A1/B2 Asset Condition Refurbishment (ACR) Project

Final Environmental Impact Report (FEIR)

July 2024

PREPARED FOR

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7/31/2024

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

RE: **A1/B2 Asset Refurbishment Project**
Final Environmental Impact Report, EEA #16607

Dear Secretary Tepper,

On behalf of The New England Power Company ("NEP"), BSC Group, Inc. is pleased to submit this Final Environmental Impact Report ("FEIR") for general maintenance and system improvements along the Massachusetts (MA) portion of the A1/B2 Electric Transmission Lines (A1/B2 Lines). Proposed activities include various general maintenance and system improvements for 717 structures, including 508 structures on the A1/B2 Mainline, and 209 structures on the Athol and Crystal Lake Tap Lines in MA. A1/B2 Lines extend approximately 60.5 miles from Vernon Substation to Pratts Junction Substation; however, the length of the A1/B2 Lines in Massachusetts is approximately 54 miles through the municipalities of Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, and Sterling in MA. NEP is committed to completing the required system improvements to address the poor asset condition, mitigate potential risks of electrical failure, and to provide long-term reliable delivery of electrical service and maintenance of the A1/B2 Line. NEP's goal is to meet the projected future demand on the transmission system resulting from the electrification of the energy system, essential to achieving the Commonwealth's decarbonization goals.

This FEIR responds to the January 16th, 2024, Certificate issued by the Executive Office of Energy and Environmental Affairs ("EEA") on the Draft Environmental Impact Report ("DEIR") for the A1/B2 Asset Condition Refurbishment ("ACR") Project in Massachusetts ("EENF") (EEA No. 16607). This FEIR 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 §§ 61-62I) and MEPA regulations (301 CMR 11.00). The FEIR was prepared in accordance with the general guidelines for outline and content found in Section 11.07 of the MEPA regulations.

Please publish the Notice of Availability for this FEIR in the August 7th 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 FEIR has been circulated to those who commented on the DEIR, the state and local agencies from which permits or approvals will be sought, and the Distribution List and updated EJ Reference List.

Please do not hesitate to contact Theresa Portante with BSC Group Inc. at tportante@bscgroup.com or 508-792-4500 or Mike Tyrrell with NEP at 603-801-4140 or michael.tyrrell@nationalgrid.com with any questions or comments.

Sincerely,

Priyanka Shrestha

Priyanka Shrestha
Environmental Permit Specialist

Project Narrative

Final Environmental Impact Report
A1/B2 Asset Condition Refurbishment (ACR) Project

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Glossary

Acronym	Description
ACHP	Advisory Council on Historic Preservation
ACR	Asset Condition Refurbishment
ACSS	Aluminum Conductor Steel Supported
ADT	Average Daily Trips
Bank	Inland Bank
BLSF	Bordering Land Subject to Flooding
BMPs	Best Management Practices
BSC Group	BSC Group, Inc.
BVW	Bordering Vegetated Wetland
CAP	Construction Access Permit
CBOs	Community Based Organizations
CCAA	Candidate Conservation Agreement with Assurances
CERO	Central Regional Office
CGP	Construction General Permit
CMP	Conservation Management Plan
CRC	Connecticut River Conservancy
CVP	Certified Vernal Pool
CWA	Clean Water Act
DCR	Massachusetts Department of Conservation and Recreation
DEIR	Draft Environmental Impact Report
DFW	Division of Fisheries and Wildlife
DGA	Designated Geographic Area
DPU	Massachusetts Department of Public Utilities
EOEEA	Executive Office of Energy and Environmental Affairs
EENF	Expanded Environmental Notification Form
EFI	Environmental Field Issue
EFSB	Energy Facilities Siting Board
EG	Environmental Guidance
EIR	Environmental Impact Report
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEIR	Final Environmental Impact Report
GHG	Greenhouse Gas
GIS	Geographic Information Systems
kV	kilovolt
LF	Linear Feet
LID	Low Impact Development

LiDAR	Light Detection and Ranging
LST	Land Surface Temperature
LUWW	Land Under Waterbodies and Waterways
MA	Massachusetts
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MCCA	MA Climate Change Assessment
MCM	Thousands of Circular Mils
MEPA	Massachusetts Environmental Policy Act
MESA	Massachusetts Endangered Species Act
MHC	Massachusetts Historical Commission
Mt	Metric Tons
NEP	New England Power Company
NH	New Hampshire
NHESP	Natural Heritage and Endangered Species
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OHV	Off-Highway Vehicle
OHWM	Ordinary High-Water Mark
OMP	Operation and Maintenance Plan
OOC	Order of Conditions
OPGW	Optical Ground Wires
ORWs	Outstanding Resource Waters
PCN	Pre-Construction Notification
PLPA	Public Lands Preservation Act
PPDU	Public Private Development Unit
RA	Riverfront Area
RDG	Regenerative Design Group
RMAT	Resilient Massachusetts Action Team
ROW	Right-of-way
SF	Square Feet
SHMCAP	State Hazard Mitigation and Climate Adaptation Plan
SOP	Standard Operating Procedures
SWCA	SWCA Environmental Consultants
SWPZs	Surface Water Supply Protection Zones
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
TMP	Transportation Management Plan
TOY	Time of Year
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

VMP	Vegetation Management Plan
VT	Vermont
WERO	Western Regional Offices
WOTUS	Waters of the United States
WPA	Wetlands Protection Act
WQC	Water Quality Certificate

1 Project Overview

1.1 Summary of the FEIR

On September 12, 2022, New England Power Company ("NEP" or the "Proponent") submitted an Expanded Environmental Notification Form ("EENF") to the Massachusetts Environmental Policy Act ("MEPA") Office for the A1/B2 Asset Condition Refurbishment Project ("A1/B2 ACR" or the "Project"), which includes the refurbishment and upgrade of existing electrical transmission infrastructure within an existing utility corridor. On October 31, 2022, the Secretary of the Executive Office of Energy and Environmental Affairs ("EOEEA") issued a Certificate on the EENF (EEA #16607), determining the Project required the preparation of a Draft Environmental Impact Report ("DEIR"). NEP prepared and submitted a DEIR on October 31, 2023. On November 8, 2023, the EEA Secretary issued a Certificate (the "Certificate") on the DEIR. NEP has prepared this Final Environmental Impact Report ("FEIR") in response to the Secretary's Certificate on the DEIR.

As stated by MEPA "The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. Recommendations provided in this Certificate may result in a modified design that would further avoid, minimize, and/or mitigate Damage to the Environment", this FEIR has followed Section 11.07 and modified the sections to be responsive to the Scope as requested in the DEIR Certificate and is organized as follows:

Section 1 Project Overview
Section 2 Regulatory Compliance
Section 3 Environmental Justice/Public Health
Section 4 Wetland Resource Areas
Section 5 Chapter 91
Section 6 Article 97
Section 7 Climate Change
Section 8 Rare Species
Section 9 Avoidance, Minimization, and Mitigation Measures
Section 10 Section 61 Findings
Section 11 Response to Comments

The information presented in the EENF and DEIR is incorporated herein by reference. The layout of this FEIR and the information provided in each section follow the guidelines of Section 11.07 of the MEPA regulations and address Scope items and comments from the Secretary's Certificate on the DEIR to ensure all comments are addressed fully within the narrative of this FEIR. Each section of the FEIR lists the applicable Scope items and comments applicable to their respective headings. A glossary of acronyms and technical terms is located at the beginning of this document. **Appendices A** through **G** include relevant supplemental information, e.g., figures and plans, the annotated comment letters, and the Distribution List.

1.2 From the Secretary's Certificate on the DEIR

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

General

> *"The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. Recommendations provided in this Certificate may result in a modified design that would further avoid, minimize, and/or mitigate Damage to the Environment."*

Comments related to easement

> *"The FEIR should indicate if additional permanent and temporary easements will be required to facilitate tree clearing and create access to the ROW."*

Comments related to changes since the DEIR

> *"The FEIR should identify measures the Proponent will include to further reduce the impacts of the project since the filing of the DEIR, or, if certain measures are infeasible, the FEIR should discuss why these measures will not be adopted."*

> *"The FEIR should identify any changes to the project since the filing of the DEIR. It should include updated site plans for existing and post-development conditions. Conceptual plans should be legible and provided at a reasonable scale. Plans should clearly identify all major project components (structures, transmission lines, access roads, etc.); public areas; wetland resource areas; impervious areas; ownership of parcels including easements; and stormwater and utility infrastructure."*

1.3 Introduction

Project name: A1/B2 Asset Condition Refurbishment ("ACR") Project
EEA Number: 16607
Project Municipality: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling
Project Proponent: New England Power Company ("NEP")

NEP is proposing a refurbishment of the A1 and B2 69 kilovolt ("kV") double circuit overhead electrical utility lines ("A1/B2 Lines" or the "Lines"), which are comprised of the mainline and the associated Athol Tap and Crystal Lake Tap Lines ("Tap Lines" or "Taps"). The A1/B2 Lines are located within an existing right-of-way ("ROW") corridor which begins at the Vernon #12 Switchyard in Vernon, Vermont ("VT"), crosses through a portion of New Hampshire ("NH"), enters Massachusetts ("MA") in Warwick, and terminates at the Pratts Junction #225 Substation located in Sterling, MA. *Table 1-1* summarizes the approximate mileage of the entire A1/B2 ROW in each state.

Project activities in MA will be located within the municipalities of Warwick, Royalston, Athol, Winchendon, Gardner, Westminster, Fitchburg, Leominster, and Sterling. Refer to the United States Geological Survey ("USGS") and MEPA General Purpose Plans in *Figure 1 through 3* in **Appendix A** (the "FEIR Plans") that depict existing conditions and the proposed activities along the length of the ROW. The Project ROW is generally oriented northwest-to-southeast from Warwick to Sterling, MA. The existing A1/B2 mainline consists of two (2) 69 kV overhead electric transmission lines ("wires") that are supported primarily on lattice towers ("structures"). The 69 kV tap lines consist of the

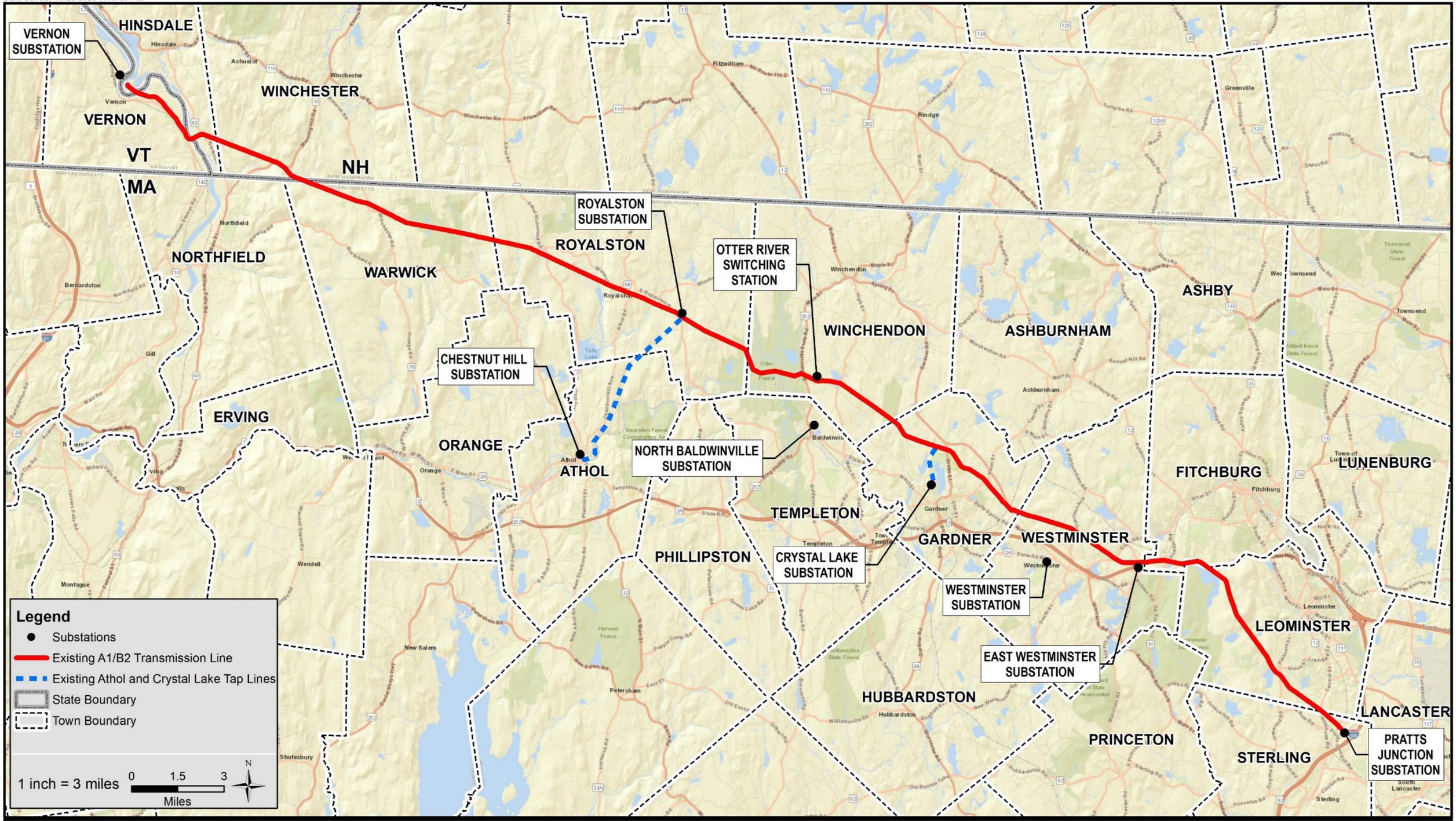
existing Athol Taps 1 and 2 in Athol and Royalston and the existing Crystal Lake Tap in Gardner. Tap lines are comprised of wood pole structures.

Table 1-1: A1/B2 Lines by State

State	Municipalities	Approx. Mileage
Vermont	Vernon	2.5
New Hampshire	Hinsdale and Winchester	4
Massachusetts	Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling	54*
		Approx. Total – 60.5

* The approximate 54 mileage length is inclusive of the Tap Lines

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A1/B2 Asset Condition Refurbishment Project

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Figure 1-1 Overview of the Project Route

1.4 Project Description

The Project description and scope of work is largely unchanged from DEIR. NEP is committed to completing the required system improvements to address the poor asset condition, mitigate potential risks of electrical failure, and to provide long-term reliable delivery of electrical service and maintenance of the A1/B2 Lines. NEP's goal is to meet the projected future demand on the transmission system resulting from the electrification of the energy system, essential to achieving the Commonwealth's decarbonization goals. Proposed activities include various general maintenance and system improvements for 717 structures, including 508 structures on the A1/B2 mainline, and 209 structures on the Athol and Crystal Lake Tap Lines, to support the refurbishment of the A1/B2 Lines[1].

Specifically, refurbishment activities will include:

- Performing vegetation management (mowing and tree removals) 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 the conductor clearance requirements.
- Performing access improvements, including grading and the addition of stone to existing access, as well as the construction of new access (where required).
- Replacing existing double circuit lattice tower structures with weathering steel, double circuit, davit arm monopole structures. The replacement structures will provide improved reliability and climate resilience. Structures will either be supported by concrete caisson foundations or directly embedded into the ground. NEP is proposing a total of 158 caisson foundations, including 107 on the mainline, 15 on the Athol Taps, and 36 on the Crystal Lake Tap. NEP is proposing a total of 560 direct embed structures, including 404 on the mainline and 156 on the Athol Taps. There are no direct embed structures proposed on the Crystal Lake Tap.
- Replacing the existing copper conductor wire with 795 Thousands of Circular Mils ("MCM") Aluminum Conductor Steel Supported ("ACSS") conductor which will improve system reliability and allow the Lines to operate at 115 kV voltage at a future date.
- Replacing the existing shield wire with two Optical Ground Wires ("OPGWs")[2]. These serve the dual function of providing shielding for the conductor and allowing for high-speed communications between substations.

---

[1] The Existing Lines currently has a total of 810 structures, including 561 on the mainline and 249 on Athol and Crystal Lake tap lines. Proposed activities include replacement and removal of structures, including the complete removal of 64 structures on the mainline, and 30 structures on the Athol tap lines and 10 wood pole structures on the Crystal Lake tap lines. On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email. There have been some modifications to the number of structures on the mainline and tap lines since the correspondence, which is reflected here.

[2] An optical ground wire or an optical fiber composite overhead ground wire is a type of cable that combines the functions of grounding and communications.

- Relocating the centerline[3] of approximately 5.2 miles of the Lines located in Leominster, where there is sufficient space to accommodate longer spans and fewer structures, as well as more efficient construction methodologies. NEP will relocate the Lines approximately 41.5 feet north of the current alignment, towards the I135S/J136S transmission lines within the existing ROW. No additional easements will be required to accommodate the proposed re-alignment. The Line relocation will require tree removals and tree pruning off-ROW, as well as structure relocations and realignments.

The Project Route is located entirely within existing ROW corridors held in fee or easement by NEP. Apart from the establishment of two (2) new, off-ROW access routes, Project construction is contained within existing NEP ROWs and along historically utilized access routes.

The Project involves the removal of the existing double circuit towers, conductors, shield wire and related transmission components (the "Existing Lines) and the subsequent rebuilding of the A1/B2 Lines (the "Rebuilt Lines"). The Project also includes the rebuilding of two tap lines associated with the A1/B2 Lines totaling 7.2 miles: the Athol Tap Lines and the Crystal Lake Tap Line[4] (referred to as the "Existing Taps" and the "Rebuilt Taps"). A breakdown of ROW lengths and widths is provided in *Table 1-2,* below. The location of the Existing Lines and Existing Taps are shown on *Figure 1-1 (*below).

Table 1-2: Project Route Components: Approximate ROW Widths and Mileage

Project Route Component	Existing ROW Width (feet)	Average Maintained ROW Width (feet)	Approximate Mileage (rounded to tenth)
Existing A1/B2 Line ROW	Varied Width: 100 to 450* Average Width: 100	Varied Width: 80 to 100 Average Existing Width: 85 Proposed Width: 100	47
Existing Athol Tap Lines ROW	125	Varied Width: 105 to 125 Average Existing Width: 115 Proposed Width: 125	6
Existing Crystal Lake Tap Line ROW	100	Varied Width: 85 to 90 Average Existing Width: 85 Proposed Width: 100	1.2
Total			54.2 miles**

*The existing maintained width of the A1/B2 transmission corridor is generally 100 feet. However, in Sterling and Leominster, the A1/B2 Lines are collocated with a number of other transmission and distribution lines including the 69 kV U21 and V22 Lines, 115 kV I135S and J136S Lines, and the 230 kV E205E Line as shown in the FEIR Plans, Figure 2B in **Appendix A**. The corridor is wider to accommodate the additional circuits in these locations.
** This figure has been rounded to the nearest tenth.

[3] The centerline in terms of utility lines is the midpoint or central axis of a ROW, used for design, planning, and mapping purposes.
[4] The other tap lines that are not being rebuilt as part of the Project include the Westminster Tap Lines that connect the A1/B2 Lines to the Westminster Substation #602 in Westminster, the Templeton Tap Line, that connects the A1/B2 Lines to the North Baldwinville Substation (Templeton Municipal), and the East Westminster Tap Lines that connect the A1/B2 Lines to the Westminster Substation #609 in Westminster.

1.5 Summary of Project Impacts

Project impacts are largely unchanged from the DEIR. Impacts associated with the Project activities are provided below in *Table 1-3*:

Table 1-3: Summary of Project Impacts Associated with the Project Activities.

Resource Area	Activity	Impact (acres)
Land Alteration (upland)*	Access Improvement and Grading	254ǂǂ
	Tree Removal - Conversion of Vegetative Cover Typeǂ	131.2
Wetland Resources - Bordering Vegetated Wetland ("BVW") **	Access improvements and Grading	0
	Construction Matting	38
	Structure Installation	0.05 ǂǂǂ
	Tree removal - Conversion of Vegetative Cover Typeǂ	9
Habitats of Rare Species	Access improvements, Grading, and Gravel Work	10.8
	Construction Matting	6.46
	Structure	0.03
	Tree removal - Conversion of Vegetative Cover Typeǂ	2.7

* Note that these impacts are conservative estimates. Impacts located within the upland areas might overlap 100-foot Buffer in some areas.

**These calculations only account for impacts in BVW. Please refer to *Table 4-1* for impacts in Riverfront Area ("RA"), Bordering Land Subject to Flooding ("BLSF"), and other resource areas. Additionally, Wetland resource types overlap in many locations and aggregate tallies are not feasible.

ǂ These impacts are a conservative estimate. Coordination with the landowners and outreach efforts regarding the tree removal program are ongoing. Coordination efforts may further reduce the tree removal impacts as the tree removal extents are more clearly defined.

ǂǂ Within the DEIR, these impact calculations were provided in linear feet ("LF") (refer to *Table 3-1* of the DEIR). The total area of land disturbance associated with access improvements and grading is 9,681,268 SF, but in the context of 173,802 LF along 54 miles of ROW.

ǂǂǂ Total loss due to structure installation in BVW is equivalent to 2,246 square feet ("SF').

1.6 Summary of Mitigation

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). Section 61 Findings have been provided in *Section 10*. Mitigation measures are summarized in *Table 1-4*, below and detailed in *Section 9*.

Table 1-4: Summary of Project Impacts and Proposed Mitigation

Resource Area	Impact Type	Impact Area	Potential Mitigation / Description
Wetlands & Land Under Waterbodies and Waterways ("LUWW")	Secondary Impacts / Conversion of wetland types (Tree Removals)	~9 acres	In-Lieu Fee as required under Section 404 permitting, and any special conditions of individual Conservation Commissions.
	Permanent Discharge of Fill Material / Loss of Resource Areas (Structure Foundations)	~2,246 SF	Compensatory wetland replication at a compensation ratio as determined in state and local permitting.
	Temporary Discharge of Fill Material (Construction Matting)	~38 acres	*In-situ* restoration of temporary, construction-phase disturbance.
Riverfront Area	Conversion of wetland types (Tree Removals)	~14 acres	*In-situ* restoration, including loam and seed as applicable. The habitat will remain vegetated by scrub-shrub and/or herbaceous vegetation and continue to provide wildlife habitat.
	Permanent Fill (Structure Foundations)	3,561 SF	Removal of existing structure (where applicable) and restoration of ground surface.
	Temporary Fill (Construction Matting, Gravel Work Areas and Access to be Removed Post Construction)	13 acres	*In-situ* restoration of temporary, construction-phase disturbance.
Inland Bank ("Bank")	Secondary Impacts (Conversion of vegetation type)	0.65 acres	N/A - Vegetation alteration will be minimal, and understory will remain in place and/or quickly re-established.
	Permanent Fill (Structure Foundations, and Gravel Work Areas & Access)	0	N/A – no permanent impact to Bank.
	Temporary Fill (Construction Matting)	3,025 LF	*In-situ* restoration.
Floodplain / BLSF	Secondary Impacts (Tree Removals)	2.4 acres	N/A – No flood storage lost.
	Permanent Fill (Structure Foundations)	726 SF	NA – the flood storage loss is *de minimis* within each BLSF where structures are replaced, and the foundations will not impact flood storage capacity.
	Temporary Fill (Construction Matting)	5 acres	*In-situ* restoration, including raking of minor rutting or other ground disturbance.
Natural Heritage and Endangered Species ("NHESP")	Secondary Impacts (Tree Removals)	2.7 acres	Mitigation to be provided, as required by NHESP. Consultation is ongoing, and mitigation will be determined during Massachusetts Endangered Species Act ("MESA") permitting.

