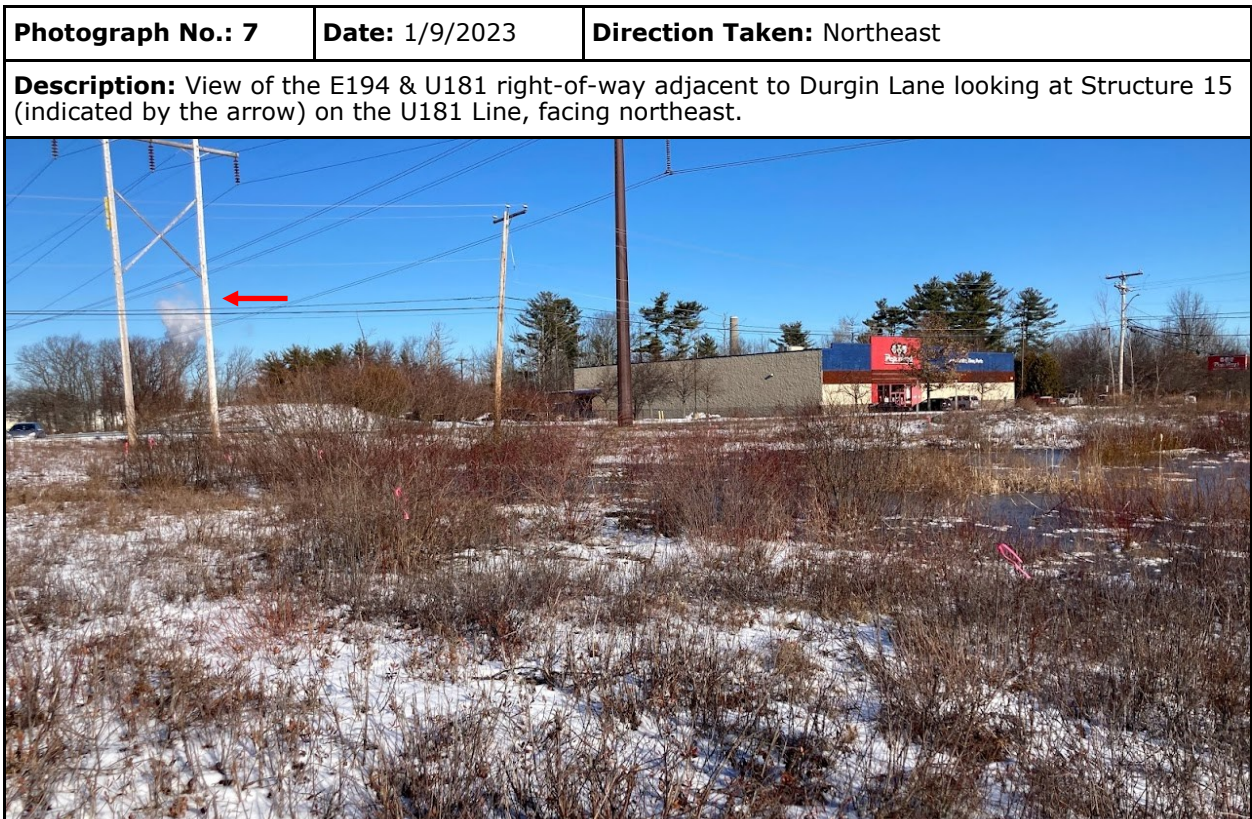
Photograph No.: 5	Date: 1/9/2023	Direction Taken: Northeast
Description: View of the E194 & U181 right-of-way adjacent to Gosling Road looking at Structure 13 (indicated by the arrow) on the U181 Line, facing northeast.		

Photograph No.: 6	Date: 1/9/2023	Direction Taken: Northwest
Description: View of the E194 & U181 right-of-way off Echo Avenue, facing northwest. Structures 19 on the E194 & U181 Lines are indicated by the arrows.		

Photographic Log

Client: Eversource Energy
E194 & U181 Structure Replacement Project
Site: Portsmouth and Newington, NH

Job Number: 14-5034-200



Photographic Log

Client: Eversource Energy
E194 & U181 Structure Replacement Project
Site: Portsmouth and Newington, NH

Job Number: 14-5034-200

Photograph No.: 9	Date: 12/21/2022	Direction Taken: East
Description: View of the E194 & U181 right-of-way adjacent to Borthwick Avenue, facing east. Structure 40 on the U181 Line is indicated by the arrow.		
		