Resource Area	Impact Type	Impact Area	Potential Mitigation / Description
Priority Habitats	Permanent Fill (Structure Foundations, and Gravel Work Areas & Access)	10.8 acres	Mitigation to be provided, as required by NHESP. Consultation is ongoing, and so far has resulted in the reduction of grading and permanent work areas within NHESP habitat. Further mitigation will be determined during MESA permitting.
	Temporary Fill (Construction Matting)	6.46 acres	Mitigation to be provided, as required by NHESP (and Wetlands Protection Act ("WPA"). Consultation is ongoing, and mitigation will include *in-situ* restoration and any other measures determined necessary by NHESP.

1.7 Project Schedule

A summary of the major Project elements and their corresponding target milestone dates is provided in *Table 1-*, below.

Table 1-5: Anticipated Project Schedule

Project Component	Estimated Start Date	Estimated End Date
Access Route Construction, Re-establishment, and Improvements	September 2025	June 2029
Rebuild Existing Lines and Taps	January 2026	December 2029
Removal of Existing Lines and Taps	January 2026	December 2029
ROW Restoration	Spring 2026	Fall 2030

1.8 Coordination with Agencies Since Filing the DEIR

NEP is committed to working with municipal officials, local businesses, residents, communities along the Project Route, and any interested stakeholders to provide proactive and transparent communication throughout the life of the Project. NEP has also maintained the Project website (https://www.newenglanda1b2.com) and email address (info@newenglandA1B2.com), which is available in Spanish and English, for stakeholders to ask any questions they may have. *Table 1-6*: Agency Outreach and Consultations Post-DEIR Filing identifies meetings NEP has had with regulatory agencies and presents a brief description of these meetings.

Table 1-6: Agency Outreach and Consultations Post-DEIR Filing

Date	Activities and Milestones	Interaction Type/Description
July 23, 2024	Prefile Meeting with the Athol Conservation Commission	In person
July 8, 2024	Prefile Meeting with the Gardner Conservation Commission	In person
June 14, 2024	Massachusetts NHESP Consultation	Email coordination
June 10, 2024	Prefile Meeting with the Warwick Conservation Commission	In person
May 23, 2024	Massachusetts NHESP Consultation	Virtual Meeting
May 14, 2024	Prefile Meeting with the Royalston Conservation Commission	In person
April 29, 2024	Site Visit for Massachusetts Department of Conservation and Recreation ("DCR"), Warwick and Royalston State Forests, to engage in further discussion on DCR concerns.	In person
April 16, 2024	All Conservation Commissions were provided an opportunity to engage in advance of the Notice of Intent ("NOI") submission	Email coordination
April 11, 2024	A1/B2 Energy Facilities Siting Board ("EFSB") Public Hearing at Fitchburg State University and Site Visit	In person and Virtual Meeting
April 10, 2024	A1/B2 EFSB Public Hearing at Athol Public Library	In person and Virtual Meeting
April 10, 2024	A1/B2 EFSB Public Hearing and Mount Wachusett Community College	In person and Virtual Meeting
March 3, 2024	Submission of Access Permit for District 3	Permit submission via email
February 2024	Massachusetts Department of Transportation ("MassDOT") Issued Permit to enter State Highway Layout in the Town of Winchendon, District 2	Issued Permit and sent via email
January 16, 2024	Highway Access Permit Application	Access Permit Application Submission
January 9, 2024	Consultation on mitigation with MEPA, DEP WERO, DEP CERO, and DEP Boston.	Virtual Meeting

In accordance with the Secretary's Certificate and 301 CMR 11.16 of the MEPA regulations, electronic copies of the FEIR will be circulated to those who commented on the EENF, state and local agencies from which permits or approvals will be sought, and the public libraries in Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling. Please refer to the Distribution List presented in **Appendix B**.

1.9 Project Changes Since the DEIR

Planning and design of a utility project is a dynamic process involving a balance of environmental, regulatory, and engineering considerations. The Project's design standard parameters are unchanged since the DEIR filing, but refinements to the Project's design and coordination with regulatory agencies have been ongoing. These modifications and updates do not significantly alter the analyses and conclusions provided in the DEIR, but in general have resulted in less impact within Priority Habitats due to reduced work pad size, access, and grading (please refer to *Section 8.2* of this FEIR for further details). Approximately 114,815 SF of impacts associated with construction/improvement of gravel access, grading, and gravel work pads within Priority Habitats has been reduced since the filling of the DEIR.

In addition, NEP has undergone extensive analysis of the viable access alignments and routes required to support the Project in DCR properties. NEP committed to reducing the scope of off-ROW alterations and agreed to restore all off-ROW areas within DCR-owned property. A detailed description of the proposed impacts has been provided in *Table 6-1* on *Section 6* below.

NEP has designed the Project to avoid environmental impacts to the maximum extent practicable and as the Project design has progressed, the extent of potential impacts to resource areas has been generally reduced. Updated FEIR Plans are provided in **Appendix A**.

Avoidance, minimization, and mitigation measures have been outlined in each section of the DEIR as well as summarized in *Table 9-1 and Table 9-2* in *Section 9* of this FEIR.

2 Regulatory Compliance

The Secretary's Certificate on the DEIR 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. It should include a list of required State Permits, Financial Assistance, or other State or local approvals and provide an update on the status of each.

2.1 From the Secretary's Certificate on the DEIR

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

Comments related to applicable statutory and regulatory standard updates

> *"It 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. It should include a list of required State Permits, Financial Assistance, or other State or local approvals and provide an update on the status of each."*
>
> *[From DEP's comment letter on the EENF dated October 19, 2022, and referenced in the comment letter on the DEIR, dated January 10, 2024] "Based on the information provided in the EENF, a Water Quality Certification (WQC) application for Major Fill/Excavation (BRP WW 10) will be required since the Project is proposed to result in the loss of more than 5000 square feet cumulatively of bordering vegetated wetland (BVW) and land under water (LUW) (314 CMR 9.04(1)) and since there will be a discharge of dredge or fill material to Outstanding Resource Waters including Goodfellow Pond, Simonds Pond, Notown Reservoir, Distributing Reservoir, Morse Reservoir, Fall Brook Reservoir, and Perley Brook Reservoir. Furthermore, a Variance to the 401 WQC will be required pursuant 314 CMR 9.08 since the project will result in a discharge of dredged or fill material in wetlands or waters of the Commonwealth within 400 feet of a Class A surface water (314 CMR 9.06(4))."*

Comments related to Limited Project Status

> *"According to MassDEP comments, the project may be eligible for review under the Limited Project provisions pursuant to 310 CMR 10.53(3)(d) but would be subject to mitigation requirements at the discretion of the local Conservation Commission. The FEIR should clarify whether the project will fully meet the performance standards for each impacted jurisdictional wetland resource area even if the project qualifies as a Limited Project. It should specifically describe which impacted resource areas will fully meet the performance standards and which impacts will be reviewed under the Limited Project provisions."*
>
> *"The project likely qualifies to be permitted as a limited project pursuant to 310 CMR 10.53(3)(d) provided that no such project may be permitted which will have any adverse effect*

on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59 (unless a variance is issued). This will be determined during the WPA application review process."

[From DEP's comment letter on the EENF dated October 19, 2022, and referenced in the comment letter on the DEIR, dated January 10, 2024] "The project may qualify to be permitted as a limited project pursuant to 310 CMR 10.53(3)(d) provided that no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59 (unless a variance is issued). Additionally, the proponent should document why the project qualifies for limited project status per 310 CMR 10.53(3) given the magnitude of the alteration and the significance of the project site to the interests of the Wetlands Protection Act; and the proponent should provide a serious evaluation of reasonable alternatives to the proposed activity (including alternatives to reduce the full extent of the proposed cutting), an evaluation of the extent to which adverse impacts are minimized, and documentation that full mitigation is provided for unavoidable impacts. Based on this demonstration, a Variance to the WPA regulations may be required pursuant to 310 CMR 10.05(10)."

[From DEP's comment letter on the EENF dated October 19, 2022, and referenced in the comment letter on the DEIR, dated January 10, 2024] "The proponent should note that the requirements at 310 CMR 10.05(6)(b), 10.05(6)(k)8., and 314 CMR 9.06(6)(a)8. to provide erosion and sediment controls apply even if the project qualifies as a limited project."

"The Environmental Impact Report must include an analysis about Stormwater Management. Removal of trees increases the peak runoff rate, triggering compliance with 310 CMR 10.05(6)(k)2. and 314 CMR 9.06(6)(a)2. 10.05(6)(k)2. applies to alterations in resource areas regardless of if the project qualifies as a limited project."

Comments related to Chapter 91

"In the DEIR (Table 4-9), the proponent provides a list of waters they assert includes all such waters subject to Chapter 91 within the footprint of the project. The proponent identifies an OOC as the "Anticipated Chapter 91 Approval" for each proposed crossing. However, the issuance of a Wetlands Protection Act OOC is not a Chapter 91 approval and does not satisfy a requirement for Chapter 91 authorization. The issuance of an OOC is one of the criteria that may result in certain scopes of work being exempt from a Chapter 91 authorization requirement, pursuant to 310 CMR 9.05(3)(g)(1). Alternatively, the proposed work must meet all of the criteria at 310 CMR 9.05(3)(a) and not reduce the space available for navigation."

2.2 Permit Requirements, Compliance and Status

Table 2-1, below, provides an overview of various agencies and regulatory programs involved in permitting and compliance for the Project. Each Agency's role, along with specific requirements and actions taken by the Project, is detailed below.

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

Agency	Permit/ Review/ Approval	Summary of Project Compliance	Status
Federal			
U.S. Army Corps of Engineers (“USACE”)	Section 404 General Permits Pre-Construction Notification (“PCN”) Authorization and consultations under Section 106 of National Historic Preservation Act (“NHPA”) and Section 7 of the Endangered Species Act (“ESA”)	NEP submitted a PCN for the Project to USACE on September 1, 2023, for authorization under the Massachusetts General Permits. The Project will conform with all applicable General Conditions, as outlined in the PCN. Section 106 Consultation with state, tribal, and local historic preservation offices has been performed, and coordination will continue throughout Project permitting. Section 7 consultation under the ESA was performed.	Filed September 2023
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”).	NEP will submit an eNOI to the EPA at least one month prior to the start of construction. As a component of the eNOI process, NEP will prepare a SWPPP for the Project outlining the appropriate use of Best Management Practices (“BMPs”) and documenting compliance with the EPA’s NPDES program.	To be filed at least 14 days prior to the start of construction.
State			
EOEEA	MEPA Review / Certificate of the Secretary	This FEIR represents the third (3) submittal to the EOEEA for the Project (EEA #16607). NEP submitted an EENF for the Project on September 12, 2022, and received the Secretary’s Certificate on October 31, 2022. Subsequently, a DEIR was submitted on October 31, 2023, and the Secretary’s Certificate received on January 16, 2024. At each stage in the permitting process, NEP 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 EENF October 2022 (EEA #16607). Subsequently, a DEIR was submitted on October 31, 2023, and the Secretary’s Certificate received on January 16, 2024.
Massachusetts Department of Environmental Protection (“MassDEP”)	Section 401 Individual Water Quality Certificate (“WQC”) and Variance	NEP will file an application for Individual WQC under 314 CMR 9.00 with MassDEP. The Project requires an Individual WQC because Project-related alterations, including both temporary and permanent fill, cumulatively will exceed 5,000 SF. The statutory standards and requirements for projects requiring a 401 WQC application are listed in 314 CMR 9.06. The Project will comply with the review criteria with the exception of temporary wetland crossing within wetlands that are within 400 feet of the Ordinary High-Water Mark (“OHWM”) of a Public Water Supply. NEP will apply for a Variance for these temporary crossings.	Anticipated to be filled in September 2024. 60 days post issuance of the FEIR Certificate.
NHESP	MESA – Determination of “Take” or No “Take”; Conservation Permit (if needed)	Coordination between NEP and NHESP is ongoing. NEP has incorporated a number of measures intended to avoid and minimize impacts into the Project design and construction planning.	MESA Checklist filed in August 2023. Consultation with NHESP is ongoing.
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, NEP 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.	Consultation with MHC is ongoing.
EFSB[5]	M.G.L. c. 164, §69J Petition for Approval to Construct Transmission Lines	NEP filed a Petition for Approval to Construct and Operate the Project with the EFSB (or “Siting Board”) pursuant to Chapter 164, Section 69J of the General Laws on May 2023 (Docket No. EFSB 23-45). NEP is confident that the Project represents the optimal solution because it meets the reliability needs; comparatively offers the best solution with the least number of adverse impacts and provides a cost-effective solution.	In Progress. Filed EFSB May 2023
Massachusetts Department of Public Utilities (“DPU”)	M.G.L. c. 164, §72 Petition for Determination of Public Necessity and Convenience	A Petition for Approval to Construct and Operate the Project was filed with the EFSB (or “Siting Board”) and DPU pursuant to Chapter 164, Section 69J of the General Laws on May 2023 (Docket No. EFSB 23-45).	In Progress. Filed EFSB May 2023
DCR	Construction Access Permit (“CAP”)	A CAP application will be submitted for construction related access outside of existing easements associated with the NEP ROW. The CAP will include conditions to minimize impacts to trail access and ensure safety of trail users. NEP has continued its consultation with DCR, which remains ongoing.	In Progress. Consultation with DCR is ongoing.
MassDOT	Permit to Access State Highway/Non-Municipal Utility Permits for crossing over of state roads with utility lines.	NEP will obtain a MassDOT Permit to Access State Highway/Non-Municipal Utility Permits for crossing over of state roads with utility lines for the Project. The Project will comply fully with the performance standards specified in the permit to ensure a safe environment for traffic flow and construction crews in and around the roadways.	Filed permit with District 2 and District 3 on January 2024

[5] Concurrently with its Petition to the Siting Board, NEP filed Petitions with DPU in accordance with G.L. c. 164, § 72 and requested exemptions from the Zoning Ordinances of the communities pursuant to G.L. c. 40A, § 3, other than those noted above.

Agency	Permit/ Review/ Approval	Summary of Project Compliance	Status
Local			
Conservation Commissions in Athol, Fitchburg, Gardner, Leominster, Royalston, Sterling, Warwick, Westminster, & Winchendon.	Order of Conditions ("OOC") per the WPA[6] and local bylaws.	NEP will submit an NOI to each applicable Conservation Commission along the Project route (i.e. every Town where impacts are proposed within wetland resource areas or their buffer zones. The Project will comply with the requirements of the WPA, and local Bylaws (where applicable). In some Towns, NEP will be requesting a waiver from specific local bylaw requirements, including those for locally regulated No-Disturb and No-Build Zones.	Anticipated Summer/Fall 2024
Fitchburg Commissioner of Public Works, Royalston Conservation Commission, & Sterling Conservation Commission.	Stormwater Permit / Stormwater Management Permit	NEP will conform with Stormwater Requirements outlined by the Towns' Bylaws, if/where these exceed the requirements of the NPDES General Permit and SWPPP.	Anticipated Summer/Fall 2024
Zoning Board of Appeals in Sterling, Westminster, Winchendon & Gardner.	Earth Removal Permit	NEP will submit Earth Removal / Earth Disturbance Permits for ground disturbing activities in all Towns with applicable Bylaws. The Project will conform with all earth removal/earth disturbance standards and requirements for the Towns, in order to protect natural resource areas, and avoid hazardous conditions, excessive noise, or dust generation.	Anticipated Summer/Fall 2024
Royalston Board of Selectmen	Written Permission for soil removal activities	NEP will conform with Royalston Board of Selectmen to perform soil removal/disturbance activities within the Town, as required.	Anticipated Summer/Fall 2024
Fitchburg Tree Warden	Tree Trimming/Removal Permit	NEP will contact the Fitchburg Tree Warden to discuss tree removal requirements for the Project, where these fall within the jurisdiction of the warden (for example, trees considered to be public shade trees). As outlined within the Town of Fitchburg's tree removal policy, a public utility has the right to remove or trim trees that interfere with the necessary and reasonable operation of the utility. The Project will conform with NEP's approved Vegetation Management Plan ("VMP") for the maintenance of its ROWs and will strive to conform with the requirements and/or recommendations of the Fitchburg Tree Warden, as far as practicable possible.	Anticipated Summer/Fall 2024

[6] WPA Orders of Conditions are local permits unless and until a superseding OOC issued by MassDEP.

Section 11 of the DEIR provided a thorough and detailed assessment of the Project's conformance with each of the performance standards and other criteria of evaluation for each of the regulatory review programs with jurisdiction over the Project. The Sections below provides a summary on how the Project will meet those requirements of each permitting program.

2.2.1 State Regulatory Reviews

2.2.1.1 Section 401 Water Quality Certification, MassDEP

In conjunction with the federal Section 404 Massachusetts General Permit filing, NEP will file an application for Individual WQC under 314 CMR 9.00 with MassDEP. The Project requires an Individual WQC because Project-related fill within Waters of the United States ("WOTUS") – including both temporary and permanent fill – will cumulatively exceed 5,000-sf. The Project's conformance with the statutory standards and requirements was described in detail in Section 11 of the DEIR. In summary, NEP completed a comprehensive and detailed alternatives analysis (as described in the EENF, DEIR, and EFSB Siting Petition (Docket No. EFSB 23-45)) that established the proposed Project as the best alternative with the fewest environmental impacts and least discharge of fill within WOTUS. NEP will employ appropriate BMPs, including sediment and erosion controls, throughout construction to minimize adverse impacts to vegetated wetlands and WOTUS. Please refer to Section 2.2.1.3 for detailed information on Stormwater Implication.

The vast majority of fill required for the Project is temporary and associated with construction matting for access and work areas, which will be removed once work is complete. Upon completion of construction and the removal of temporary matting, NEP will fully restore wetlands and WOTUS, including re-establishing pre-construction grades, hydrology, and vegetation. Where permanent fill for structure foundations is required, NEP is proposing wetland replication at a replacement ratio of at least one-to-one, with final designs to be confirmed during local permitting with each municipality's Conservation Commission. Where fill within Outstanding Resource Waters ("ORWs") is unavoidable (due to structures located within wetlands that are located within the 400 feet OHWM of Class A Public Water Supply along two sections of the A1/B2 Line), NEP will apply for a Variance under 314 CMR 9.08 (314 CMR 9.06(4)), for the temporary discharge of fill material.

2.2.1.2 Massachusetts WPA, MassDEP & Conservation Commissions

NEP will file NOI permit applications with the Conservation Commission of each municipality where impacts are proposed within jurisdictional wetland resource areas and/or buffer zones, including within the Towns of Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling. These NOIs will detail the proposed asset improvements, the short-term and long-term impacts, and the proposed avoidance, minimization, and mitigation measures for those impacts. Compliance with the General Performance Standards of the WPA was described in detail in Section 12.3.2 of the DEIR, while details of the proposed wetland impacts were covered in Sections 4.1 and 4.2 of the DEIR and has also been provided in Section 4 of this FEIR, along with avoidance, minimization, and mitigation measures in Section 9.

In summary, the Project will conform with the Limited Project provisions of the WPA (for the construction, operation, and maintenance of public utilities), while also conforming with as many of the general performance standards for resource areas as practicable (refer to Section 2.2.1.2.1 below). Temporary fill within wetlands will be restored in-situ (see Section 4.3.4 of the DEIR), and compensatory wetland replication will be provided for all unavoidable permanent fill (Section 4.3.5 of the DEIR). Stream crossings will be fully spanned with construction matting to avoid impacts to Bank and LUWW (Section 4.3.1 of the DEIR). The flood storage loss is de minimis within each BLSF where structures are replaced, and the foundations will not impact flood storage capacity. Where required, NEP will design compensatory storage for unavoidable fill within BLSF (Section 4.2.6 of the DEIR), and impacted RA will be restored in-situ as far as practicable (Section 12.3.2.6 of the DEIR).

Where Towns have their own local Wetlands Protection Bylaws or Ordinance (Winchendon, Gardner, Westminster, and Fitchburg), NEP will conform with all additional requirements, and/or will request a waiver or Variance from specific requirements, as determined during future local permitting. If/when a final OOC is issued by the Conservation Commission, NEP will comply with all requirements and specifications outlined within the OOC.

2.2.1.2.1 Consistency of the Project with WPA - Limited Project Provisions (310 CMR 10.53(3)(d))

As discussed in detail in Table 10-3 and in Section 12.3.2.1 of the DEIR, the Project qualifies as a Limited Project because the proposed activities involve the construction, operation, and maintenance of public utilities, particularly the refurbishment of electrical utility structures and overhead lines. NEP has designed the Project to meet the performance standards of the WPA and implementing regulations at 310 CMR 10.00 to the extent practicable. For this Project, the need to permit the Project under the Limited Project provisions is only because of the amount of construction matting required. The amount of temporary construction matting required to both facilitate access along the ROW and protect the underlying wetland resource areas is well over the 5,000 square foot threshold allowable under the performance standards for BVW at 310 CMR 10.55(4)(b). NEP will not be able to limit the use of temporary construction matting within BVW for access and work areas to under 5,000 SF due to the extent of wetlands within the ROW and the requirement to access each structure location. NEP will mitigate temporary, or “temporal” impacts resulting from the use of construction matting through *in-situ* wetland restoration. NEP will meet the WPA performance standards for anticipated permanent loss of wetlands through proposed compensatory wetland replication.

Although the Project will impact habitats of rare species, NEP is actively consulting with NHESP to avoid a “Take” of several listed species and minimize impacts to habitat. Based on discussion with NHESP and the proposed avoidance, minimization, and mitigation efforts, NEP anticipates the Project will not result in an adverse effect to habitats of rare species.

2.2.1.3 Massachusetts Stormwater Standards

MassDEP applies the MA 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 ten stormwater management performance standards for development and redevelopment projects. The Project is not anticipated to have a significant impact to 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).

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, NEP will submit an NOI and prepare a SWPPP for the Project in compliance with the EPA's NPDES CGP ("Construction General Permit").

NEP will employ stormwater BMPs for construction-phase stormwater management including sediment and erosion controls. During the construction of the Project, NEP additionally will construct permanent stormwater management features such as swales, water bars, plunge pools, and/or check dams to promote stability of the constructed access improvements, reducing potential for erosion and/or washout, and protecting resource areas. Please refer to *Section 4.3* for additional discussion on stormwater implications.

2.2.1.4 Massachusetts Endangered Species Act

NEP is in consultation with NHESP to reduce or avoid Project-related impacts to Priority Habitats for rare species. These efforts were described in Section 5.5 of the DEIR and an update of consultation since the filing of the DEIR is presented in *Section 1.8*, above. NEP anticipates that BMPs will contribute to the Projects' avoidance and minimization measures. These BMPs apply to the permanent upgrades to access routes and work areas, as well as the temporary placement of construction matting. NEP will continue to work closely with NHESP throughout the MESA review process, including continued coordination and preparation of a Conservation Management Plan ("CMP") in the event a "Take" cannot be avoided.

2.2.1.5 MassDOT Access Permits for Crossing Over of State Roads with Utility Lines

As described in Section 1.9 of the DEIR, NEP will obtain a MassDOT Permit to Access State Highway/Non-Municipal Utility Permits for crossing over of state roads with utility lines for the Project. Line installation could temporarily affect traffic flow but does not involve physical modifications to the roadway or roadway ROW. NEP will coordinate with MassDOT and ensure that all applicable performance standards are adhered to. No long-term roadway impacts are anticipated.

2.2.1.6 Surface Water Discharge Permit

Surface Water Discharge Permitting is required for a Project proposing to discharge pollutants to surface waters of the Commonwealth, including from stormwater discharges per 314 CMR 3.04(2)(a). However, NEP will be exempt from the requirement per 314 CMR 3.05(2), as the Project will require NPDES CGP authorization under 3 U.S.C. 1251 § 404.

2.2.1.7 Waterways Permitting – Chapter 91 Licensing

The A1/B2 Line was built in the early 1900's and has not been substantially altered since that time. As such, the existing line is exempt from licensing under 310 CMR 9.05(3)(c) and (f). Under 310 CMR 9.22(a), NEP 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 the maintenance activities can cross the waterways without damaging the surrounding resource areas (please refer to **Appendix D** for a list of streams where matting is proposed along with reference to pages in the FEIR plans) Because the construction mats are a means and method for maintenance activities, they are exempt from further licensing or other Chapter 91 approvals under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1).

2.2.1.8 Massachusetts Historical Commission & Section 106 Consultation

Any projects that require funding, licenses, or permits from any state agency must be reviewed by MHC in compliance with M.G.L. c. 9, §26-27C. SWCA Environmental Consultants ("SWCA") (as a consultant to BSC Group, Inc. ("BSC Group")), initiated consultation with the MHC by submitting a Project Notification Form, a Cultural Resources Due Diligence Report, and a State Archaeologist's permit application. SWCA completed additional testing in 2022 and 2023, details of which were provided in Section 6 of the DEIR. NEP will continue to consult 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. NEP anticipates the majority of the historic review process to be completed through Section 106 Consultation requirements of the Section 404 PCN review process.

2.2.1.9 Energy Facilities Siting Board

NEP filed a Petition for Approval to Construct and Operate the Project with the EFSB (or "Siting Board") pursuant to Chapter 164, Section 69J of the General Laws on May 2023 (Docket No. EFSB 23-45). The Project will undergo an extensive and lengthy adjudicatory process with the EFSB, assessing its ability to provide reliable energy supply with minimal environmental impacts and low costs. A detailed alternatives analysis, including assessment of alternative locations, was performed as part of this assessment (as summarized in Section 2 of the DEIR). NEP is confident that the Project represents the optimal solution because it meets reliability needs, comparatively offers the best solution with the least number of adverse impacts and provides a cost-effective solution.

2.2.1.10 Easements and Article 97 Land Disposition

The A1/B2 Line ROW crosses eight (8) properties designated as Article 97 Lands. These include two (2) properties owned by the state, and six (6) owned by local authorities (as described in Table 8, page 35 in the EENF).

The Company has continued its consultation with DCR, which remains ongoing. The Company's view is that, considering the existing rights of the Company to access the A1/B2 line ROW, no change in use or other disposition is proposed that would trigger Article 97, EEA's Article 97 Policy or the Public Lands Preservation Act ("PLPA"). Rather, the Company intends to seek construction and access permits from DCR, which do not implicate Article 97. DCR has actively participated and continues to actively participate in these consultations and has not yet finalized its view on this subject. Should DCR ultimately be unable to issue any required permits because of Article 97, the Company will submit a notice of project change addressing compliance with Article 97, the EEA Article 97 Policy and the PLPA before commencing construction within DCR-owned property.

2.2.2 Federal Regulatory Reviews

2.2.2.1 Section 404 of the Clean Water Act

As noted in the discussion of state permits, the wetlands and streams along the ROW are subject to the jurisdiction of Sections 401 and 404 of the federal Clean Water Act ("CWA"). The Project qualifies for authorization under a PCN in accordance with the USACE Massachusetts General Permits for activities within federal wetlands as defined by Section 404 of the CWA, primarily due to the temporary BVW impacts associated with construction mats, which are considered a discharge of "fill material." NEP filed a PCN on September 1, 2023, and is continuing to consult with USACE through the permitting process. The PCN application documents compliance with the General Conditions of the Massachusetts General Permits.

The Project will meet the USACE's requirement that areas of permanent fill be mitigated. Mitigation will be determined using criteria defined in the 2016 New England District Compensatory Mitigation Guidance, and through consultation with the USACE New England District. Per the USACE stated preference for compensatory mitigation, NEP proposes to use the In-Lieu Fee program, as was discussed in Section 10 of the DEIR. Additionally, NEP will coordinate with ACOE through the 404 permitting process to provide compensation for secondary impacts, in accordance with the Standard Operating Procedures ("SOP") Section 2.h. As listed in Table 2Ca of Appendix C of the SOP, permanent conversion of forested wetlands to emergent or scrub shrub wetlands has a mitigation ratio of 30 percent and 15 percent, respectively. As footnoted in the table, these standards are used to calculate the ILF payments for permanent conversion and the percentages may be reduced if appropriate BMPS are incorporated into the Project.

Permanent impacts to vernal pools have been avoided, and temporary alteration will be limited to the placement of temporary construction matting for access within with one (1) vernal pool (not certified by Massachusetts Division of Fisheries and Wildlife ("DFW"). NEP will use construction BMPs to avoid and minimize indirect impacts to the vernal pools in the vicinity of the Project. Construction-related details will be provided in permit applications and were also addressed in Section 9 of the DEIR.

2.2.2.2 NPDES Construction General Permit – Environmental Protection Agency

As described in the DEIR, NEP will submit an eNOI to the EPA approximately one (1) month prior to construction. As a component of the eNOI process, NEP will prepare a SWPPP for the Project in compliance with the EPA's NPDES Stormwater CGP. Implementation of the SWPPP will include extensive use of erosion and sediment control measures designed to minimize site disturbance and prevent opportunities for sedimentation to occur offsite or toward wetland resource areas. The SWPPP will also have a component that consists of spill prevention, countermeasures and controls that address the accidental or unintended release or spill of pollutants, such as fuel, hydraulic fluid, or lubricants. The SWPPP will be a component of the Project's Environmental Field Issue ("EFI") and will be included in the environmental training that construction contractor personnel will receive.

2.2.2.3 Endangered Species Act - United States Fish and Wildlife Service

Under Section 7 of the ESA, any action requiring one or more federal permits or licenses must

also include consultation with the United States Fish and Wildlife Service ("USFWS") to ensure that proposed actions do not jeopardize listed species or destroy or adversely modify critical habitat. Accordingly, prior to the submittal of the PCN, NEP followed the USFWS Endangered Species Consultation Procedure available on their website. As a result of the USFWS Endangered Species Consultation Procedure, NEP determined that four (4) federally listed species may be present within the Project ROW. One species is a threatened mammal, one (1) species is a candidate insect, one (1) species is an endangered plant, and one species is a threatened plant. Review is ongoing to determine permitting requirements and/or impact avoidance and minimization measures. NEP is working with the USFWS to avoid a "Take" determination, which will be made as the Project advances through the permitting process. Additional consultation may be required, pending the outcome of this process.

2.2.2.4 Section 106 and the National Historic Preservation Act

Section 106 of the National Historic Preservation Act ("NHPA") requires federal agencies to take into account the effects of their undertakings (including permit decisions) on historic properties and afford the Advisory Council on Historic Preservation ("ACHP") a reasonable opportunity to comment (33 CFR 325, Appendix C and 36 CFR Part 800).

For the Project, the undertaking is the Section 404 Permit, and the responsible federal agency is the USACE. "Section 106 review" follows a specific process, which is guided by the applicable federal regulations. These regulations have created a series of steps by which federal agencies identify and evaluate historic properties that may be affected by their undertakings, assess adverse effects to those properties, and take prudent and feasible measures to avoid, minimize, or mitigate those effects. NEP anticipates that the USACE, as the lead federal agency, will follow the applicable Section 106 review procedures.

3 Environmental Justice/Public Health

This Section addresses comments in the Secretary's Certificate associated with EJ and public health. This FEIR reaffirms the Project's compliance with the *MEPA Public Involvement Protocol for EJ Populations* and the *MEPA Interim Protocol for Analysis of Project Impacts on EJ Populations* - for the Designated Geographic Area *(*"DGA") of the Project (i.e., within one (1) mile of all outer boundaries of the ROW).

3.1 From the Secretary's Certificate on the DEIR

The following Scope items and comments from the Certificate on the DEIR are addressed within *Section 3*:

Comments Related to Truck Traffic:

> *"The FEIR should provide an estimate of the number of truck trips per day anticipated for the project and the Proponent should determine whether it exceeds the threshold for 150 new average daily trips ("adt") of diesel vehicle traffic over a duration of one year or more at which EJ outreach and analysis are required over a 5-mile Designated Geographic Area ("DGA") under the MEPA EJ protocols."*
>
> *"The FEIR should provide an estimate of the number of truck trips that are anticipated for the project (as was previously required by the Certificate on the EENF) and the portion of these trips expected to pass through EJ populations."*

Comments Related to MEPA Public Involvement Protocol for EJ Populations:

> *"The Proponent should continue to take steps, including undertaking additional measures, to meaningfully engage EJ populations in decision-making for the project. The FEIR should report on the results of such engagement efforts."*
>
> *"The Proponent should circulate the FEIR to the EJ reference list prior to filing, and, if a 5-mile DGA is implicated, should contact the MEPA Office for an updated list of all Community Based Organizations ("CBOs") and tribes/indigenous organizations. If any disproportionate adverse effects are identified, the FEIR must include a discussion of proposed mitigation and include such measures in draft Section 61 findings."*

Comments Related to MEPA Interim Protocol for Analysis of Project Impacts on EJ Populations:

> *"As previously required by the Certificate on the EENF, the FEIR should analyze land alteration associated with the project including implications for potential stormwater flooding in surrounding neighborhoods. Analysis of the stormwater should specifically assess whether flooding risks may be exacerbated for nearby EJ populations, including under future climate conditions."*
>
> *"To the extent any residential neighborhoods, including EJ populations, are located within "hot spots," the project should propose mitigation to offset the effects of tree removal adjacent to those locations, and the distance for this assessment should be extended to 500 feet. Mitigation could take the form*

of permanent land/forest preservation or tree plantings in the affected neighborhoods."

3.2 EJ Populations Within 1-Mile of The Project Location

As noted in the EENF and in the DEIR, NEP has followed the *MEPA Public Involvement Protocol for EJ Populations* and the *MEPA Interim Protocol for Analysis of Project Impacts on EJ Populations* - for the DGA of the Project (i.e., within one (1) mile of all outer boundaries of the ROW).

As shown in *Table 3-1* below, NEP identified the EJ Populations within the DGA of the Project, as well as the languages spoken in these communities, per the *updated Massachusetts 2020 EJ Populations Maps* (November 2022). Within the one (1)-mile radius of the Project are 19 EJ Populations distributed throughout five (5) municipalities: Athol, Fitchburg, Gardner, Lancaster, and Leominster.

Table 3-1: EJ Populations Within 1-Mile of the Project Route

Municipality	Census Tracts	Criteria	Minority Population	Language Isolation	Population	Median Income
Athol	Tract 7031 – Block Group 1	Income	17.9%	1.9%	1,032	$40,750
	Tract 7031 – Block Group 2	Income	18.4%	1.6%	1,275	$48,576
	Tract 7033 – Block Group 1	Income	15.4%	1.2%	2,153	$32,227
Fitchburg	Tract 7102 – Block Group 3	Minority and English Isolation	36.4%	39.0%	991	$76,591
	Tract 7103 – Block Group 2	Minority	34.8%	0.0%	1,858	$66,648
Gardner	Tract 7071 – Block Group 2	Income	16.0%	0.8%	2,232	$47,460
	Tract 7072 – Block Group 2	Income	19.6%	6.6%	1,125	$30,947
	Tract 7073 – Block Group 1	Income	16.8%	3.7%	1,168	$30,972
	Tract 7073 – Block Group 2	Income	18.4%	1.2%	1,829	$36,219
	Tract 7073 – Block Group 3	Income	24.5%	0.0%	1,059	$38,994
	Tract 7074 – Block Group 2	Income	17.5%	0.0%	1,196	$50,074
	Tract 7075 – Block Group 1	Income	21.3%	4.1%	2,053	$49,097
	Tract 7075 – Block Group 2	Minority	35.0%	2.1%	2,123	$67,941
Lancaster	Tract 7131 – Block Group 4	Minority	36.0%	0.0%	3,316	$108,676

Leominster	Tract 7092.01 - Block Group 2	Minority and Income	34.6%	0.0%	1,183	$48,654
	Tract 7092.01 - Block Group 3	Minority and Income	41.7%	3.1%	2,604	$54,180
	Tract 7092.03 - Block Group 1	Minority	31.2%	0.0%	779	$120,833
	Tract 7092.03 - Block Group 2	Minority and Income	50.1%	15.7%	1,715	$40,121
	Tract 7092.04 - Block Group 1	Minority	43.8%	14.7%	1,189	$92,567

Additionally, *Table 3-2* summarizes languages spoken by 5% or more in EJ Populations within the DGA of the Project. Within the one (1)-mile radius of the Project, NEP identified Spanish and Portuguese as languages spoken by 5% or more in EJ Populations within the DGA of the Project.

Table 3-2: Languages Spoken in EJ Populations Within the DGA

Municipality	Languages Spoken*
Athol	% of Households Speaking Language Other Than English - 3.5% Languages Spoken in 1% or More of Households - 3.5% Spanish
Fitchburg	% of Households Speaking Language Other Than English - 29.4% Languages Spoken in 1% or More of Households • **26.9% Spanish** • 1.4% Hmong • 1% Haitian Creole
Gardner	% of Households Speaking Language Other Than English - 8.3% Languages Spoken in 1% or More of Households - **8.3% Spanish**
Lancaster	% of Households Speaking Language Other Than English - 6.3% Languages Spoken in 1% or More of Households • 3.5% Portuguese • 2.8% Spanish
Leominster	% of Households Speaking Language Other Than English - 25.5% Languages Spoken in 1% or More of Households • **16.6% Spanish** • **6.2% Portuguese** • 1.3% Haitian Creole

*Text in **bold** designates languages spoken by 5 percent or more of the population, in all of the municipalities located in whole or in part within the DGA, regardless of whether they contain any designated EJ Populations.

3.3 Truck Traffic Analysis

In accordance with comments received from MassDEP on the DEIR, NEP reaffirms its position as stated in the EENF that new truck traffic for the proposed work will not exceed the threshold of 150 average daily trip ("adt") over a duration of one (1) year or more. In its pre-application meeting with the MEPA Office on the Project, NEP discussed the potential diesel vehicle traffic generated by the Project and the MEPA Office concurred that due to the intermittent nature of the Project and that it would be constructed over a 54-mile area, it was not possible to calculate with precision the number of truck trips in specific areas over any given period of time, but that it was reasonable to conclude that the volumes would fall well below the threshold of 150 adt of diesel vehicle traffic over the duration of a year. This was reflected in the EENF and the DGA was not raised in EENF Certificate. However, in the DEIR Certificate, the Secretary has requested further clarification. As described below, NEP has re-confirmed that diesel vehicle traffic will remain well below the threshold of 150

adt of diesel vehicle traffic over the duration of a year and that a one (1)-mile DGA remains appropriate for the Project.

For the proposed Project, there will be construction-related traffic during the proposed construction period for each phase. Access to the ROW for construction equipment will typically be gained from public roadways crossing the ROW in various locations along the route and adjacent existing off-ROW access roads. Because each of the construction tasks (please refer to Section 9 of the DEIR) will occur at different times and locations over the course of the construction, traffic will be intermittent at these entry roadways and areas along the ROW. Construction of the Project will occur in phases over an approximately three (3)-year period (the time period might vary depending on the start of civil work and restoration work). Accordingly, truck traffic will vary substantially based on location and phase of work at any given location but will remain well below the threshold of 150 adt of truck traffic over the duration of a year or more.

The Project is located in rural areas. Routing of construction vehicles will likewise vary throughout the Project based on location and phase and will be determined by the contractors. Intermittent construction-related traffic will occur over the entire construction period. Construction equipment typically will gain access to the ROWs from public roadways crossing the ROWs in various locations along the Project ROW. Because each of the construction tasks will occur at different times and locations over the course of the construction, traffic will be intermittent at these entry roadways. Traffic will consist of vehicles ranging from pick-up trucks to heavy construction equipment to large trailers delivering materials. Traffic volume during construction will not significantly affect existing traffic volumes, 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.

3.4 Compliance with MEPA Public Involvement Protocol for EJ Populations

NEP has demonstrated compliance with the MEPA Public Involvement Protocol for EJ Populations ("Public Involvement Protocol") throughout the MEPA process, documenting public involvement measures in the EENF, DEIR, and now in the FEIR.

As the Public Involvement Protocol requires NEP to maintain the same level of meaningful outreach and community engagement throughout the process, a summary of public involvement activities conducted prior to the filing of the EENF can be found on pages 67-68 and 76 of the EENF; a summary of public involvement activities conducted prior to filing the DEIR can be found on pages 99-103 of the DEIR; and a summary of the public involvement activities maintained since the submission of the DEIR can be found below.

The Certificate on the DEIR notes the following:

> *"The Proponent should continue to take steps, including undertaking additional measures, to meaningfully engage EJ populations in decision-making for the project. The FEIR should report on the results of such engagement efforts."*
>
> *"The Proponent should circulate the FEIR to the EJ reference list prior to filing, and, if a 5-mile DGA is implicated, should contact the MEPA Office for an updated list of all CBOs and tribes/indigenous organizations. If any disproportionate adverse effects are identified, the FEIR must include a discussion of proposed mitigation and include such measures in draft Section 61 findings."*

In regard to the comment on continued, meaningful engagement measures (since the DEIR), the FEIR reports the following updates:

- The Distribution List is actively maintained for continued engagement.
- In response to the updated Massachusetts 2020 EJ Populations Maps (November 2022), the list of all languages spoken by 5% or more of residents who have limited English proficiency was expanded such that NEP is aware of the potential need for future Spanish (Fitchburg, Gardner, Leominster) and Portuguese (Leominster) translation/interpretation services.
    - Should there be any additional meetings requested by the public, NEP will request that individuals request interpretation services in advance of meeting dates.
    - NEP will make best efforts to translate the documents provided to EJ populations and provide any requested interpretation.
    - Leominster Public Schools as well as the Leominster Mayor's Office were proactively contacted (in June 2023) to get more information on households that speak Portuguese, since a Portuguese translator was provided at the Leominster Open House.
        - The information gathered provided guidance for translation services at the Open House; primarily, that Brazilian Portuguese is more common than European Portuguese.
- The website address (www.newenglandA1B2.com), which is publicly available in English and Spanish, has been updated and will be maintained throughout the MEPA review process.
    - A PDF of the DEIR was uploaded to the website on 08/11/2023.
        - A targeted notice regarding the DEIR filing was sent to all abutters in EJ Block Groups specifically, as well as other abutters and Distribution List participants on 10/31/2023, including mention of where the FEIR can be reviewed as an online PDF (Project website) in both English and Spanish. Information on how a hard copy of the DEIR can be requested, how and where to request meetings with the public outreach team, and information on how to request additional information on interpretation services was provided in the notice.
    - Once the FEIR is filed and submitted to the MEPA Office, a PDF of the FEIR will be uploaded to the website.
        - A targeted notice of the FEIR filing will be sent to all abutters in EJ Block Groups specifically, as well as other abutters and Distribution List participants, including mention of where the FEIR can be reviewed as an online PDF (Project website) or hard copy.
- The Project email address (info@newenglandA1B2.com), has been and will continue to be maintained and monitored throughout the MEPA review process.
- The Project hotline (844-500-3536) will be maintained throughout the MEPA review process.
- A Project contact form was developed, allowing site visitors to contact NEP with any concerns or questions – including translation of Project materials, and more information on public

involvement initiatives as well as Project details, including current activities, the construction schedule, and open houses.

- Outreach to the public will be communicated in clear, understandable language and in a user-friendly format.
- Should there be any request for additional meetings, NEP shall conduct additional meetings.
    - NEP will evaluate and implement best communication practices to inform the public about any additional meetings.
    - For instance, similar to the previous engagement activities, NEP will publish information about the meeting in local newspapers within municipalities with EJ populations.
    - Should individuals request interpretation services in advance of meeting dates, NEP will make best efforts to translate the documents provided to EJ populations and provide any requested interpretation.
        - NEP shall provide translation services for Spanish and Portuguese at Open Houses in municipalities where those languages are spoken by more than 5% of households.
- As part of the local review process, NEP 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 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.
    - NEP 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, the Project website will be shared by various municipalities through their own websites and channels, via active communication and partnership between NEP and the municipalities.
    - Additional outreach channels, such as Facebook pages/groups and apps like Next Door – which are actively utilized by residents of certain municipalities – are being considered as part of these aligned information sharing effort (as suggested by Public Involvement Protocol best practices, with regard to community-specific media outlets).
- In regard to the comment on the EJ Reference List, a five (5)-mile DGA is not implicated for the Project, as explained above. NEP requested an updated EJ Reference List on April 3, 2024, for the following municipalities within one (1) miles of the Project location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Sterling, Athol, Orange, Phillipston, Templeton, Ashburnham, Princeton, Lunenberg, Lancaster, Clinton. An updated EJ Reference List was received from the MEPA Office on April 5, 2024 (refer to **Appendix C**). NEP shall circulate the FEIR to the EJ Reference List prior to filing.

3.5 Compliance with MEPA Interim Protocol for the Analysis of EJ Impacts

The Project design and impacts remain largely unchanged since the filing of the DEIR. The FEIR reaffirms that no significant disproportionate adverse effects (with regard to environmental burden and public health impacts) to EJ populations will result from the Project. Mitigation measures will be taken to address any short-term impacts that result from the necessary activities to further the Project and its benefits. Mitigation measures are further addressed in *Section 9* of the FEIR.

3.5.1 Heat Island Effect

With regard to the comment on the potential for heat island effects to be exacerbated ("Hot Spots"), BSC Group, on behalf of NEP, conducted additional analysis on its previous review of where residential neighborhoods, including EJ Populations, are located within or near both "hot spots" and locations where tree removal activities are planned; results from the initial review were provided in the DEIR. The additional analysis extended assessment to a distance of 500 feet. Please refer to *Figure 3* in Appendix A.

The results of the additional analysis revealed that, of 11,017.22 acres of residential areas, 203.43 acres can be identified as Land Surface Temperature ("LST") Hot Spots. Further, of those 203.43 acres, 942 SF are areas where LST Hot Spots overlap with EJ Populations and proposed tree removal activities.

The FEIR reaffirms analysis demonstrating that tree removal activities that will occur near EJ Populations will be as minimal as those occurring along the entire ROW. Additionally, since much of the land adjacent to the ROW is forested, the extent of tree removal represents an overall negligible impact on canopy cover. The land will remain vegetated and therefore will not have the surface temperature increase that pavement or buildings would near EJ Populations. Tree removal activities represent a small portion of the overall Project ROW, and does not disproportionately affect residential areas, EJ communities, or areas that already experience heat island effect as measured by LST Hot Spots data. Of all tree removal activities, 2.7 percent are located in census tracts with an EJ Block Group designation. Further, the portion of tree removal activities in EJ Populations in residential areas where "Hot Spots" currently exist represents 0.3 percent of total tree removal. Tree removal near EJ Populations will be as minimal as those occurring along the whole ROW and there will be no disproportionate impact to EJ Populations.

3.5.2 Flooding Risks

The Project is not anticipated to have a significant impact to hydrology along the ROW, and by controlling run-on to and runoff from the access improvements using stormwater BMPs such as swales, check dams, and plunge pools to promote recharge within the vegetated ROW, the activities proposed by the Project do not pose significant impact on flooding under future climate conditions, including to adjacent EJ populations. Please refer to *Section 4.3* of this FEIR for additional discussion on stormwater implications.

3.6 Conclusion

The analysis demonstrates that while there may be an existing unfair or inequitable burden experienced by some of the EJ Populations within the DGA, the Project will not create any disproportionate adverse effect and will not materially exacerbate any existing unfair or inequitable

environmental or public health burden impacting the EJ populations nor any other residents within the DGA.

The FEIR reaffirms that the short-term environmental or public health impacts of the Project will be mitigated using BMPs provided in *Section 9* of this document, and that there are no long-term environmental or public health impacts. The Project generally minimizes impacts on all populations by refurbishing an existing transmission line within an existing transmission line corridor. Because of this, the Project does not result in any significant long-term environmental or public health impacts for any populations, including EJ Populations. Temporary and permanent impacts from pre- and post- construction will be mitigated through BMPs. Therefore, construction period activities will not result in any adverse or public health impacts to any population. The Project will provide residents with numerous benefits, including more reliable and safe electricity transmission.

4 Wetland Resource Areas

This Section addresses comments received in the Certificate associated with Wetlands, Waterways, and Water Resources.

4.1 From the Secretary's Certificate on the DEIR

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

Comments related to stormwater implications on Wetland Resources

> *"The project will create 0.3 acres of new impervious associated with new caissons. The FEIR should discuss how the project will meet the recharge and TSS treatment standards for new impervious including special requirements which apply to Critical Areas, such as ORWs (310 CMR 10.05(6)(k)6. and 314 CMR 9.06(6)(a)6.)."*
>
> *"In addition, the FEIR should demonstrate that compensatory flood storage provided for permanent fill in BLSF has an unrestricted hydraulic connection to same waterway or water body displaced by the project as stated in 310 CMR 10.57(4)(a)1. The compensatory flood storage analyzed in the FEIR must be proposed near where the fill is proposed so as to provide an unrestricted connection to the same waterway."*
>
> *"In addition, the Proponent must demonstrate that seasonal high groundwater is at or below the elevation which compensatory flood storage will be provided. The FEIR should analyze alternatives to provide compensatory flood storage and provide a cut-and-fill table for each alternative analyzed."*
>
> *[From DEP's comment letter on the EENF dated October 19, 2022, and referenced in the comment letter on the DEIR, dated January 10, 2024] "Alternatives must be analyzed in the Environmental Impact Report to reduce the peak runoff rate from the proposed alterations, including tree clearing. Tree clearing increases the peak runoff rate. Besides traditional methods to provide mitigation such as detention basins, replacement of trees should be analyzed as an alternative to reduce the peak runoff rate. Any trees replaced would need to be within the same sub-watershed to be considered as peak rate mitigation."*

Comments related to Wetland Mitigation

> *[From DEP's comment letter on the EENF dated October 19, 2022, and referenced in the comment letter on the DEIR, dated January 10, 2024] "The Applicant must demonstrate that all efforts have been made to avoid adverse impacts to BVW. When avoidance is not possible, demonstration must be made that the impacts have been minimized and that unavoidable impacts have been mitigated. The Environmental Impact Report must identify all temporary and permanent roads and/or routes in relation to resource areas that will be utilized for mechanized equipment to be engaged in tree clearing and on-going vegetation management. The proposed route bed should be identified (e.g., swamp mats to be placed at-grade, gravel roads, etc.). The Environmental Impact Report should analyze alternatives to avoid and minimize adverse impacts to BVW, and propose alternatives to*

mitigate for resource area alteration."

"The MassDEP comment letter states that the Proponent should submit mitigation alternatives consistent with the Wetlands Protection Act performance standards for wetland resource area impacts. For permanent loss of BVW, an adequate replacement ratio must be provided. For permanent wetland alteration resulting from tree clearing (which is not a loss), other mitigation alternatives can be considered. Preservation would be an acceptable mitigation option if provided at a substantially higher mitigation to impact ratio. For example, see Appendix C of the New England District Compensatory Mitigation Standard Operating Procedures (USACE 2020). The FEIR should include a more detailed description of the mitigation options under consideration to meet regulatory requirements."

4.2 Summary of Anticipated Wetland Resource Area Impacts

As noted in the DEIR, significant improvements have been incorporated into the Project designs to minimize both temporary and permanent alterations within wetland resource areas since the EENF filing. Permanent conversion of the vegetation cover type within resource areas associated with tree removal in wetland was reduced by 6.8 acres, temporary impacts associated with construction matting were reduced by 12.7 acres, and 14 caisson structures were removed from BVWs (refer to Table 1-5 and Table 1-7 of the DEIR) since the filing of the EENF. Additionally, NEP has completed additional field investigations, constructability reviews, and design refinements. As a result of these efforts, NEP has reduced and refined anticipated impacts to wetland resource areas to show more clearly on-ROW vs. off-ROW impacts associated with forest conversion/tree removals. NEP has avoided and minimized impacts to wetland, watercourses, and vernal pools to the greatest extent practicable by utilizing ROWs associated with the Existing Lines and Taps and existing access where feasible. However, given the scale and landscape setting of the Project, NEP cannot avoid certain wetland impacts.

Table 4-1 presents the type(s) of impacts that will occur in each of the wetlands that will be impacted by the Project. *Table 4-2* displays permanent and temporary impacts to wetland resource areas by municipality. Municipalities are presented as mapped in the FEIR Plans in **Appendix A** for ease of reference.

Table 4-1. Summary of Impacts to Resource Areas

Impact Type	Activity	Impact Area (SF)ǂ					
		BVW	Bank	LUWW	BLSF	200-foot RA***	100-foot Buffer Zone of BVW
Temporary Alteration	Construction Matting	1,645,153	3,378	17,217	223,662	451,840	609,509
Permanent Alteration	Tree Removal – Conversion of Vegetative Cover Type	403,366	28,714	0*	106,286	605,048**	2,021,185
	Access Improvement/ Grading	0	0	0	65,973	1,010,480	3,954,772
Permanent Impact	Structure Replacements	2,246ǂǂ	0	79	726	3,561	10,160

ǂ Note these impacts are not additive within each column. Impact types vary by ROW and overlap in areas of the Project. Additionally, wetland resource types overlap in many locations and aggregate tallies are not feasible.
ǂǂ The EENF did not account for fill associated with installation of direct embed; however, the refined impacts show the overall footprint of installation of structures that includes both direct embed and caisson structures.
* The existing canopy cover to be removed as a result of trees being removed from within the ROW does not result in a direct impact to the LUWW.
** Tree removal approximations determined by Geographic Information Systems ("GIS") analysis of Light Detection and Ranging ("LiDAR") imagery, ROW Survey and RA Polygons. These impact assessments are based on conservative estimates and consider overlapping canopy cover both on and off ROW of the RA parcel.
*** Note that impacts located within the limits of RA overlap with impacts to BLSF, BVW, and the 100-foot Buffer Zone. Therefore, the total impact of the Project is not equal to the sum of alterations.

Table 4-2: Cumulative BVW Impacts by Municipality

Municipality	Total Permanent Impact (SF)*	Total Temporary Alteration (SF)
Warwick	214	158,281
Royalston	517	418,278
Winchendon	140	127,492
Gardner	517	312,101
Westminster	196	187,823
Fitchburg	0	20,857
Leominster	79	179,701
Sterling	0	11,904
Athol	504	181,883
Total	**2,167**	**1,598,320**

*Due to alteration associated with structure installation.

4.3 Stormwater Implications

In response to comments received from MassDEP on the DEIR, NEP has conducted additional assessment to evaluate stormwater management implications of the land alteration associated with the Project, specifically, conversion of forested land along the edges of the ROW to managed vegetation and construction of new access (as described in Section 3 of the DEIR). BSC evaluated several example watersheds along the ROW to assess the stormwater implications due to both tree removal, as specifically requested by DEP in comments received on the EENF and DEIR.

Specifically, MassDEP commented that due to the addition of 0.3 acres of impervious area due to the proposed concrete caissons along the Project ROW, the FEIR should address compliance with the recharge and water quality requirements of the Stormwater Standards. NEP notes that the 0.3 acres of additional impervious area proposed by the concrete caissons is spread along 54 miles and 844.4 acres of ROW in Massachusetts. An individual concrete caisson is approximately 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. Runoff from the concrete caissons and surrounding access is also generally buffered by shrubby and/or forested vegetation where recharge will occur naturally.

Additionally, in response to MassDEP comments, NEP evaluated the stormwater implications of proposed tree removals and conversion to lower scrub-shrub vegetation. The change in peak discharge rates, specifically associated with tree removal, are negligible, generally only hundredths of a cubic feet per second ("cfs"). Given the *de minimis* change, no specific measures to mitigate peak runoff are proposed.

In most cases, the potential for impacts from stormwater along the ROW will be associated with the potential for erosion and/or washout of the gravel access during and following construction. NEP will employ construction-phase BMPs for stormwater management including sediment and erosion controls. Please also refer to **Appendix E** for a description of NEP's construction-phase BMPs. Additionally, during the construction of the Project, NEP will 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. These features have been incorporated into the Project design and will be further evaluated during construction to consider site-specific constraints and/or drainage patterns.

4.4 Best Management Practices

Throughout the planning and preliminary design process, NEP has incorporated measures to avoid and minimize potential wetland impacts from construction of the Project to the greatest extent practicable. Whenever feasible, NEP sited proposed structures in proximity to the existing structures being removed or has relocated structures from wetlands into upland areas. NEP will use existing ROW access routes wherever possible and is proposing upgrades in upland portions of wetland resource areas (i.e., RA, BLSF) only where required to meet the requirements of construction vehicles and equipment that will be used to construct the Project. Using delineation and survey data, NEP designed access and work areas to avoid the most sensitive wetland resource areas throughout the ROW wherever possible. Trees and vegetation will only be removed or mowed where necessary for safe operation. As the Project design evolved, the engineering team coordinated with environmental and construction team members to refine construction techniques to further reduce impacts.

Where tree removals are proposed within wetlands resulting in a permanent conversion of vegetation (from forested to scrub/shrub or emergent communities), proposed mitigation will involve the restoration (as far as practicable), of impacted wetlands. Due to the nature of the Project, it is not possible to allow areas impacted by tree removal to return to forested conditions, as this would be incompatible with the overhead transmission lines. Instead, wetlands subject to selective tree removal will be restored to create scrub-shrub or emergent habitats. NEP 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 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. If construction matting is required in order to access wetlands and perform tree removals, matting will be placed on top of understory vegetation, to protect root balls and reduce ground disturbance.

Depending on the extent of understory/ground cover vegetation present, wetlands will either be left to naturally revegetate (except for trees) or will be stabilized and seeded with an appropriate wetland conservation seed mix. While tree removal will result in permanent conversion to 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 WPA regulations. 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 ROW[7].

4.5 Summary of Wetland Mitigation

As noted in Section 10 of the DEIR, throughout the planning and preliminary design process, NEP incorporated measures to avoid and minimize potential wetland impacts from construction of the Project to the greatest extent possible. Whenever feasible, NEP sited proposed structures in proximity to the existing structures being removed (thus minimizing the footprint of disturbance during construction) or relocated structures from wetlands into upland areas (to provide long-term reductions in wetland disturbance). NEP will use existing ROW access routes wherever possible and is proposing access improvements in upland resource areas (RA, BLSF, 100-foot Buffer Zone) only where required to meet the operating requirements of construction vehicles and equipment. Using delineation and survey data, NEP designed access and work areas to avoid the most sensitive wetland resource areas wherever possible.

4.5.1 *In-situ* Restoration of Temporary Wetland Impacts

NEP will provide mitigation for temporary wetland impacts via *in-situ* restoration. Restoration measures will include post-mat-removal inspections; restoration of the wetland soil surface (addressing any rutting which has occurred due to mat placement); seeding and mulching of any bare ground; removal of erosion controls (once site stabilization has been achieved), and invasive species control throughout the monitoring period. Details of these restoration measures are provided below.

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

4.5.1.1 Construction Mat Removal

Once construction mats are removed, environmental monitors will inspect wetlands for buildup of sand or other materials that may have fallen through the construction mat access/work area. Environmental monitors will inspect wetland crossings carefully as mat removal is occurring to ensure any materials on top of the mats are properly removed and disposed of outside of wetland resource areas or off-site. The environmental monitor will conduct a follow up inspection within five (5) business days of construction mat removal.

4.5.1.2 Restoration of Soil Surface

Although construction mats are an approved BMP for protecting wetland soils and vegetation by distributing the weight of construction equipment, depressional grooves or furrows (i.e., rutting), can still occur in some instances. It is important to note that the use of construction matting does not typically result in rutting of wetland soils, and that the extent of this temporary impact is a function of factors including soil texture and saturation, the type of construction mat used, and length of time matting is in place, and the time of year ("TOY"). If the rutting is greater than approximately six (6) inches deep, NEP will carefully re-grade or back-blade these areas to reestablish pre-existing topography and maintain existing wetland hydrology.

4.5.1.3 Seeding and Mulching

Where disturbance results in the exposure of bare ground, and root and seed stock are absent, NEP will promptly stabilize these areas by seeding and mulching. An appropriate, native, wetland or upland seed mix will be applied (depending on the resource area), and the area will be mulched with straw to stabilize soils and reduce erosion. Seeding and mulching will be performed as soon as possible following the completion of the work. Seed mixes will meet NEP specifications for weed-free requirements.

4.5.1.4 Removal of Erosion Controls

Following restoration and stabilization of soil surfaces, NEP will remove erosion control barriers. NEP will remove and dispose of non-biodegradable materials such as strings and stakes from straw wattles/bales. Crews will break up and lightly scatter straw wattles/bales as mulch. Siltation fencing, strings, and stakes will be removed and disposed of as ordinary waste. Wattles will be cut open, the mesh removed, and the wattle material spread as a soil stabilization measure. Where required based on grades and soil disturbance, NEP will leave erosion controls in place until suitable vegetation is established to prevent erosion into downgradient resource areas.

4.5.1.5 Post-Restoration Inspections

The environmental monitor will inspect restored areas following restoration to ensure no noticeable adverse effects to the plant community, soil characteristics, and micro-topography. Should the environmental monitor observe adverse effects, NEP will perform additional corrective actions, such as hand grading, seeding, or mulching. NEP will work with each community's Conservation Commission or authorized representative (i.e., Agent), as well as MassDEP and USACE to ensure observed restoration complies with all performance standards in applicable wetlands regulations, permits, as well as each municipal OOC.

4.5.2 Compensatory Mitigation for Permanent Wetland Loss

Wherever possible, NEP has attempted to avoid or minimize wetland impacts. Measures included minimizing the size of work areas within wetlands, relocating work areas and access roads wherever possible, and relocating replacement structures outside of wetlands where feasible. Despite these

efforts, and due to the location of existing infrastructure, wetland impacts are unavoidable.

To mitigate unavoidable loss of wetlands associated with structure installation in BVWs, NEP is proposing to provide on-site wetland replication. Prospective wetland replication areas are currently under consideration and NEP will coordinate with the Conservation Commission to ensure that suitable sites are selected. Preparation of the wetland replication area(s) will meet the general performance standards outlined in the *Massachusetts Inland Wetland Replication Guidelines* (dated March 2002), and will include appropriate replication of the soil, hydrologic function, and vegetative community.

Wetland replications areas have been chosen based on their proximity to impact areas, and potential to enhance the functions and values of existing wetland systems. Wetland replication has been provided at a minimum of 1:1 ratio of wetland replication to wetland loss and 2:1 ratio within ORW wetlands. Replication has been provided at a higher ratio within Towns which specify this in their Bylaws (please refer to *Table 4-3* below).

Table 4-3: Wetland Replication Requirements for Towns Along the A1/B2 Project Route

Municipality	Wetland Replication Ratio
Warwick	No Wetlands Protection Bylaw (WPA 1:1 ratio will apply).
Royalston	No Wetlands Protection Bylaw (WPA 1:1 ratio will apply).
Winchendon	Defers to WPA (1:1 ratio).
Gardner	1:1 or 2:1 ratio, as Determined Necessary by the Commission
Westminster	1.5:1 ratio*
Fitchburg	Defers to WPA (1:1 ratio).
Leominster	No Wetlands Protection Bylaw (WPA 1:1 ratio will apply).
Sterling	No Wetlands Protection Bylaw (WPA 1:1 ratio will apply).
Athol	No Wetlands Protection Bylaw (WPA 1:1 ratio will apply).

*According to Westminster Wetlands Bylaw, Section 202-2 (D), "*any permanent alteration or change of habitat of the resource area on a preexisting lot will require 150% replication of that area within that resource area*".

Wetland replication areas will offset impacts related to structure installations. Replication areas will be monitored as required in local, state, and federal permits. Prospective mitigation areas have yet to be finalized, but where possible they will be located in areas hydrologically connected to the impacted wetland (with the limitation that all wetland replications will need to be located within land owned by NEP). NEP will work with MassDEP and the local Conservation Commissions to finalize the mitigation plans for the permanent loss of BVW associated with structure installations.

4.5.3 BLSF/Floodplain Compensation

While some permanent fill associated with concrete caisson foundations is proposed within areas identified as BLSF, structure installations will result in *de minimis* change (approximately 76.6 cubic yards) in flood storage, flood flow, flood displacement characteristics in these locations. Additionally, grading work along access routes and work areas in BLSF will involve over-excavation of the area, and therefore no loss of flood storage areas. Similarly, tree removals will not reduce flood storage area, and since the proposed removals are in a narrow, linear arrangement along the edge of the ROW, there will be no significant change to flood flow velocity.

Currently, the Project is in the design stage and NEP has not yet filed the NOI's with the Conservation Commissions. Where required, NEP will design compensatory storage such that the storage area will have unrestricted hydraulic connection to waterway or waterbody displaced by the Project in compliance with 310 CMR 10.57 (4)(a) and that the storage area will be above seasonal high ground water or below the elevation of which the compensatory flood storage will be provided.

5 Chapter 91

5.1 From the Secretary's Certificate on the DEIR

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

Comments related to Chapter 91

> *"As requested in comments from the MassDEP Waterways Program, the FEIR should include plan and cross-sectional details that depict the temporary and permanent (Perley Brook) scopes of work and should indicate the proposed timing that temporary structures/fill will be located within each waterway within Chapter 91 jurisdiction in order for the Waterways Program to determine whether they may be eligible for a Chapter 91 permit or if a license is required."*

5.2 Stream Crossings

As noted in Section 4.4 of the DEIR, the Existing Lines and Tap Lines cross, or are in proximity to, 64 perennial streams and 80 intermittent streams. Delineation teams identified 13 perennial streams and 23 intermittent streams along off-ROW access. Perennial and intermittent streams are displayed on the FEIR Plans (*Figure 2*) in **Appendix A** and are described in more detail in the EENF (Section 4.4.1) and DEIR (Section 4.4).

5.2.1 Transmission Structure Locations

NEP has designed the Project to avoid impacts to jurisdictional waterways. Only one structure is proposed within a stream – a tributary to Perley Brook Reservoir. However, NEP has established that this intermittent stream is not navigable and therefore falls outside of Chapter 91 jurisdiction. A detailed description was provided in Section 12.3.3 of the DEIR.

5.2.2 Wire Crossings

The A1/B2 Line was built in the early 1900's and has not been substantially altered since that time. As such, the existing line is exempt from licensing under 310 CMR 9.05(3)(c) and (f). The proposed work at each of the crossings is maintenance work on an existing utility line that will not reduce the height of lowest electric cable, will not alter the alignment of the crossing or otherwise affect navigability or other Chapter 91 interests. As such, the work is exempt from further Chapter 91 approvals under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1),

5.2.3 Use of Temporary Construction Matting as a BMP for Maintenance Activities

As part of the Project's maintenance activities, standard BMPs will be used to span stream channels located along access and where work pads are proposed. In certain locations. NEP is proposing to span perennial and intermittent streams with temporary construction matting, or equivalent, where access is required across streams (please see **Appendix D** for list of streams with construction matting). Please refer to NEP's BMP details in **Appendix E** for a depiction of typical construction mat

placement, anchoring, and water spans. Mats will be removed as soon as construction is complete, and any disturbance (e.g., loss of vegetation due to shading, or ground disturbance from mat placement) will be restored and stabilized. If vegetation cover has been impacted, the area will be seeded with an appropriate wetland conservation seed mix and monitored until restored to pre-construction conditions. Under 310 CMR 9.22(a), NEP 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 the maintenance activities can cross the waterways without damaging the surrounding resource areas. Because construction mats are a means and method for the maintenance activities, they are exempt from further licensing or other Chapter 91 approvals under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1).

5.3 MassDEP Coordination

Based on comments received from MassDEP on the EENF, NEP has consulted further with MassDEP on the applicable Chapter 91 requirements for the Project. NEP has contacted MassDEP concerning the Project and the use of construction matting to temporarily span the streams as part of Project maintenance activities and will continue to coordinate with MassDEP as needed through the permitting stage of the Project.

6 Article 97

6.1 From the Secretary's Certificate on the DEIR

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

Comments related to Project impacts on DCR properties

> *"The FEIR should clarify impacts (temporary and permanent) to Article 97 Land and proposed measures to avoid, minimize and mitigate impacts. If it is determined that impacts result in a change in use or control, the FEIR should address compliance with the EEA Article 97 Policy. As previously noted, work activities on DCR property outside of existing easements associated with the ROW, or requiring access across DCR property, will require a CAP."*

Comments related to Project impacts on DCR easement

> *"Work activities on DCR property outside of existing easements associated with the NEP ROW, or requiring access across DCR property, will require a Construction and Access Permit ("CAP"). The CAP will include conditions to minimize impacts to trail access and ensure safety of trail users."*

Comments related to consultation with DCR

> *"Comments indicate that DCR is in the process of determining whether the permanent impacts to off-ROW DCR property could amount to a change in use or control that will invoke the EEA Article 97 Land Disposition Policy and the requirements of the Public Lands Preservation Act. The Proponent should continue consultation with DCR and the FEIR should provide a summary of the outcome of these consultations."*
>
> *"Comments from DCR also request that the Proponent continue to coordinate with DCR Forestry, Ecology, Archaeology and Park staff to minimize impacts to sensitive resources, minimize clearing to the extent possible, and identify mitigation opportunities should a loss or conversion of wetlands, rare species habitat or other forest or recreational resources result from project activities."*
>
> *"Comments from DCR continue to express concerns about recreational impacts at the access point in Warwick State Forest that is proposed to be co-located with the Metacomet Monadnock Trail for approximately 2,300 feet and impacts that may result in increased Off-Highway Vehicle ("OHV") access to the state forests, potentially causing degradation of natural and cultural resources. DCR requests coordination with the Proponent to develop and implement strategies to deter this unauthorized trail use. The FEIR should provide an update on these consultations."*
>
> *"DCR requests that the Proponent continue to coordinate with DCR Forestry, Ecology, Archaeology and Park staff to minimize impacts to sensitive resources, minimize clearing to the extent possible, and identify mitigation opportunities should a loss or conversion of wetlands, rare species habitat or other forest or recreational resources result from project work activities."*

"We look forward to reviewing specific protection and restorations measures to be taken for sensitive natural and cultural resources on public conservation lands. Environmental permits for work activities on DCR land must be signed by the Department as "Owner" following review by DCR staff members and prior to submission to regulatory agencies."

"DCR is also concerned that the Project may result in increased Off Highway Vehicle access to the state forests, potentially causing degradation of natural and cultural resources. The Department requests coordination with NEP to develop and implement strategies to deter this unauthorized trail use."

6.2 Proposed Impacts

The Certificate states that the proponent should clarify impacts (temporary and permanent) to Article 97 Land and proposed measures to avoid, minimize and mitigate impacts. *Table 6-* (below) outlines the impacts associated with proposed activities within Leominster State Forest, Royalston State Forest, Otter River State Forest, and Warwick State Forest, categorized into temporary impacts and permanent alterations. This summary provides an overview of the cumulative impacts across the specified DCR properties, reflecting the extent of various activities and alterations within these areas.

Throughout the design process, NEP has undergone extensive analysis of the viable access alignments and routes required to support the Project. Where possible, access and new disturbances have been contained to the existing, maintained ROW. In some cases, however, steep and rocky terrain, waterbodies and other site-specific constraints make down-ROW access impossible, infeasible or unsafe (refer to the FEIR Plans in **Attachments A**). In such cases, access outside of the existing ROW is necessary. When access has been sited outside of the ROW, existing roads, historically developed routes and motorized recreation trails are being utilized. Through its assessments, NEP determined that the development of temporary improvements to existing, historical access routes off-ROW is necessary to safely facilitate equipment access. Off-ROW impacts associated with off-ROW access will be restored to existing conditions to the extent practicable in accordance with the CAP.

Access development for off-ROW access is comprised of two elements:

- Temporary improvements to existing, discernable historical access routes
- Placement of temporary construction matting to access areas within or near wetland resource areas

In addition, to address DCR's concerns on Metacomet Monadnock Trail, NEP has assessed the Metacoment Monadnock Trail for any additional impacts due to the Project. The Project's design reflects NEP's extensive efforts to avoid and then minimize any adverse impacts on the surrounding land within DCR land to the extent possible. NEP will coordinate with local authorities for work on local streets, and trails. At locations where construction equipment must be staged in a public way, the contractors will follow a pre-approved work zone traffic control plan. Additionally, erosion and sediment control BMPs will be implemented during the construction of the Project. Erosion and sediment control BMPs will function to mitigate construction-related soil erosion and sedimentation and will also serve as a physical boundary to delineate resource areas and to contain construction activities within approved areas. NEP contractors, supervisors, and environmental monitors will regularly monitor installed controls. NEP remains committed to continued coordination with DCR throughout the CAP permitting process.

Table 6-1: Summary of Impacts Within DCR Properties

Impacts	Leominster State Forest			Royalston State Forest			Otter River State Forest			Warwick State Forest			TOTAL
	on-ROW	off-ROW	Total	on-ROW	off-ROW	Total	on-ROW	off-ROW	Total	on-ROW	off-ROW	Total	
Temporary Impacts													
Construction Matting (SF)	21,631	0	21,631	13,544	558	14,102	46,933	0	46,933	111,544	23,907	**135,451**	**218,118**
Temporary Access (SF)	0	0	0	0	5,817	5,817	0	0	0	0	2,601	**2,601**	**8,419**
Temporary Cut/Fill to be restored (SF)	0	0	0	0	11,679	11,679	0	0	0	3,688	10,847	**14,535**	**26,214**
Permanent Impacts													
Structure Foundations (SF)	484	0	484	293	0	293	359	0	359	1,202	0	**1,202**	**2,338**
Permanent Alteration													
Access Improvements (LF)	3,180	0	3,180	923	0	923	4,720	0	4,720	15,664	0	**15,664**	**24,488**
Cut/fill (SF)	193,175	0	193,175	95,568	0	95,568	269,116	0	269,116	601,885	0	**601,885**	**1,159,744**
Tree Removal (SF)	21,631	0	21,631	13,544	11,272	24,817	46,933	0	46,933	111,544	9,901	**121,445**	**214,826**

6.3 Easement

The Project design reflects NEP's significant efforts first to avoid and then to minimize adverse impacts to the land surrounding the Project site within DCR parklands to the extent practicable. The locations where significant work and access improvement needs to be performed, NEP has a right to access its ROW pursuant to its existing easements. All proposed work is authorized under NEP's existing easements and no new easements are proposed or required for the Project. No new permanent access routes are proposed outside of the existing ROW within DCR managed property.

6.4 DCR Coordination Since the DEIR

NEP has continued its consultation with DCR, which remains ongoing. On April 29th, NEP conducted a site visit with Jennifer Howard, the Director of Land Protection at DCR, and representation from DCR Forestry and Compliance Staff, to discuss the proposed Project's impacts related to access improvements and tree removal. During the site visit, NEP reviewed the four specific areas that involve access outside of the maintained ROW. In response to these discussions, NEP committed to reducing the scope of off-ROW alterations and agreed to restore all off-ROW areas within DCR-owned property. During this site visit and in subsequent communications, DCR confirmed that with these Project modifications, the proposed activities could be authorized under a CAP. NEP and DCR have committed to continue the coordination and conduct follow-up reviews of these areas following the completion of a survey. NEP will continue to coordinate with DCR staff to develop a plan that will provide mutual benefits for ongoing management and support of the existing uses of these areas within the Warwick and Royalston State Forests.

NEP's perspective is that, considering NEP's existing rights to access the A1/B2 Line ROW, there are no proposed changes in use or other disposition that would trigger Article 97, EEA's Article 97 Policy or the Public Lands Preservation Act ("PLPA"). Instead, NEP intends to seek construction and access permits from DCR, which do not implicate Article 97. DCR has actively participated and continues to actively participate in these consultations and has not yet finalized its view on this matter. NEP looks forward to continued coordination with DCR.

7 Climate Change

NEP is committed to improving the resiliency of its transmission system to the impacts of climate change. The Project is aligned with priorities in the *MA State Hazard Mitigation and Climate Adaptation Plan* ("SHMCAP") and the *MA Climate Change Assessment* ("MCCA") to ensure that NEP continues to provide safe and reliable electricity to its customers. This section addresses comments on climate change associated with land alteration impacts.

7.1 From the Secretary's Certificate on the DEIR

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

Comments Related to Stormwater:

> *"The FEIR 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."*

> *"As stated above, the FEIR should provide a stormwater report or other data to document pre- and post-construction runoff rates for new/improved access roads and construction work pads will be resilient to future storm events."*

Comments Related to Tree Clearing/Mitigation:

> *"The Proponent should confirm its commitments to donate 1.7% of the trees felled to the DCR Community Wood Bank or other Massachusetts wood bank program which provide free firewood for those in need of energy. The FEIR should provide additional information on whether maximum efforts are being made to reuse trees for long-lived wood products. To the extent specific agreements are secured with landowners to dedicate trees to resale to sawmills, the FEIR should indicate whether this end use can be tracked, and if so, propose a method for doing so (e.g., through tracking of end contracts executed by the Proponent with individual landowners)."*

> *"Given the extent of tree clearing proposed, I expect the FEIR to identify mitigation measures commensurate with the project's impacts on the project corridor's capacity to sequester and store carbon."*

> *"The proponent should take all feasible measures to mitigate these impacts to the maximum extent practicable. Potential mitigation measures may include efforts that address both regulatory requirements and overall state climate change goals as identified in the Massachusetts Clean Energy and Climate Plan for 2025 and 2030. The FEIR should describe a potential mitigation package which may include preserving/protecting forested land through a Conservation Restriction, reforestation including along perennial streams and/or coldwater fishery resources, and/or urban tree planting programs (recommendation of 50 trees/acre with a commitment to water and replace for two years)."*

7.2 Climate Resilience

NEP has taken steps to promote climate change adaptation and resiliency throughout the design of the Project and continues to consider climate change and long-term infrastructure resiliency as an important goal in its long-term infrastructure planning.

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. In addition, the Project is within an existing ROW, thereby minimizing alteration of new land resources to construct the Project. The purpose of the Project is to address existing asset conditions along the A1/B2 Lines that pose a threat to electrical reliability. Furthermore, NEP is also working with landowners, its contractors, local organizations, and the state to ensure that marketable timber and biomass suitable for use as firewood is utilized. These actions reduce the level of GHG emission that will actually occur when the forest is disturbed.

7.3 MA Climate Resilience Design Standards Tool

NEP consulted the Resilient Massachusetts Action Team ("RMAT") Climate Resilience Design Standards Tool for the Project. The RMAT Tool was utilized for its recommendations related to future climate conditions. A copy of the output report generated by the RMAT Tool was provided in the EENF (please refer to Appendix G of the EENF) and has been summarized in *Table 7-1* below. According to the output report, the Project is at high risk from extreme precipitation from urban flooding and riverine flooding, and extreme heat. It is not exposed to sea level rise/storm surge.

Table 7-1: Climate Resilience Design Standards Tool – Project Outputs

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

In response to the comment regarding how the stormwater management designs will be resilient to future climate conditions, including the 50-year (2% chance) storm for 2070, please refer to Section 4.3 of the FEIR.

7.4 Carbon Impact Analysis, Proposed Mitigation for Tree Removals, and Wood Donation Program

7.4.1 Carbon Impact Analysis

NEP engaged the services of Regenerative Design Group ("RDG") and SWCA to analyze GHG emissions associated with proposed Project activities (e.g. tree removal). The analysis found that the Project would result in a one (1)-time loss of 11,199 mt of carbon from the removal of trees and the short-term effects of that removal on soil and forest floor carbon. Over the next 30 years the area is expected to recover through sequestration 1,338 mt of carbon resulting in an estimated net loss of 9,861 mt of carbon. Additionally, the removal of trees and maintenance of much of the area as shrubland results in a loss in sequestration potential over 30 years of 2,302 mt of carbon. Within the combined 131-acre footprint where tree removals are proposed, we estimate that up to 12,164 mt of carbon would be released or not sequestered over the next 30 years. SWCA estimated the

overall change in GHG emissions associated with the project and found that the Project will result in a net reduction in CO2e emissions of 117,424 mt, considering retained felled wood, donated felled trees, improved reliability, increased utilization of low-carbon electricity generation and storage, and improved resiliency of the A1/B2 Lines.

7.4.2 Proposed Mitigation for Tree Removals

The purpose of proposed Project is to address the asset condition of the Existing Lines which are no longer fit-for-purpose, mitigate potential risks of electrical failure, and to provide long-term reliable delivery of electrical service and maintenance of the Existing Lines. NEP's goal is to meet the projected future demand on the transmission system resulting from the electrification of the energy system, essential to achieving the Commonwealth's decarbonization goals.

NEP maintains that the improved reliability and resiliency of the A1/B2 Lines will reduce emissions by 155,307 mt CO2e over the 30-year time horizon. Thus, the net effect of the Project will be to reduce CO2e emissions by approximately 117,424 mt CO2e over the 30-year time horizon.

Recognizing the importance of forest carbon sequestration, and in response to the Secretary's Certificate on the DEIR specific to mitigation for tree removals, NEP has been collaborating with DCR staff and the Mass Audubon Society on a mitigation package to address Project impacts.

NEP is committed to funding a comprehensive mitigation package that includes supporting the preservation of carbon rich lands acquired through Mass Audubon's 30x30 Catalyst Fund 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, Forest as Climate Solutions, and other Commonwealth initiatives. NEP is prepared to contribute up to $250,000 to support Project mitigation efforts.

NEP is excited to partner with both Mass Audubon and DCR on this mitigation package and will continue to coordinate with both entities over the next several weeks on the specific details and mechanisms for a successful implementation of the mitigation package.

7.4.3 Wood Donation Program

Lastly, the FEIR reaffirms NEP's plans to donate approximately 1.7% of trees felled to the DCR Community Wood Bank. Donations will come from felled trees that are not retained by landowners. At this time, NEP is engaged in preliminary coordination with the DCR's Bureau of Forestry Community Wood Bank Program. While discussions with firewood donation centers are ongoing, it is likely that the amount of wood donated will be limited by the capacity of these organizations to accept donations. Within NEP fee-owned parcels, wood collected during tree removal will be committed to reuse in long-lived wood products or will be donated to affordable housing projects or wood banks in MA. Outside of NEP fee-owned parcels, the trees within the ROW belong to the respective private landowners. As such, it is not possible to provide a detailed breakdown of how all wood is distributed/disposed of by parties other than NEP at this stage of the process.

8 Rare Species

8.1 From the Secretary's Certificate on the DEIR

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

> *"The FEIR should provide an update on potential impacts to state-listed rare species habitat associated with the project and proposed measures to avoid, minimize and mitigate those impacts. It should provide a summary of the outcome of continued consultation with NHESP."*

> *"As requested in comments from NHESP, the Proponent should further evaluate reductions to permanent habitat loss associated with gravel work pads and access roads; develop updated botanical survey protocols for pre-construction surveys within suitable habitat; and develop robust rare-species protection plan(s) focusing on time-of-year restrictions, avoidance of active and breeding seasons, and daily sweeps of the work area during any active season work. Comments from NHESP state that the Division anticipates being able to resolve any outstanding concerns related to state-listed species during the MESA review process."*

> *"Projects resulting in a Take of state-listed species may only be permitted if they meet the performance standards for a Conservation and Management Permit (CMP; 321 CMR 10.23)."*

> *"Since the filing of the EENF, the Applicant has met with the Division to discuss minimization of permanent impacts and the Applicant discussed using construction matting to avoid permanent impacts to sensitive nesting habitats, but these figures were not finalized before submittal of the DEIR. The Division recommends that the Proponent continue to work proactively with the Division to: (1) further evaluate reductions to permanent habitat loss associated with gravel work pads and access roads (2) develop updated botanical survey protocols for pre-construction surveys within suitable habitat; and (3) develop robust rare-species protection plan(s) focusing on time-of-year restrictions, avoidance of active and breeding seasons, and daily sweeps of the work area during any active season work."*

> *"Based on the ongoing consultations, the Division anticipates being able to resolve any outstanding concerns related to state-listed species during the MESA review process. We look forward to continued coordination with the Proponent to ensure that the Project addresses all issues related to state-listed species."*

8.2 Summary of Anticipated Impacts to Rare Species

The Project ROW crosses nine (9) Priority Habitats mapped by NHESP for nine (9) different listed species. NEP anticipates impacts to habitat will occur within eight (8) of these mapped Priority Habitats, associated with the grading and stoning of permanent work areas and access, tree removals, installation of new structures, and the temporary use of construction matting within wetlands and other select sensitive areas.

Since introducing the Project to NHESP, NEP has maintained ongoing discussions with the Agency regarding the type and extent of impacts that will occur in mapped Priority Habitats. Discussion with NHESP is ongoing regarding the effects of these impacts on listed wildlife. The Project proponent submitted a Checklist on August 15, 2023, to address MESA compliance (refer to **Appendix F** of this FEIR for Agency Correspondence). NHESP concurs with the Checklist findings that only three (3) of the nine (9) species may be impacted by habitat loss/alteration including one (1) bird, one (1) reptile, and one (1) plant species. Since the submittal of the DEIR, NEP has reduced impacts associated with gravel access, grading (cut/fill) and gravel work pads. *Table 8-1* describes the impacts associated with each rare species habitat. NEP continues to actively consult with NHESP.

Table 8-1: Proposed Impacts in NHESP Priority and Estimated Habitat, by Habitat Polygon and Municipality[8]

Habitat ID	Species	Town	Permanent Impacts	Permanent Alteration				Temporary Impacts
			Structure Foundations (SF)	Gravel Access (SF) assumes 12' wide	Gravel Work Pad (SF)	Cut/Fill (SF)	Tree Removal (SF)	Construction Matting
PH 2060 EH 1313	Invertebrate #1	Warwick	None – no work will occur in this mapped habitat	None – no work will occur in this mapped habitat	None – no work will occur in this mapped habitat	None – no work will occur in this mapped habitat	None – no work will occur in this mapped habitat	None – no work will occur in this mapped habitat
PH 2055 EH 1311	Amphibian #1	Royalston	79	0	3592	615	4809	8404
	Bird #1		0	0	0	0	2302	6778
	Reptile #1		158	1233	3592	2647	6272	40844
	Invertebrate #2		237	3027	3592	4831	8514	85417
PH 1956	Plant #1	Royalston	28	114	3472	510	2927	0
PH 1952	Plant #1	Royalston	56	4111	22373	7323	7943	68
PH 1890	Bird #2	Winchendon	955	77891	250111	134393	86998	99208
PH 1668, EH 1127	Bird #3	Fitchburg	56	2214	10973	5512	0	14790
PH 1566, EH 1077	Bird #3	Leominster	107	0	0	0	0	28750
PH 1954, EH 1254	Invertebrate #3	Athol	0	0	1541	10562	1872	0
PH 1560, EH 1071	Reptile #1	Leominster	84	0	7000	1778	0	48138
TOTAL Including Habitat Overlap			**1,760**	**88,590**	**306,246**	**168,171**	**121,637**	**332,397**
TOTAL Excluding Habitat Overlap			**1,523**	**7,338**	**299,065**	**164,911**	**108,257**	**276,374**

[8] Note that multiple species are present in Priority Habitat 2055, and some parts of this Priority Habitat are mapped for multiple species. Therefore, impacts can be calculated by species, or by Priority Habitat.

Based on current discussion, NEP believes the Project design can avoid a "Take" of the bird species by implementing TOY restrictions. For the reptile species, NHESP determined that two (2) distinct populations are likely to occur within the Project ROW (one (1) in Royalston and one (1) in Leominster), and that permanent impacts should be reduced to less than 10,000 SF in each population's location. Since filing the DEIR, NEP has reduced impacts within rare species habitat for reptiles to avoid a loss of habitat. The total permanent alteration associated with construction/improvement of gravel access and work pads has been reduced to 7,630 SF in Royalston and 8,862 SF in Leominster.

8.3 Proposed Avoidance and Minimization Measures

Section 5.5 of the DEIR comprehensively describes measures NEP has taken in the planning and design of the Project to avoid and minimize impacts to rare species habitat. These measures include reducing the area of permanent impact as far as practicable. NEP will remove stone access and work areas within rare plant habitat once construction is complete, resulting in only temporary impacts to this habitat area. NEP will perform contractor awareness and training prior to construction and will conduct on-site monitoring throughout the active season, in accordance with NEP's standard BMPs for work within rare reptile habitat. Based on discussion with NHESP and the proposed avoidance, minimization, and mitigation efforts, NEP anticipates the Project will not result in an adverse effect to habitats of rare species.

Additional species-specific avoidance and minimization measures which have been incorporated into the Project, in response to NHESP review, are shown on *Table 9-1* in *Section 9*, below. Further mitigation will be determined during the MESA permitting process.

9 Avoidance, Minimization, and Mitigation Measures

9.1 From the Secretary's Certificate on the DEIR

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

> *"The FEIR chapter should include an updated comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations."*

> *"The FEIR 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, EJ, etc.) and identify the Agency Action or Permit associated with each category of impact."*

9.2 Summary of Avoidance and Minimization Measures

NEP has incorporated an approach to the siting, design, and construction means and methods that avoids and minimizes impacts wherever practicable. NEP has also evaluated alternative construction methodologies designed to reduce impacts to environmentally sensitive areas. Specifically, NEP and their consultant team assessed the constructability of the Project to identify ways to minimize impacts from installation of access and construction work areas. Access and construction work areas have been designed such that permanent changes in substrate and grade are limited to only where required for safety.

Avoidance and minimization measures proposed for construction include appropriate BMPs such as erosion control barriers, use of construction mats, minimizing areas of disturbance, and restoration when necessary. NEP has established BMPs that will be followed by NEP employees and contractors for accessing sites and performing construction activities on transmission line ROWs. Impact avoidance and minimization measures that NEP will implement throughout construction are summarized in *Table 9-1*, below.

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

		Construction Activity						
Parameter	**Avoidance and Minimization Measures and BMPs**	**Vegetation Management**	**Sediment & Erosion Controls**	**Access Improvement**	**Structure Removal & Disposal**	**Structure Installation**	**Wire Replacement**	**ROW Restoration**
General	An 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 NEP BMPs and specifies the expectations and requirements that NEP will hold construction personnel responsible for compliance with. A copy of the EFI is kept on file at the NEP 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 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, NEP 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 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 trees and shrub vegetation with alternative ecologically valuable community types. Where tree removal occurs within NHESP Priority Habitat areas, guidelines from NHESP will be followed. NEP is a member of the Monarch Candidate Conservation Agreement with Assurances ("CCAA") and is currently undergoing a bio-audit to benchmark the habitat and ecosystem quality of the ROW. Further details of the ongoing bio-audit are available here: *https://bioaudit.acrt.com/national-grid/*.	X						X
	Where conditions are suitable, a portion of the wood generated during tree removal activities will 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 NHESP (in the case of rare species habitat), and by professional ecologists and wildlife biologists (BSC Group), for areas outside of designated rare species habitat.	X						X
	Within NEP fee-owned parcels, wood collected during tree removal shall be committed to reuse in long-lived wood products or will be donated to wood banks in MA. Outside of 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 breakdown of how all wood is distributed/disposed of by parties other than NEP.	X						
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. RA 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 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						

		Construction Activity						
Parameter	**Avoidance and Minimization Measures and BMPs**	**Vegetation Management**	**Sediment & Erosion Controls**	**Access Improvement**	**Structure Removal & Disposal**	**Structure Installation**	**Wire Replacement**	**ROW Restoration**
	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 designed to avoid conflicts.					X	X	
Vernal Pool	Except in areas where access is required, existing scrub-shrub vegetation within 25 feet of vernal pools will be maintained, consistent with ROW vegetation management requirements.	X						X
	If low-growth (scrub-shrub) vegetation must be cut adjacent to vernal pools, the cut vegetation ("slash") will be left in place to serve as recruitment for leaf litter and coarse woody debris.	X						X
	Soil erosion and sediment control BMPs will be installed and maintained along access within (or in close proximity to) vernal pools. Sediment built up behind these BMPs will periodically be removed and placed in upland areas, in a manner that will preclude the potential for subsequent deposition into the pools.		X	X	X	X	X	X
	To the extent that circuit outage and other construction timing constraints allow, NEP will attempt to schedule work within the vicinity of vernal pool habitats so as not to interfere with amphibian breeding and migration seasons.	X	X	X	X	X	X	X
	Construction activities that must occur in or near vernal pools will conform to the measures described in Section 9.8.2 of the DEIR to avoid or minimize the potential for the spread of invasive species to vernal pool habitat.	X	X	X	X	X	X	X
	For Project activities that must occur adjacent to vernal pools during amphibian migration periods, measures will be implemented on a site-specific basis as necessary to facilitate unencumbered amphibian access to and from vernal pools, e.g., placing wood chip ramps at intervals along sediment control fencing, leaving gaps in or staggering the installation of soil erosion and sediment controls, and aligning soil erosion and sediment controls to avoid bifurcating vernal pool habitat.	X	X	X	X	X	X	X
	Where existing on-ROW access adjacent to vernal pools must be improved, construction mats will be used if practicable; otherwise, clean materials will be used (e.g., clean riprap, gravel, stone, or equivalent and rock fords).			X	X	X	X	X
Water Supply Protection	Where dewatering is necessary during excavations for structures within or adjacent to Surface Water Supply Protection Zones ("SWPZs"), water will be pumped into appropriate dewatering basins.					X		
	Where drilling is necessary for the installation of caisson foundations, 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
	Design changes have been incorporated to minimize impacts within rare species habitat, particularly in terms of access and work area sizes and locations, and the use of temporary construction matting to protect particularly sensitive upland areas.	X		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 NEP 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	For all maintenance work that will be performed under the Operation and Maintenance Plan ("OMP") with NHESP (as described in Section 5.2 of the DEIR)[9], 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 one (1) month of maintenance-related work activities commencing in wetland habitat for state-listed species. Construction mats must be used for equipment access.	X	X	X	X	X	X	X

[9] As noted in the DEIR, Project related activities resulting in permanent alteration associated with the construction of work areas needed to safely install structures, and the improvement and widening of access routes to allow for safe passage of construction equipment and materials is not covered by the OMP and will therefore be submitted for review under MESA. Other project activities are consistent with the routine operation and maintenance of the utility line and are covered by the OMP. NEP has already submitted a MESA Checklist and has been in on-going consultation discussions with NHESP since May of 2022.

		Construction Activity						
Parameter	**Avoidance and Minimization Measures and BMPs**	**Vegetation Management**	**Sediment & Erosion Controls**	**Access Improvement**	**Structure Removal & Disposal**	**Structure Installation**	**Wire Replacement**	**ROW Restoration**
	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
	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 1st - October 31st). 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. NEP 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, 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 NEP's 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 seven (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-foot-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 invertebrates. 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 NEP's OMP, monofilament encased barriers/controls will not be used in state-listed amphibian habitat. Refer to NEP EG-303 details AA-22, AA-24, & AA-25 (refer to **Appendix E**). 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
BMPs for Rare Species	Exclusion fencing will be installed around work areas and staging areas in state-listed reptile habitat, when open excavation activities cannot be completed in one 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 ("CVPs") 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 feet of wetlands or waterways.	X	X	X	X	X	X	X

		Construction Activity						
Parameter	**Avoidance and Minimization Measures and BMPs**	**Vegetation Management**	**Sediment & Erosion Controls**	**Access Improvement**	**Structure Removal & Disposal**	**Structure Installation**	**Wire Replacement**	**ROW Restoration**
	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, NEP 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 condition. These areas will be allowed to progressively vegetate with typical regular management.							X
Specialized Construction and Restoration Measures for Rare Species	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 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
Invasive Species	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 (1) on top of another to loosen any sediment and debris. The matting will then be swept to remove loose soil and any plant material.	X	X	X	X	X	X	X
	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 NEP's Environmental Guidance ("EG") Document (EG-303) (refer to **Appendix E**).							X
	NEP 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 NEP 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
Historic Resources	Mitigation will be determined in consultation with MHC, Tribal Historic Preservation Officer ("THPOs"), DCR, any other consulting parties and ACHP, as appropriate. If determined to be necessary, archaeological surveys and data collection will occur prior to any construction activities. If required, appropriate protective measures will be taken when earth-disturbing construction activities occur in the vicinity of specified sites of interest.	X	X	X	X	X	X	X

		Construction Activity						
Parameter	**Avoidance and Minimization Measures and BMPs**	**Vegetation Management**	**Sediment & Erosion Controls**	**Access Improvement**	**Structure Removal & Disposal**	**Structure Installation**	**Wire Replacement**	**ROW Restoration**
Hazardous Waste	Work will be completed in accordance with EG-303, EG-501, EG-502, and EG-1707 (**Appendix E**) which describe NEP's procedures for managing hazardous waste and contaminated soils, and NEP'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 MassDEP, per reporting requirements, and the necessary precautions outlined in NEPs 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 feet away from sensitive environmental features, and Reasonable environmental precautions will be taken.	X	X	X	X	X	X	X
General Decarbonization Benefits	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	
Climate Change Adaptation & Resiliency	**Precipitation Resiliency**: Replacement steel structures and caisson foundations are more resilient to weather extremes than the existing structures. A 2019 review of the condition of the Existing Lines found physical issues on 221 out of 575 existing structures in MA. In light of these concerns, the Rebuilt Lines and Taps will be designed with additional capacity to meet known 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 BLSF and wetlands (described below) also facilitates precipitation resiliency.			X		X	X	
	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	Consult with MassDOT to review proposed plans for overhead crossings (including the use of guard structures) and to review plans to access the NEP ROW via state highways; develop a Transportation Management Plan ("TMP") to addresses impacts and MassDOT concerns to ensure a safe working environment and safe passage for highway traffic			X			X	
Air 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 USEPA-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. NEP requires the use of ultra-low sulfur diesel fuel in its diesel-powered construction equipment and limits idling time to five (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 Mitigation costs and responsible parties

As requested in the Secretary's Certificate on the DEIR, 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.

At this early stage in Project permitting, NEP 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. NEP will be responsible for funding and land acquisition (if required). NEP and their contractor will be mutually responsible for overseeing the implementation of all required mitigation measures. As applicable, wetlands replication would occur according to a schedule determined during state and local permitting. 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 9-2: Summary of Mitigation Measures Cost, Schedule and Parties Responsible

Resource Area	Mitigation Measures	Estimated Cost	Parties Responsible	Timeline	Agency Action/Permit
Land Disturbance and Stormwater	Erosion and sediment controls will be installed and maintained. The 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. 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 $5k Implementation: ~$375,000 per linear mile	SWPPP Preparation: NEP, BSC Group Implementation: Contractor(s)	Prior to construction/during construction.	EPA/SWPPP DEP/401 WQC ACOE/PCN Conservation Commissions/OOC
DCR	Mitigation measures will be further discussed during CAP permitting.	Cost determined based on further consultation with DCR.	NEP	Prior to construction	DCR/CAP
	NEP will coordinate with the DCR Staff Archaeologist and Ecologist prior to the commencement of work.	Cost determined based on further consultation with DCR	NEP	Prior to construction.	DCR/CAP
Tree Removal	NEP is committed to funding a comprehensive mitigation package that includes supporting the preservation of carbon rich lands acquired through Mass Audubon's 30x30 Catalyst Fund 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, Forest as Climate Solutions, and other Commonwealth initiatives. NEP is prepared to contribute up to $250,000 to support Project mitigation efforts.	Up to $250,000	NEP	During/following construction.	
	Within NEP fee-owned parcels, wood collected during tree removal shall be committed to reuse in long-lived wood products or will be donated to affordable housing projects or wood banks in MA. Outside of 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 breakdown of how all wood is distributed/disposed of by parties other than NEP.	N/A	NEP	During/following construction.	
Wetland and Waterways	Wetland protection and *in-situ* restoration, including sediment and erosion controls, mitigation for wetlands, waterbodies, vernal pools, invasive species controls, 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 RA will be allowed to return to scrub-shrub habitat or another non-forested habitat.	Approximately $200,000/mile.	NEP is responsible for the cost, and NEP Contractor(s) are responsible for installation and implementation.	Following construction	DEP/401 WQC USACE /PCN Conservation Commissions/OOC
	USACE In-Lieu Fee mitigation (for impacts to wetlands/ WOTUS will be provided at the appropriate percentage of the standard ratio dependent upon the impact category.	Cost per square foot of impact as determined based on mitigation ratios and watershed area.	NEP Implementation: Contractor(s)	During/following construction.	USACE/404 PCN
	Ex-situ Replication/Compensatory Mitigation as determined in state and local permitting.	Approximately $10/square foot.	NEP is responsible for the cost, and NEP Contractor(s) are responsible for installation and implementation.	During and following construction.	DEP/401 WQC Conservation Commissions/OOC
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 $50/linear foot.	NEP is responsible for the cost, and NEP Contractor(s) are responsible for installation and implementation.	During construction.	DEP / 401 WQC ACOE / PCN MESA Checklist/CMP Conservation Commissions / OOC
Traffic Emissions and Transportation	Develop and implement a TMP to address impacts and MassDOT concerns to ensure a safe working environment and safe passage for highway traffic	Approximately $4K/ road crossing	NEP Implementation: Contractor(s)	Prior to and implementation.	MassDOT/TMP
Rare Species	As required by NHESP. Consultation is ongoing, and mitigation will be determined during MESA permitting.	Approximately $10k	NEP	During/following construction	NHESP
Historical Resources	Mitigation will be determined in consultation with ACOE, MHC, THPOs, DCR, any other consulting parties and Advisory Council on Historic Preservation ("ACHP"), as appropriate. If determined to be necessary, data collection activities will occur prior to any construction activities. If the site is to be protected in place, appropriate protective measures will be taken when earth-disturbing construction activities occur in the vicinity.	TBD. Cost determined based on further consultations.	NEP, SWCA Implementation: Contractor(s)	Prior, during, and following construction.	MHC/SWCA • THPOs/SWCA • USACE/SWCA
Climate Change Adaptation and Resiliency	**Precipitation Resiliency:** ▪ Replacement steel structures and caisson foundations are more resilient to weather extremes than the existing structures.		NEP/ BSC Group	Prior, during, and following construction.	

	▪ 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.				
	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	NEP	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 Section 61 Findings

10.1 From the Secretary's Certificate on the DEIR

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

"Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project."

While NEP will continue to consult with certain agencies concerning mitigation, this FEIR contains the most up-to-date information on the Project's mitigation measures, including those to which NEP has committed to and those under discussions 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 MassDEP

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Actions: Massachusetts Department of Environmental Protection Section 401 Water Quality Certification

Intent of These Section 61 Findings: Massachusetts Environmental Protection Act ("MEPA") regulations *301 CMR 11.12(5)* stipulate that in "accordance with *M.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 practicable measures have been taken to avoid or minimize the damage to the environment." 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 *M.G.L. c. 30, §61*. These Findings are limited to the subject matter jurisdiction of the Section 401 Water Quality Certification sought from the Massachusetts Department of Environmental Protection.

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structures replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management. New construction is proposed for this Project.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of within-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet the NERC safety standards for a 115 kV Transmission Line.*[10]

[10] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree removals are required for access.*
- *Construction/re-establishment of approximately 33 miles of access routes (30 miles within-ROW, and three (3) miles off-ROW).*
- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures*[11]*.*
- *Reconductoring of both the A1 and B2 circuits with 795 Aluminum-conductor steel-supported conductor ("ACSS"), and installation of two Optical Ground Wires ("OPGW"). The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

This Project requires an Individual Section 401 Water Quality Certification, primarily due to the discharge of fill material in Waters of the United States within the Commonwealth which require a permit from the United States Army Corps of Engineers ("USACE"). The Project also requires a Variance per the provisions of 314 CMR 9.08 due to temporary fill to facilitate access to two structures located within wetlands that are located within the 400 feet of the Ordinary High-Water Mark ("OHWM") of Class A Public Water Supply along two sections of the A1/B2 Line (refer to *Section 12.3.1* of the DEIR for further information). NEP will file a Water Quality Certificate ("WQC") application with MassDEP for review under *314 CMR 9.00*. MassDEP evaluation criteria for applications are the incorporation of appropriate and practicable measures for avoiding and minimizing impacts to wetland resource areas. NEP additionally will apply for a Variance under *314 CMR 9.08.* The Project's design avoids, minimizes, and mitigates adverse impacts, as described in *Section 10* of the DEIR, and summarized at the end of each Section 61 Draft Findings.

MEPA History: Pursuant to *M.G.L. c. 30 §61- §62A-I*, of the Massachusetts Environmental Policy Act ("MEPA") and its implementing regulations at *301 CMR 11.00*, the Proponent ("NEP") has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for Environmental Justice ("EJ") Populations as the Project is located within a Designated Geographic Area around an EJ Populations (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Division of Fisheries & Wildlife Natural Heritage and Endangered Species Program, Department of Conservation and Recreation, Energy Facilities Siting Board, Department of Public Utilities, and

[11] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

Massachusetts Department of Transportation.

Project Impacts: Impacts relative to the Section 401 WQC include the permanent fill of approximately 2,302 SF of wetlands and 79 SF of Land Under Waterbodies and Waterways ("LUWW") due to structure foundations, and approximately 38 acres (1,645,153 SF) of wetlands temporarily altered by construction mats.

Project Mitigation: Mitigation was considered as a matter of course during the planning and design process as an overall approach to avoiding impacts whenever possible. In terms of mitigation during construction, NEP has established BMPs that are to be followed by NEP 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 NEP policies and compliance objectives. NEP completed field investigations and a constructability review along the 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. Accordingly, commitments listed in *Table 10-1* below are to be carried out by NEP, 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
Waters of the U.S. within the Commonwealth - Wetlands	Temporary alterations during construction and Permanent fill for structure foundations.	In-situ restoration for construction matting. Restoration of impacted wetlands through seeding and plantings, as necessary. Compensatory Mitigation for wetlands permanently impacted by fill. Implementation of a SWPPP. Stormwater BMPs to mitigate discharge to receiving waters. Additionally, NEP will submit an NOI and prepare a SWPPP for the Project in compliance with the CGP under the EPA's NPDES.	Contractor / Construction / NEP Post-construction monitoring of wetland restorations and replications will be provided.
Waters of the U.S. within the Commonwealth - Waterways	Temporary alteration for access, work areas, and pull pads; Permanent impacts from one concrete caissons; Potential impacts to non-tidal waterways from overhead wires.	Use construction mats to minimize compression of soils, rutting, and disturbance of vegetation. Overhead crossings designed to avoid conflicts and allow for unimpeded access by foreseeable watercraft.	Contractor / Construction NEP / Planning

Wetland Resource Area	Impact	Mitigation Measures*	Responsible Party / Implementation

*Final Plans TBD with State and Local Regulatory Agencies

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_____

Proposed Section 61 Findings for Natural Heritage and Endangered Species

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Actions: Conservation and Management Permit from the Natural Heritage and Endangered Species Program ("NHESP") of the Massachusetts Division of Fisheries and Wildlife ("DFW") under *321 CMR 10.23*.

Intent of These Section 61 Findings: MEPA regulations *301 CMR 11.12(5)* stipulate that in "accordance with *M.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 practicable measures have been taken to avoid or minimize the damage to the environment." 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 *M.G.L. c. 30, §61*. These Findings are limited to the subject matter jurisdiction of the Conservation and Management Permit sought from the NHESP of the DFW under *321 CMR 10.23*. However, consultations suggest that a potential "Take" might be avoided altogether through the implementation of avoidance and minimization measures, in which case the issuance of Section 61 findings by NHESP will not be necessary.

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structure replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management. New construction is proposed for this Project.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of on-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (Mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet*

the NERC safety standards for a 115 kV Transmission Line[12].

- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree removals are required for access.*
- *Construction/re-establishment of approximately 33 miles of access routes (30 miles on-ROW, and three (3) miles off-ROW).*
- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures[13].*
- *Reconductoring of both the A1 and B2 circuits with 795 ACSS, and installation of two OPGW. The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

The Project includes installation of structures and access improvements, tree removals, and the use of temporary construction matting within wetlands, within NHESP Priority/Estimated Habitats for nine rare species. These include one plant, three invertebrates, one amphibian, one reptile, and three bird species.

MEPA History: Pursuant to *M.G.L. c. 30 §61- §62A-I*, of the MEPA and its implementing regulations at *301 CMR 11.00*, the NEP has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for EJ Populations as the Project is located within a Designated Geographic Area around an EJ Population (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Department of Environmental Protection, Department of Conservation and Recreation, Energy Facilities Siting Board, Department of Public Utilities, and Massachusetts Department of Transportation.

Project Impacts: Specifically, Project activities within NHESP Priority/Estimated habitats will result in approximately 2.7 acres of permanent conversion of vegetation from one cover type to another (tree removal), approximately 10.8 acres of permanent alteration due to graded stone access and

[12] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

[13] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

work areas, and approximately 6.46 acres of temporary alteration associated with construction matting within wetlands and waterways.

Consultations suggest that a potential "Take" might be avoided altogether. Further mitigation plans will be discussed through MESA permitting process.

Project Mitigation: Mitigation was considered as a matter of course during the planning and design process as an overall approach to avoiding impacts whenever possible. In terms of mitigation during construction, NEP has established procedures that are to be followed by all NEP employees and its contractors for accessing sites and performing construction activities on transmission ROWs. These procedures ensure that this Project will be completed in accordance with applicable environmental laws and regulations as well as with NEP policies and compliance objectives. NEP completed field investigations and a constructability review along the Project route to determine access routes, clearing techniques, 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 sensitive resources to the greatest extent practicable.

NEP is working closely with NHESP to develop mitigation measures for each species, and consultation is ongoing. The Project will implement the necessary actions to avoid, minimize, and mitigate Project-related impacts to comply with the MESA permit issued for the Project.
At this time, proposed mitigation includes, but is not limited to, the following:

- *Specialized construction measures and commitments to avoid impacts in specific locations. These are tailored to the species of concern in each location and are outlined in Section 5 of the DEIR.*
- *In-situ habitat restoration of temporarily disturbed areas.*
- *Construction windows/Time-of-year restrictions (specific to the species of concern).*
- *Extensive "sweeps" and monitoring during construction (where applicable).*
- *Training on species biology, identification, and mitigation requirements for construction personnel working within rare species habitat areas.*

A detailed mitigation plan will be prepared in conjunction with NHESP during the MESA Review, which is currently (as of August 15, 2023) in progress. Initial consultation with NHESP began in May 2022, prior to the filing of the EENF in October 2022. Consultation has been ongoing throughout the Project permitting process.

Findings: After the draft findings herein have been reviewed by Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, and revised by the Proponent, as appropriate, the Natural Heritage and Endangered Species Program 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 NHESP authority.

NATURAL HERITAGE AND ENDANGERED SPECIES PROGRAM

MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE

BY_____ DATE_____

Proposed Section 61 Findings for MassDOT

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Action: Massachusetts Department of Transportation Permit to Access State Highway

Intent of These Section 61 Findings: MEPA regulations *301 CMR 11.12(5)* stipulate that in "accordance with *M.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 practicable 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 *M.G.L. c. 30, §61*. These Findings are limited to the subject matter jurisdiction of the State Highway Access Permit sought from the Massachusetts Department of Transportation ("MassDOT").

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structure replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management. New construction is proposed for this Project.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of within-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (Mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet the NERC safety standards for a 115 kV Transmission Line[14].*
- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree removals are required for access.*

[14] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

- *Construction/re-establishment of approximately 33 miles of access routes (30 miles within-ROW, and three (3) miles off-ROW).*
- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures*[15]*.*
- *Reconductoring of both the A1 and B2 circuits with 795 ACSS, and installation of two OPGW. The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

The Project includes installation of structures and access routes within the highway layout, as well as temporary access to pull conductor across the highway subject to *700 CMR 13.00*.

MEPA History: Pursuant to *M.G.L. c. 30 §61- §62A-I*, of the Massachusetts Environmental Policy Act ("MEPA") and its implementing regulations at *301 CMR 11.00*, the NEP has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for EJ Populations as the Project is located within a Designated Geographic Area around an EJ Population (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Department of Environmental Protection, Massachusetts Division of Fisheries & Wildlife Natural Heritage and Endangered Species Program, Department of Conservation and Recreation, Energy Facilities Siting Board and Department of Public Utilities.

Project Impacts: Project impacts relevant to MassDOT are associated with the replacement of overhead wires across state highways by a non-municipal utility. In addition, a new access route is proposed from the highway to the A1/B2 ROW, as well as the installation of several structures within the highway layout. Guard structures will be used to ensure the safe removal and replacement of the overhead wires. Guard structures will be situated within the NEP ROW at state roadway crossings (specific locations currently under review). Activities at state roadway crossings could temporarily affect traffic flow, but no permanent physical modifications to the roadway are proposed. Access to the NEP ROW from state highways will occur via existing approved access points.

Project Mitigation: Mitigation was considered as a matter of course during the planning and design

[15] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

process as an overall approach to avoiding impacts whenever possible. In terms of mitigation during construction, NEP has established procedures that are to be followed by NEP employees and its contractors for accessing sites and performing construction activities on NEP transmission ROWs. These procedures ensure that this Project will be completed in accordance with applicable environmental laws and regulations as well as with NEP policies and compliance objectives. NEP completed field investigations and conducted a constructability review along the Project route to determine access routes, clearing techniques, 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.

Traffic Management Plan ("TMP") has been submitted for District 2 (on 1/24/2024) and District 3 (on 3/13/2024) for review and approval prior to the start of construction. NEP has received permit approval for District 2 (on 3/7/2024) Enforceable commitments in the TMP will be carried out by NEP to ensure that proposed traffic mitigation strategies will be implemented as the Project proceeds. Such strategies may include, as appropriate, traffic management procedures; construction time restrictions; signage; installation of track pads to minimize soil in roadways; and/or restoration of vegetation along soft shoulders after construction. Work will occur in accordance with NEP Policy for ROW Access, Maintenance and Construction Best Management Practices.

Findings: After the draft findings herein have been reviewed by Massachusetts Department of Transportation, and revised by the Proponent, as appropriate, the Massachusetts Department of Transportation will make a finding that the foregoing information adequately describes the traffic 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 Massachusetts Department of Transportation's authority. Appropriate conditions consistent with this Section 61 Finding are included in the State Permit to Access State Highway issued by Massachusetts Department of Transportation to describe more fully and ensure implementation of said measures.

DEPARTMENT OF TRANSPORTATION

BY_____ DATE_____

Proposed Section 61 Findings for Department of Conservation and Recreation ("DCR")

TO BE UPDATED BY LEGAL

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Action: Department of Conservation and Recreation Construction Access Permits

Intent of These Section 61 Findings: MEPA regulations *301 CMR 11.12(5)* stipulate that in "accordance with *M.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 practicable 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 *M.G.L. c. 30, §61*. These Findings are limited to the subject matter jurisdiction of the CAP sought from the Massachusetts DCR.

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structure replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management. New construction is proposed for this Project.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of within-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (Mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet the NERC safety standards for a 115 kV Transmission Line*[16].

[16] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree removals are required for access.*
- *Construction/re-establishment of approximately 33 miles of access routes (30 miles within-ROW, and three (3) miles off-ROW).*
- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures*[17]*.*
- *Reconductoring of both the A1 and B2 circuits with 795 ACSS, and installation of two OPGW. The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

The Project includes on and off-ROW tree removal and on-ROW construction access within DCR properties of the Commonwealth under the care, custody, and control of the DCR under 302 CMR 11.00.

MEPA History: Pursuant to M.G.L. c. 30 §61- §62A-I, of the MEPA and its implementing regulations at *301 CMR 11.00*, the NEP has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for EJ Populations as the Project is located within a Designated Geographic Area around an EJ Population (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Department of Environmental Protection, Massachusetts Division of Fisheries & Wildlife Natural Heritage and Endangered Species Program, Department of Conservation and Recreation, Energy Facilities Siting Board, Department of Public Utilities, and Massachusetts Department of Transportation.

Project Impacts: Impacts relevant to the DCR CAP include approximately 0.5 acres of off-ROW permanent conversion of vegetation from one cover type to another (tree removals within DCR Land), approximately 0.5 acres of construction matting, approximately 0.19 acres of temporary road and 0.5 acres of temporary grading to be restored. No permanent impacts due to structure, access or grading is proposed in DCR properties off ROW.

[17] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

Project Mitigation: Mitigation was considered as a matter of course during the planning and design process as an overall approach to avoiding impacts whenever possible. In terms of mitigation during construction, NEP has established procedures that are to be followed by NEP employees and its contractors for accessing sites and performing construction activities on NEP transmission ROWs. These procedures ensure that this Project will be completed in accordance with applicable environmental laws and regulations as well as with NEP policies and compliance objectives. NEP completed field investigations and conducted a constructability review along the Project route to determine access routes, clearing techniques, 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.
At this time, proposed mitigation may include, but is not limited to, the following:

- *NEP is committed to funding a comprehensive mitigation package for carbon-based initiatives, that includes supporting the preservation of carbon rich lands acquired through Mass Audubon's 30x30 Catalyst Fund 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.*
- *Access along off ROW routes will be temporary and conducted according to the CAP terms and conditions.*
- *Work will be performed in accordance with applicable statutes, regulations, codes, or standards.*
- *NEP will coordinate with the DCR Staff Archaeologist and Ecologist prior to the commencement of work.*
- *Appropriate mitigation will be provided for activities which result in disruption to DCR properties.*

Coordination with DCR is ongoing.

Findings: After the draft findings herein have been reviewed by DCR, and revised by the Proponent, as appropriate, DCR 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 DCR authority.

DEPARTMENT OF CONSERVATION AND RECREATION

BY_____ DATE_____

Proposed Section 61 Findings for the Executive Office of Energy and Environmental Affairs Environmental Justice

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Action: Executive Office of Energy and Environmental Affairs ("EOEEA") - Environmental Justice ("EJ")

Intent of These Section 61 Findings: MEPA regulations *301 CMR 11.12(5)* stipulate that in "accordance with *M.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 practicable 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 *M.G.L. c. 30, §61*. These Findings are limited to the subject matter jurisdiction of the MEPA Interim Protocol for Analysis of EJ Impacts, which implements requirements related to the content of Environmental Impact Reports ("EIRs") as set forth in Section 58 of the Act.

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structure replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of within-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (Mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet the NERC safety standards for a 115 kV Transmission Line*[18].

[18] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree removals are required for access.*
- *Construction/re-establishment of approximately 33 miles of access routes (30 miles within-ROW, and 3 miles off-ROW).*
- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures[19].*
- *Reconductoring of both the A1 and B2 circuits with 795 ACSS, and installation of two OPGW. The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

MEPA History: Pursuant to *M.G.L. c. 30 §61- §62A-I*, of the MEPA and its implementing regulations at *301 CMR 11.00*, the Proponent ("NEP") has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for EJ Populations as the Project is located within a Designated Geographic Area around an EJ Population (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Department of Environmental Protection, Massachusetts Division of Fisheries & Wildlife Natural Heritage and Endangered Species Program, Department of Conservation and Recreation, Energy Facilities Siting Board, Department of Public Utilities, and Massachusetts Department of Transportation.

Project Impacts: Impacts relevant to the EOEEA EJ Populations include approximately 19 acres of tree removal within the EJ Populations, 8.6 acres of temporary alteration associated with construction matting, and 5.7 acres of permanent fill/loss associated with establishment of access routes, work areas and pull pads, and structure installation. Overall, just 3.2% of the Project ROW and impacts will occur within EJ Communities. As such, NEP anticipates that the Project will not have unfair or inequitable impacts on the EJ Populations within the designated geographic area.

Project Mitigation: The Project will occur within the existing ROW, thereby minimizing adverse environmental impacts, outage constraints in the region, and NEP's efforts to reduce impacts to the natural and human environment, Project activities will be sequenced in both the mainline and tap lines. No long-term impacts on soil, bedrock, vegetation, surface water, groundwater, wetland

[19] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

resources or air quality will occur. Any potential sedimentation impacts, and other short-term construction impacts to wetlands and surface waters, will be mitigated using soil erosion and sediment control best management practices ("BMPs") and temporary construction mats to protect wetland soils, vegetation root stock, and streams. As part of the Project, an environmental monitor will be part of the Project team to ensure compliance with regulatory programs and permit conditions, and to oversee the proper installation and maintenance of the soil erosion and sediment control BMPs. At this time, proposed mitigation includes, but is not limited to, the following:

Air Quality: Construction-period activities, such as grading, vehicle travel, and other earth-disturbing work may result in a temporary increase in airborne dust. Impacts to air quality will be minimized by managing the control of dust movement with practices such as spreading wood mulch or straw and using water trucks to spray dried soil to keep it moist. The potential for dust generation is only anticipated during the construction period. Post construction, soil will be stabilized and re-vegetated.

In addition, diesel-powered equipment is required to use ultra-low sulfur diesel fuel. Any diesel-powered non-road construction equipment rated 50-horsepower or more that will be used on the Project for 30 days or more will be required to install emission control BMPs. The impacts from these emissions will be minimal and are not anticipated to cause impacts to public health. Additionally, idling times are limited 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 and be in compliance with the Massachusetts Anti-idling Law, M.G.L. c. 90 § 16A, c. 111 §§ 142A – 142M, and 310 CMR 7.11.

Water Quality: The project will incorporate protective and preventative measures to minimize and avoid impacts to water quality. The ROWs cross many wetland areas, streams, and rivers. To protect water quality and these sensitive areas, temporary access will be constructed using construction mats. Construction mats are comprised of wooden beams, bolted together, and are typically 4 feet wide by 16 feet long. They are laid temporarily on top of the ground and vegetation. These mats allow heavy machines and vehicles to cross sensitive areas without damaging the soil or roots of vegetation and are also placed in a manner that do not affect the flow of water in streams. These mats will be removed when construction is completed, and the wetlands will be restored. In addition, BMPs, such as the use of straw wattles, compost socks, stormwater management features, and other control measures will be used to prevent soil and other material from being transported into wetlands and streams. Using these BMPs, any impacts to water quality will be negligible and temporary and are not anticipated to cause impacts to public health.

Land Protection and Open Space: Access to Protected Land and Open Space within EJ Populations will not be impacted.

Noise: Noise impacts associated with construction-period activities are temporary in nature and expected to be minimal. Where construction will occur adjacent to residences, NEP will notify landowners prior to the commencement of work. Noise-generating activities will be conducted in accordance with any local and state requirements and are not anticipated to cause impacts to public health.

Traffic: Impacts to traffic during the construction of the Project will be minor and intermittent. The

work areas will be accessed primarily from NEP-owned access routes or minor town roadways. NEP will obtain the necessary permits from Massachusetts Department of Transportation for access. Once on-site, vehicle traffic will be limited to within or in proximity to the ROW. Since the ROW is an un-manned facility, there will be no permanent impacts to traffic patterns or use of existing roadways and no impacts to public health are anticipated from traffic.

Findings: After the draft findings herein have been reviewed by the EOEEA - EJ Program, and revised by the Proponent, as appropriate, the EOEEA - EJ Program will make a finding that the foregoing information adequately describes the environmental impacts to the EJ Populations associated with the proposed Project, and that with the implementation of the mitigation measures described above, feasible means will have been taken to avoid or minimize adverse environmental impacts subject to EOEEA's EJ authority.

DEPARTMENT OF EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS

BY_____ DATE_____

Proposed Section 61 Findings for Climate Protocol

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Action: Executive Office of Energy and Environmental Affairs ("EOEEA") – Climate Change

Intent of These Section 61 Findings: MEPA regulations 301 CMR 11.12(5) stipulate that in "accordance with M.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 practicable 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 M.G.L. c. 30, §61. These Findings are limited to the subject matter jurisdiction of the MEPA Interim Protocol on Climate Change Adaptation and Resiliency ("Interim Protocol") which complies with Executive Order 569.

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structure replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management. New construction is proposed for this Project.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of within-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (Mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet the NERC safety standards for a 115 kV Transmission Line[20].*
- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree*

[20] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

removals are required for access.

- *Construction/re-establishment of approximately 33 miles of access routes (30 miles within-ROW, and three (3) miles off-ROW).*
- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures[21].*
- *Reconductoring of both the A1 and B2 circuits with 795 ACSS, and installation of two OPGW. The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

MEPA History: Pursuant to M.G.L. c. 30 §61- §62A-I, of the Massachusetts Environmental Policy Act ("MEPA") and its implementing regulations at 301 CMR 11.00, the NEP has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for EJ Populations as the Project is located within a Designated Geographic Area around an EJ Population (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Department of Environmental Protection, Massachusetts Division of Fisheries & Wildlife Natural Heritage and Endangered Species Program, Department of Conservation and Recreation, Energy Facilities Siting Board, Department of Public Utilities, and Massachusetts Department of Transportation.

Project Impacts: NEP hired Regenerative Design Group ("RDG") to develop an estimate for the carbon impact (removals and losses) from Land Alteration. The analysis found that the Project would result in a one-time loss of 11,199 mt of carbon from the removal of trees and the short-term effects of that removal on soil and forest floor carbon. Over the next thirty years the area is expected to recover through sequestration 1,338 mt of carbon resulting in an estimated net loss of 9,861 mt of carbon. Additionally, the removal of trees and maintenance of much of the area as shrubland results in a loss in sequestration potential over thirty years of 2,302 mt of carbon. Within the combined 131-acre footprint where tree removals are proposed, we estimate that up to 12,164 mt of carbon would be released or not sequestered over the next 30 years. Building upon the estimation of Green House Gas ("GHG") emissions from land alteration, SWCA Environmental Consultants ("SWCA") estimated the overall change in GHG emissions associated with the project and found that the Project will result in a net reduction in CO2e emissions of 117,424 metric tons.

[21] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

Project Mitigation: NEP is funding a comprehensive mitigation package as mitigation for tree removal and wood donation program to address MEPA's concerns around the Project's corridor's capacity to sequester and store carbon. NEP is committed to funding a comprehensive mitigation package that includes supporting the preservation of carbon rich lands acquired through Mass Audubon's 30x30 Catalyst Fund 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, Forest as Climate Solutions, and other Commonwealth initiatives. NEP is prepared to contribute up to $250,000 to support Project mitigation efforts.

NEP has taken steps to promote climate change adaptation and resiliency in the design of the Project and continues to consider climate change and long-term infrastructure resiliency an important goal in its long-term infrastructure planning. 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. In addition, NEP's preferred solution uses substantial portions of the existing ROW, thereby minimizing alteration of new land resources to construct the Project. The purpose of the Project is to address existing asset conditions along the A1/B2 Lines that pose a threat to electrical reliability. Furthermore, NEP is also working with landowners, its contractors, local organizations, and the state to ensure that marketable timber and biomass suitable for use as firewood is utilized. These actions reduce the level of GHG emission that will actually occur when the forest is disturbed.

Findings: After the draft findings herein have been reviewed by the EOEEA - Climate Change Program, and revised by the Proponent, as appropriate, the EOEEA - Climate Change Program will make a finding that the foregoing information adequately describes the environmental impacts to the climate associated with the proposed Project, and that with the implementation of the mitigation measures described above, feasible means will have been taken to avoid or minimize adverse climate impacts subject to the MEPA Interim Protocol on Climate Change Adaptation and Resiliency.

DEPARTMENT OF EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS

BY_____ DATE_____

Proposed Section 61 Findings for the Energy Facilities Siting Board

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Action: Massachusetts Energy Facilities Siting Board ("EFSB")

Intent of These Section 61 Findings: MEPA regulations *301 CMR 11.12(5)* stipulate that in "accordance with *M.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 practicable 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 *M.G.L. c. 30, §61*. These Findings are limited to the subject matter jurisdiction of the EFSB.

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structure replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of within-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (Mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet the NERC safety standards for a 115 kV Transmission Line*[22].
- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree removals are required for access.*
- *Construction/re-establishment of approximately 33 miles of access routes (30 miles within-*

[22] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

ROW, and three (3) miles off-ROW).

- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures[23].*
- *Reconductoring of both the A1 and B2 circuits with 795 Aluminum-conductor steel-supported conductor ("ACSS"), and installation of two OPGW. The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

The Project includes installation of structures and access routes within the highway layout, as well as temporary access to pull conductor across the highway subject to *700 CMR 13.00*.

MEPA History: Pursuant to *M.G.L. c. 30 §61- §62A-I*, of the Massachusetts Environmental Policy Act ("MEPA") and its implementing regulations at *301 CMR 11.00*, the Proponent ("NEP") has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for EJ Populations as the Project is located within a Designated Geographic Area around an EJ Population (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Department of Environmental Protection, Massachusetts Division of Fisheries & Wildlife Natural Heritage and Endangered Species Program, Department of Conservation and Recreation, Department of Public Utilities, and Massachusetts Department of Transportation.

Project Impacts: The EFSB evaluated the Project to determine public necessity and environmental impacts. Project impacts relevant to EFSB include natural resources impacts such as permanent and temporary impact associated with structure replacements, access improvements, and construction matting, and social impacts such as EJ considerations, traffic impacts, and historic or archaeological impact. A full description of Project impact analysis was provided in the EFSB filing to the Massachusetts EFSB (Docket No. EFSB 23-45).

Project Mitigation: NEP considered avoidance and minimization as a matter of course during the planning and design process, with an overall approach of avoiding impacts whenever possible. Avoidance, minimization and mitigation was provided in the EFSB filing to the Massachusetts EFSB (Docket No. EFSB 23-45).

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[23] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

Findings: Providing significant consideration to the unique scope of the Project and the significant length, cost, and reliability concerns, NEP conducted a route analysis in the EFSB filing. Route evaluation relied heavily on NEP's responsibility to ensure that no clearly superior route was overlooked. As a result of the in-depth screening process, no candidate routes were found to meet the route evaluation criteria and/or provide benefits comparable to rebuilding the Existing Lines and Tap Lines within their existing ROWs, the Project Route. NEP concluded that, consistent with the Siting Board's statutory mandate, the construction of the Project along the Project Route properly minimizes environmental impacts and achieves an appropriate balance among conflicting environmental concerns, as well as among environmental impacts, cost, and reliability.

ENERGY FACILITIES SITING BOARD

BY_____ DATE_____

Proposed Section 61 Findings for the Department of Public Utilities

DRAFT FINDINGS PURSUANT TO G.L. CHAPTER 30, SECTION 61

Project Name: A1/B2 Transmission Lines Asset Condition Refurbishment ("ACR") Project

Project Location: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

Project Proponent: New England Power Company ("NEP")

EEA Number: 16607

Agency Action: Massachusetts Department of Public Utilities ("DPU")

Intent of These Section 61 Findings: MEPA regulations *301 CMR 11.12(5)* stipulate that in "accordance with *M.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 practicable 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 *M.G.L. c. 30, §61*. These Findings are limited to the subject matter jurisdiction of the Department of Public Utilities.

Project Description: The Project includes complete refurbishment of 54 miles of 69 kV Transmission Line assets, including structure replacements and installations, access improvements or re-establishment and construction of new access, and vegetation management. New construction is proposed for this Project.

Comprehensive inspections have identified structures and wires in need of replacement due to asset condition and aging infrastructure, and lack of safe access for maintenance and emergency needs. From a safety and reliability perspective, and in order to extend asset life, the following activities are proposed:

- *ROW vegetation management and tree removals: approximately 100 acres of within-ROW tree removals are required to obtain the optimal cleared ROW widths of 100 feet (Mainline and Crystal Tap Line), and 125 feet (Athol Tap Line). These clearance widths are necessary to meet the NERC safety standards for a 115 kV Transmission Line[24].*
- *Tree removals to accommodate construction access: approximately 31 acres of off-ROW tree removals are required for access.*
- *Construction/re-establishment of approximately 33 miles of access routes (30 miles within-*

[24] Upgrading the A1/B2 Line to 115 kV is required to improve system capacity, and future-proof the system for anticipated increases in demand and new renewable energy interconnections.

ROW, and three (3) miles off-ROW).

- *Replacement/installation of 561 direct embed structures, and 158 concrete caisson supported structures[25].*
- *Reconductoring of both the A1 and B2 circuits with 795 ACSS, and installation of two OPGW. The new ACSS will be capable of being operated at 115 kV capacity, compared to the existing 69 kV capacity lines.*
- *Relocation of approximately 5.2 miles of centerline, approximately 41.5 feet north towards the I135S/J136S Transmission Lines within an existing ROW, in Leominster.*

The Project includes installation of structures and access routes within the highway layout, as well as temporary access to pull conductor across the highway subject to *700 CMR 13.00*.

MEPA History: Pursuant to *M.G.L. c. 30 §61- §62A-I*, of the Massachusetts Environmental Policy Act ("MEPA") and its implementing regulations at *301 CMR 11.00*, the Proponent ("NEP") has prepared and submitted this FEIR 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:

- *ENF and an EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be alteration of one or more acres of bordering vegetated wetlands (301 CMR 11.03(3)(a)(1)(a)).*
- *EIR for Land because there is expected to alter 50 or more acres of land (301 CMR 11.03(1)(1)).*
- *EIR for Wetlands, Waterways and Tidelands because a permit is required, and there is expected to be an alteration of ten or more acres of other wetlands (301 CMR 11.03(3)(a)(1)(b).*
- *EIR for EJ Populations as the Project is located within a Designated Geographic Area around an EJ Population (301 CMR 11.06(7)(b).*

Additionally, the proposed Project requires state permits from the Massachusetts Department of Environmental Protection, Massachusetts Division of Fisheries & Wildlife Natural Heritage and Endangered Species Program, Department of Conservation and Recreation, Energy Facilities Siting Board, and Massachusetts Department of Transportation.

Project Impacts: The EFSB evaluated the Project to determine public necessity and environmental impacts. Project impacts relevant to EFSB include natural resources impacts such as permanent and temporary impact associated with structure replacements, access improvements, and construction matting, and social impacts such as EJ considerations, traffic impacts, and historic or archaeological impact. A full description of Project impact analysis was provided in the EFSB filing to the Massachusetts EFSB (Docket No. EFSB 23-45).

Project Mitigation: NEP considered avoidance and minimization as a matter of course during the planning and design process, with an overall approach of avoiding impacts whenever possible. Avoidance, minimization and mitigation was provided in the EFSB filing to the Massachusetts EFSB (Docket No. EFSB 23-45).

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[25] On December 7, 2023, further clarification regarding structure numbers was sent to MEPA via email.

Findings: Providing significant consideration to the unique scope of the Project and the significant length, cost, and reliability concerns, NEP conducted a route analysis in the EFSB filing. Route evaluation relied heavily on NEP's responsibility to ensure that no clearly superior route was overlooked. As a result of the in-depth screening process, no candidate routes were found to meet the route evaluation criteria and/or provide benefits comparable to rebuilding the Existing Lines and Tap Lines within their existing ROWs, the Project Route. NEP concluded that, consistent with the Siting Board's statutory mandate, the construction of the Project along the Project Route properly minimizes environmental impacts and achieves an appropriate balance among conflicting environmental concerns, as well as among environmental impacts, cost, and reliability. NEP filed a petition with the DPU requesting a determination that the Project is necessary and will serve the public convenience and be consistent with the public interest in accordance with G.L. c. 164, § 72 ("Section 72 Petition").

DEPARTMENT OF PUBLIC UTILITIES

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 DEIR, 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 G**: Secretary's Certificate and Comment Letters (Annotated). *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 DEIR or FEIR where additional information can be found.

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

Commenter	Annotated Abbreviation
Certificate of the Secretary of Energy and Environmental Affairs on the Draft Environmental Impact Report ("DEIR"), EEA #16607	CS
Massachusetts Department of Environmental Protection ("MassDEP") Waterways Program	DEP Waterways
Mass Audubon	Mass Audubon
Massachusetts Division of Fisheries and Wildlife ("DFW") Natural Heritage and Endangered Species Program ("NHESP")	DFW
Massachusetts Department of Transportation ("MassDOT")	DOT
Massachusetts Department of Conservation and Recreation ("DCR")	DCR
MassDEP, Western & Central Regional Office ("WERO & CERO"); Massachusetts Department of Environmental Protection ("MassDEP") Wetlands Program	DEP

Table 11-1: Response to Comments

Comment ID	Comment	Response
SECRETARY'S CERTIFICATE ON THE EENF, EEA #16607, SEPTEMBER 23, 2022		
General		
CS-1	The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. Recommendations provided in this Certificate may result in a modified design that would further avoid, minimize, and/or mitigate Damage to the Environment.	The FEIR followed Section 11.07 of the MEPA regulations for outline and content, as modified by the Scope of the Certificate for the FEIR.
CS-2	The FEIR should identify measures the Proponent will include to further reduce the impacts of the project since the filing of the DEIR, or, if certain measures are infeasible, the FEIR should discuss why these measures will not be adopted.	Overall, the Project's design standard parameters are largely unchanged since the DEIR filing, therefore there are no substantial changes in the impact of the Project. However, few refinements to the Project's design within Priority Habitat have resulted the reduction in impacts. Refer to *Section 1.9* for further discussion for Project-related impact reduction. NEP continues to coordinate with federal, state, and local agencies to provide measures to facilitate the Project moving forward while providing options to reduce impacts and concerns in specific locations.
CS-3	The FEIR should identify any changes to the project since the filing of the DEIR. It should include updated site plans for existing and post-development conditions. Conceptual plans should be legible and provided at a reasonable scale. Plans should clearly identify all major project components (structures, transmission lines, access roads, etc.); public areas; wetland resource areas; impervious areas; ownership of parcels including easements; and stormwater and utility infrastructure.	Overall, the Project's design standard parameters are largely unchanged since the DEIR filing, therefore there are no substantial changes in the impact of the Project. However, few refinements to the Project's design within Priority Habitat have resulted the reduction in impacts. Please see *Section 1.9* for further discussion. Project site plans have been provided in **Appendix A**.
CS-4	The FEIR should indicate if additional permanent and temporary easements will be required to facilitate tree clearing and create access to the ROW.	NEP is coordinating with DCR concerning the issues raised in DCR's comment letters. No additional permanent or temporary easements will be required to facilitate tree removal or create access to the ROW.
CS-5	It 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. It should include a list of required State Permits, Financial Assistance, or other State or local approvals and provide an update on the status of each.	*Section 2* provides a brief description and analysis of the Project's conformance with all applicable regulatory standards. Specifically, *Table 2-1* provides a list of required state permits, local approvals, and financial assistance, as well as an updated status of each regulatory requirement and the Projects' compliance.
CS-6	I expect the FEIR will provide clear and direct responses to the comments from Mass Audubon and will further address proposed mitigation for the 131 acres of both upland and wetland tree clearing.	NEP has responded to comments from Mass Audubon below. Please refer to response for Mass Audubon-1 and Mass Audubon-2.
Environmental Justice/Public Health		
CS-7	The Proponent should continue to take steps, including undertaking additional measures, to meaningfully engage EJ populations in decision-making for the project. The FEIR should report on the results of such engagement efforts.	NEP has continued to update the EJ reference list, maintain and update the Project website, which is publicly available in English and Spanish, maintain and monitor the Project email address, and the Project hotline throughout the MEPA process. A target notice of the FEIR will also be sent out to the abutters in the EJ Block Group, as well as the abutters and distribution list (translation for the document will also be offered, as requested). The FEIR 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. Please refer to *Section 3.4* for more details.
CS-8	As previously required by the Certificate on the EENF, the FEIR should analyze land alteration associated with the project including implications for potential stormwater flooding in surrounding neighborhoods.	NEP has conducted additional assessment to evaluate implications of the land alteration associated with the Project on the peak flow discharge and has provided a rationale on this analysis in *Section 3.5.2.* The Project will not increase the potential for stormwater flooding in surrounding neighborhoods.
CS-9	Analysis of the stormwater should specifically assess whether flooding risks may be exacerbated for nearby EJ populations, including under future climate conditions. As noted above, to the extent any residential neighborhoods, including EJ populations, are located within "hot spots," the project should propose mitigation to offset the effects of tree removal adjacent to those locations, and the distance for this assessment should be extended to 500 feet. Mitigation could take the form of permanent land/forest preservation or tree plantings in the affected neighborhoods.	NEP extended assessment to a distance of 500 feet to locate EJ communities within "Hot Spots". The results of the additional analysis revealed that, of 11,017.22 acres of residential areas, 203.43 acres can be identified as LST Hot Spots. Further, of those 203.43 acres, 942.02 sf are areas where LST Hot Spots overlap with EJ communities and proposed tree removal activities. The analysis demonstrates that, due to the nature of the location and limited extent of the tree removal activities, there will be no adverse impacts or exacerbation of hot spot impacts due to the Project. Please refer to *Section 3.5.1* for detailed discussion. The FEIR reaffirms that the short-term environmental or public health impacts of the Project will be mitigated using BMPs provided in *Section 9* of this document, and that there are no long-term environmental or public health impacts.

CS-9A	As required by the Certificate on the EENF (and not addressed in the DEIR), the FEIR should specifically assess whether flooding risks may be exacerbated for nearby EJ populations due to tree removal, including under future climate conditions.	The FEIR reaffirms the analysis demonstrates that tree removal activities that will occur near EJ populations will be as minimal as those occurring along the entire ROW. The removal of trees in the Project ROW is not expected to have any significant impact on flooding risks under future climate conditions within EJ communities or other residential communities. Please refer to *Section 3.5.2* and *Section 4.3* for further discussion on the implications of tree removal in the overall peak flow rate.
CS-10	The FEIR should provide an estimate of the number of truck trips per day anticipated for the project and the Proponent should determine whether it exceeds the threshold for 150 new average daily trips (adt) of diesel vehicle traffic over a duration of one year or more at which EJ outreach and analysis are required over a 5-mile DGA under the MEPA EJ protocols.	NEP reaffirms its position as stated in the EENF that new truck traffic for the proposed work will not exceed the threshold of 150 adt over a duration of one year or more. The Project will not exceed the threshold of 150 adt over a duration of a year or more. Refer to *Section 3.3* for further clarification.
CS-11	The Proponent should circulate the FEIR to the EJ reference list prior to filing, and, if a 5-mile DGA is implicated, should contact the MEPA Office for an updated list of all CBOs and tribes/indigenous organizations. If any disproportionate adverse effects are identified, the FEIR must include a discussion of proposed mitigation and include such measures in draft Section 61 findings.	An updated Reference List was provided on April 5th, 2024, by the EJ MEPA Office (refer to **Appendix C**). The FEIR will be circulated to all parties on the revised EJ Reference List prior to filing. As noted in NEP's response for CS-10, the Project will not exceed the threshold of 150 adt over a duration of a year or more. Further discussion on proposed mitigation measures is provided in *Section 10 - Section 61 Findings*.
Rare Species		
CS-12	The FEIR should provide an update on potential impacts to state-listed rare species habitat associated with the project and proposed measures to avoid, minimize and mitigate those impacts. It should provide a summary of the outcome of continued consultation with NHESP.	NEP submitted a MESA Review Checklist for the Construction phase of the Project to NHESP on 8/15/23 (Please see **Appendix C** for agency correspondence). Further reductions in the extent of temporary and permanent impacts have been made since submission of the DEIR, as described in *Section 1.9* of the FEIR narrative. NHESP concurred with the checklist that only three (3) species would potentially by impacted by the Project – a bird, reptile, and plant. NHESP concluded that impacts to the rare bird could be avoided through implementation of a TOY restriction (see *Section 8* above); impacts to the rare reptile could be avoided by reducing permanent Project impacts to <10,000 SF in each population area and implementing construction BMPs and appropriate habitat mitigation (see *Section 7.3.2* above); and impacts to the rare plant would require a Conservation management Permit (see *Section 8* above).
CS-13	As requested in comments from NHESP, the Proponent should further evaluate reductions to permanent habitat loss associated with gravel work pads and access roads; develop updated botanical survey protocols for pre-construction surveys within suitable habitat; and develop robust rare-species protection plan(s) focusing on time-of-year restrictions, avoidance of active and breeding seasons, and daily sweeps of the work area during any active season work. Comments from NHESP state that the Division anticipates being able to resolve any outstanding concerns related to state-listed species during the MESA review process.	As described in *Section 8*, since submission of the DEIR, the extent of temporary and permanent impacts has been reduced. Thus far, ongoing consultations have resulted in; reduction of grading and permanent work areas within NHESP-identified sensitive habitats. Further mitigation will be determined during MESA permitting. NEP will work with NHESP to modify, as needed survey protocols and will repeat botanical surveys prior to initiating construction to verify the extent of rare plants in the Project footprint as well as the percentage of the plant population that will be impacted. Rare species protection plans were included in the MESA Checklist, and NHESP determined that the proposed plans were adequate to avoid or minimize impacts to rare species along the ROW. Plans developed will protect rare avian species by employing a TOY restriction and reptile habitat via mitigation/ observation. NEP will implement TOYs for individual species to the extent practicable and as indicated in the MESA Checklist. Although, Project constraints, with regard to duration and outage schedules, will require that some work will be conducted during the active season. NEP will conduct daily sweeps for rare reptiles during active season work within their habitat.
Wetland Resource Areas		
CS-14	As previously recommended in MassDEP comments on the EENF, the Proponent should consider waiting to file Notices of Intent (NOIs) with the Conservation Commissions until the conclusion of MEPA review to ensure sufficient opportunities for public involvement and to avoid any potential conflict with the final Certificate, Orders of Conditions, or the WQC. The FEIR should provide confirmation on the process the Proponent intends to follow.	NEP confirms that the NOIs will be filed with the Conservation Commissions after the conclusion of MEPA review as requested by MassDEP.
CS-15	According to MassDEP comments, the project may be eligible for review under the Limited Project provisions pursuant to 310 CMR 10.53(3)(d) but would be subject to mitigation requirements at the discretion of the local Conservation Commission. The FEIR should clarify whether the project will fully meet the performance standards for each impacted jurisdictional wetland resource area even if the project qualifies as a Limited Project. It should specifically describe which impacted resource areas will fully meet the performance standards and which impacts will be reviewed under the Limited Project provisions.	NEP believes that the Project meets the requirements for approval as a limited project. Refer to *Section 2.2.1.2* for a detailed discussion on the Projects compliance with the performance standards for jurisdictional wetland resource area impacts.

CS-16	The MassDEP comment letter states that the Proponent should submit mitigation alternatives consistent with the Wetlands Protection Act performance standards for wetland resource area impacts. For permanent loss of BVW, an adequate replacement ratio must be provided. For permanent wetland alteration resulting from tree clearing (which is not a loss), other mitigation alternatives can be considered. Preservation would be an acceptable mitigation option if provided at a substantially higher mitigation to impact ratio. For example, see Appendix C of the New England District Compensatory Mitigation Standard Operating Procedures (USACE 2020). The FEIR should include a more detailed description of the mitigation options under consideration to meet regulatory requirements.	To compensate for the proposed 2,302 SF of permanent fill in BVW, potential wetland replication areas are currently being identified. Wetland replications areas will be chosen based on their proximity to impact areas and potential to enhance the functions and values of existing wetland systems. Wetland replication will be designed at a minimum of 1:1 ratio of wetland replication to wetland loss and at a 2:1 ratio for wetland losses within ORW designated wetlands. Final details will be developed after consultation with federal, state and local reviewers.
CS-17	The FEIR should include an analysis of Stormwater Management as outlined in prior comments from MassDEP on the EENF and restated in comments on the DEIR. Comments note that removal of trees increases the peak runoff rate, triggering compliance with 310 CMR 10.05(6)(k)2. and 314 CMR 9.06(6)(a)2. which apply to alterations in resource areas regardless of if the project qualifies as a Limited Project.	NEP has performed an analysis of example watersheds along the Project ROW to assess the stormwater implications of the alterations associated with removal of trees, specifically. The removal of trees has a minimal effect on the overall hydrology of the watersheds along the ROW, and, in most design storm scenarios, does not cause a measurable increase. The overall impact to hydrology due to the work proposed (access improvements and tree removal) is marginal and similar to, and in most scenarios less than, that associated with single-family residential development, which is exempt from compliance with the Stormwater Standards (310 CMR 10.05(k)(6)(1)).
CS-18	In addition to traditional stormwater management as mitigation, MassDEP recommends the Proponent evaluate replacement of trees to reduce the peak runoff rate. Any trees replaced would need to be within the same sub-watershed to be considered as peak rate mitigation. The FEIR should address prior DEP recommendations to evaluate replacement of trees to reduce the peak runoff rate and the EENF certificate's requirement to estimate the time period likely to recover the same or larger tree canopy. The FEIR should address these comments including potential flooding impacts as they relate to EJ populations and provide mitigation as necessary.	The Project is not anticipated to have a significant impact to hydrology along the ROW, and by controlling run-on to and runoff from the access improvements using stormwater BMPs such as swales, check dams, and plunge pools to promote recharge within the vegetated ROW, the activities proposed by the Project do not pose significant impact on flooding under future climate conditions, including to adjacent EJ populations. Please refer to *Section 4.3* of this FEIR for additional discussion on stormwater implications.
CS-19	The project will create 0.3 acres of new impervious associated with new caissons. The FEIR should discuss how the project will meet the recharge and TSS treatment standards for new impervious including special requirements which apply to Critical Areas, such as ORWs (310 CMR 10.05(6)(k)6. and 314 CMR 9.06(6)(a)6.).	The increase in impervious surface area associated with the caisson foundations is *de minimis*.
CS-20	In addition, the FEIR should demonstrate that compensatory flood storage provided for permanent fill in BLSF has an unrestricted hydraulic connection to same waterway or water body displaced by the project as stated in 310 CMR 10.57(4)(a)1. The compensatory flood storage analyzed in the FEIR must be proposed near where the fill is proposed so as to provide an unrestricted connection to the same waterway.	As noted in the DEIR, the flood storage loss is *de minimis* within each BLSF where structures are replaced, and the foundations will not impact flood storage capacity. Where required, NEP will design compensatory storage such that the storage area will have unrestricted hydraulic connection to waterway or waterbody displaced by the Project in compliance with 310 CMR 10.57 (4)(a).
CS-21	In addition, the Proponent must demonstrate that seasonal high groundwater is at or below the elevation which the compensatory flood storage will be provided. The FEIR should analyze alternatives to provide the compensatory flood storage and provide a cut-and-fill table for each alternative analyzed.	As noted in the DEIR, the flood storage loss is *de minimis* within each BLSF where structures are replaced, and the foundations will not impact flood storage capacity. Wherever NEP plans design for compensatory storage, the storage area will have an unrestricted hydraulic connection to waterway or waterbody displaced by the Project in compliance with 310 CMR 10.57 (4)(a) and that the storage area will be above seasonal high groundwater or below the elevation of the intended compensatory flood storage area.
Chapter 91		
CS-22	As requested in comments from the MassDEP Waterways Program, the FEIR should include plan and cross-sectional details that depict the temporary and permanent (Perley Brook) scopes of work and should indicate the proposed timing that temporary structures/fill will be located within each waterway within Chapter 91 jurisdiction in order for the Waterways Program to determine whether they may be eligible for a Chapter 91 permit or if a license is required.	Work proposed within Perley Brook is shown in the FEIR Plans in Appendix A. The A1/B2 Line was built in the early 1900's and has not been substantially altered since that time. As such, the existing line is exempt from licensing under 310 CMR 9.05(3)(c) and (f). Under 310 CMR 9.22(a), NEP 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 the maintenance activities can cross the waterways without damaging the surrounding resource areas (please refer to **Appendix D** for a list of streams where matting is proposed along with reference to pages in the DEIR plans). Because construction mats are a means and method for maintenance activities, they are exempt from further licensing or other Chapter 91 approvals under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1).

Article 97		
CS-23	Comments indicate that DCR is in the process of determining whether the permanent impacts to off-ROW DCR property could amount to a change in use or control that will invoke the EEA Article 97 Land Disposition Policy and the requirements of the Public Lands Preservation Act. The Proponent should continue consultation with DCR and the FEIR should provide a summary of the outcome of these consultations.	No new permanent access routes are proposed outside of the existing ROW within DCR managed property. NEP has undergone extensive analysis of the viable access alignments and routes required to support the Project in DCR properties. NEP committed to reducing the scope of off-ROW alterations and agreed to restore all off-ROW areas within DCR-owned property. NEP has continued its consultation, which remains ongoing. NEP looks forward to continued coordination with DCR. NEP's view is that, considering the existing rights of the NEP to access the A1/B2 Line ROW, no change in use or other disposition is proposed that would trigger Article 97, EEA's Article 97 Policy or the PLPA. Rather, NEP intends to seek construction and access permits from DCR, which do not implicate Article 97. DCR has actively participated and continues to actively participate in these consultations and has not yet finalized its view on this subject. Should DCR ultimately be unable to issue any required permits because of Article 97, the Company will submit a Notice of Project Change addressing compliance with Article 97, the EEA Article 97 Policy and the PLPA. A summary of the consultation has been provided in *Section 6.4* above.
CS-24	The FEIR should clarify impacts (temporary and permanent) to Article 97 Land and proposed measures to avoid, minimize and mitigate impacts. If it is determined that impacts result in a change in use or control, the FEIR should address compliance with the EEA Article 97 Policy. As previously noted, work activities on DCR property outside of existing easements associated with the ROW, or requiring access across DCR property, will require a CAP.	A breakdown of impacts (temporary and permanent) to Article 97 Land has been provided in *Table 6-1*, and proposed measures to avoid, minimize and mitigate impacts have been provided in *Table 9-1* of *Section 9* above. A CAP application will be submitted for construction related access outside of existing easements associated with the NEP ROW.
CS-25	Comments from DCR also request that the Proponent continue to coordinate with DCR Forestry, Ecology, Archaeology and Park staff to minimize impacts to sensitive resources, minimize clearing to the extent possible, and identify mitigation opportunities should a loss or conversion of wetlands, rare species habitat or other forest or recreational resources result from project activities.	NEP has continued its consultation with DCR, which remains ongoing. On April 29th, NEP conducted a site visit with Jennifer Howard, the Director of Land Protection at DCR, and representation from DCR Forestry and Compliance Staff, to discuss the proposed Project's impacts related to access improvements and tree removal. During the site visit, NEP reviewed four specific areas that involve access outside of the maintained ROW. NEP and DCR have committed to continue the coordination and conduct follow-up reviews of these areas following the completion of a survey.
CS-26	Comments from DCR continue to express concerns about recreational impacts at the access point in Warwick State Forest that is proposed to be co-located with the Metacomet Monadnock Trail for approximately 2,300 feet and impacts that may result in increased Off-Highway Vehicle (OHV) access to the state forests, potentially causing degradation of natural and cultural resources. DCR requests coordination with the Proponent to develop and implement strategies to deter this unauthorized trail use. The FEIR should provide an update on these consultations.	NEP has assessed the Metacoment Monadnock Trail for any additional impacts due to the Project. The Project's design reflects NEP's extensive efforts to avoid and then minimize any adverse impacts on the surrounding land within DCR land to the extent possible. Please refer to *Section 6* for further discussion. NEP remains committed to continued coordination with DCR throughout the CAP permitting process.
Climate Change - Adaptation and Resiliency		
CS-27	The FEIR 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.	The removal of trees and conversion to shrubby vegetation along the ROW is not anticipated to have a significant impact on the watershed hydrology, in most cases having no measurable impact. Please refer to *Section 4.3* for stormwater implications of the Project.
CS-28	As stated above, the FEIR should provide a stormwater report or other data to document pre- and post-construction runoff rates for new/improved access roads and construction work pads will be resilient to future storm events.	NEP has conducted additional assessment to evaluate implications of the pre- and post-construction runoff rates associated with the Project on the peak flow discharge and has provided a rationale on this analysis in *Section 4.3*.
Climate Change - Land Alteration		
CS-29	Given the extent of tree clearing proposed, I expect the FEIR to identify mitigation measures commensurate with the project's impacts on the project corridor's capacity to sequester and store carbon.	The Project will result in a net reduction in CO2e emissions of 117,424 metric tons. As requested by the Secretary, NEP is proposing funding a comprehensive mitigation package as mitigation for tree removal and wood donation program to support the overall state climate change goals as identified in the *Massachusetts Clean Energy and Climate Plan for 2025 and 2030*. Refer to *Section 7.4* for detailed description.
CS-30	The proponent should take all feasible measures to mitigate these impacts to the maximum extent practicable. Potential mitigation measures may include efforts that address both regulatory requirements and overall state climate change goals as identified in the Massachusetts Clean Energy and Climate Plan for 2025 and 2030. The FEIR should describe a potential mitigation package which may include preserving/protecting forested land through a Conservation Restriction, reforestation including along perennial streams and/or coldwater fishery resources, and/or urban tree planting programs (recommendation of 50 trees/acre with a commitment to water and replace for two years).	NEP is funding a comprehensive mitigation package as mitigation for tree removal and wood donation program to address MEPA's concerns around the Project's corridor's capacity to sequester and store carbon. Refer to *Section 7.4* above for detailed description.

CS-31	The Proponent should confirm its commitments to donate 1.7% of the trees felled to the DCR Community Wood Bank or other Massachusetts wood bank program which provide free firewood for those in need of energy. The FEIR should provide additional information on whether maximum efforts are being made to reuse trees for long-lived wood products. To the extent specific agreements ae secured with landowners to dedicate trees to resale to sawmills, the FEIR should indicate whether this end use can be tracked, and if so, propose a method for doing so (e.g., through tracking of end contracts executed by the Proponent with individual landowners).	Within NEP fee-owned parcels, wood collected during tree removal shall be committed to reuse in long-lived wood products or will be donated to affordable housing projects or wood banks in MA. Outside of 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 breakdown of how all wood is distributed/disposed of by parties other than NEP.
Mitigation and Section 61 Findings		
CS-32	The FEIR chapter should include an updated comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations.	*Table 9-1* provides a updated comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the impacts of the project, and includes a separate section outlining mitigation commitments relative to EJ Populations.
CS-33	The FEIR 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, EJ, etc.) and identify the Agency Action or Permit associated with each category of impact.	Please see *Table 9-1* and *Table 9-2* for BMPs and mitigation measures, respectively, along with an estimated individual costs of each proposed measure, parties responsible for implementation, and schedule for implementation.
CS-34	Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project.	Draft Section 61 Findings has been included separately for each Agency Action in *Section 10*.
N/A	As previously required in the Certificate on the EENF and detailed in the Scope, a more comprehensive discussion of mitigation, including for the extensive tree clearing proposed by the project, should be provided in the FEIR.	NEP has provided discussion of mitigation in *Section 9* of this FEIR.
Responses to Comments		
CS-35	The FEIR should contain a copy of this Certificate and a copy of each comment letter received. It should include a comprehensive response to comments on the DEIR that specifically address each issue raised in the comment letter; references to a chapter or sections of the FEIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response. This directive is not intended to, and shall not be construed to, enlarge the Scope of the FEIR beyond what has been expressly identified in this certificate.	An annotated copy of the Secretary's Certificate on the DEIR and comment letters received are provided in **Appendix G**. Responses to comments are provided in this table.
CS-36	In accordance with 301 CMR 11.16, the Proponent should circulate the FEIR to each Person or Agency who commented on the DEIR, 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. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the FEIR to commenters in a digital format (e.g., CD-ROM, USB drive) or post to an online website. A copy of the FEIR should be made available for review in the Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.	As shown in the Distribution List provided in **Appendix B**, NEP's distribution requirement of the FEIR complies with this comment and 301 CMR 11.06.
Massachusetts Department of Environmental Protection (MassDEP) Waterways Program		
DEP Waterways - 1	In the DEIR (Table 4-9), the proponent provides a list of waters they assert includes all such waters subject to Chapter 91 within the footprint of the project. The proponent identifies an "OOC" (Order of Conditions) as the "Anticipated Chapter 91 Approval" for each proposed crossing. However, the issuance of a Wetlands Protection Act OOC is not a Chapter 91 approval and does not satisfy a requirement for Chapter 91 authorization. The issuance of an Order of Conditions is one of the criteria that may result in certain scopes of work being exempt from a Chapter 91 authorization requirement, pursuant to 310 CMR 9.05(3)(g)(1). Alternatively, the proposed work must meet all of the criteria at 310 CMR 9.05(3)(a) and not reduce the space available for navigation.	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 the maintenance activities can cross the waterways without damaging the surrounding resource areas (please refer to **Appendix D** for a list of streams where matting is proposed along with reference to pages in the DEIR plans). Because the construction mats are a means and method for the maintenance activities, they are exempt from further licensing or other Chapter 91 approvals under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1).

DEP Waterways - 2	The DEIR and ENF reference proposed work in or over non-tidal rivers and streams for construction access. Such work includes temporary construction mats and associated fill, work pads and pull pad envelopes, in addition to permanent fill for at least one structure foundation. The FEIR should include plan and cross-sectional details that depict the temporary and permanent (Perley Brook) scopes of work and should indicate the proposed timing that temporary structures/fill will be located within each waterway within Chapter 91 jurisdiction in order for the Department to determine whether they may be eligible for a Chapter 91 permit or if a license is required.	Work proposed within Perley Brook includes temporary construction matting, removal of an existing structure, and permanent conversion of the vegetation cover type associated with tree removal (please refer to Page 96 in Figure 1 of Appendix A. The A1/B2 Line was built in the early 1900's and has not been substantially altered since that time. As such, the existing line is exempt from licensing under 310 CMR 9.05(3)(c) and (f). Under 310 CMR 9.22(a), NEP 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 is necessary to maintain and repair the authorized Lines. This includes the use of construction mats to temporarily span waterways so that construction vehicles conducting the maintenance activities can cross the waterways without damaging the surrounding resource areas (please refer to **Appendix D** for a list of streams where matting is proposed along with reference to pages in the DEIR plans). Because the construction mats are a means and method for maintenance activities, they are exempt from further licensing or other Chapter 91 approvals under the maintenance provisions of 910 CMR 9.05(3)(a) and 910 CMR 9.22(1).
DEP Waterways - 3	Please be advised that the Chapter 91 permit and/or license application is required to be signed by the applicant and the landowner if other than the applicant. In lieu of the landowner's signature, the applicant may provide other evidence of legal authority to submit an application for the project site.	NEP acknowledges this comment.
Mass Audubon		
Mass Audubon-1	Our previous comments on the E131 project requested that MEPA consider working with the utilities to establish a programmatic approach to these projects. We reiterate that request here. Even if segments of these line improvements need to be reviewed independently to align with the utilities' capital improvement programs, there should be a programmatic approach that includes: Tracking of multiple projects in the context of larger system planning at a level that is understandable to the public. - Comprehensive tracking and availability of data on cumulative impacts to key resources including forests, wetlands, farmlands, rare species habitats, and Article 97 lands. - Standardized approaches to avoidance and minimization of impacts. - Mitigation for all unavoidable impacts and tracking of follow-through on mitigation commitments and results. The extent of Article 97 impacts and mitigation to comply with the Public Lands Protection Act are not entirely clear in these DEIRs. There are references to ongoing consultations with DCR as well as claims regarding the breadth of pre-existing easement rights including rights of access across lands beyond the limits of the actual easements. MassWildlife, municipal, and land trusts lands are also impacted. The Final EIRs should clarify these points and provide definitive commitments to mitigation for unavoidable Article 97 impacts, in addition to the other forms of mitigation already described (e.g. land protection for wetlands impacts and rare species habitat construction period conditions from the Natural Heritage and Endangered Species Program). - Best practices for ongoing maintenance to minimize impacts on habitat, water resources, and recreational uses. While there is already a system for reviewing Vegetation Management Plans in relation to use of pesticides, the standard best practices for these ROWs should be expanded to include these other important considerations. For example, tree clearing, brush hogging, and mowing generally should not occur during the bird nesting season. Expansion of scrub/shrub habitat for birds, pollinators, and other wildlife dependent on such habitats is an important goal of the state's Wildlife Action Plan and BioMap. To the extent these corridors can support such habitats, vegetation management practices should be optimized to achieve that. It is appropriate for the utilities to make such commitments throughout their ROW corridors, as mitigation for the ongoing impacts to Article 97 lands, forests, and wetland resources and as overall best practices for their land stewardship.	NEP welcomes continued coordination with the MEPA Office on these issues raised by MassAudubon. .
Mass Audubon-2	Minimizing Avian Electrocution Risks: The DEIR for the A1/B2 project mentions existing problems with birds nesting on equipment and describes replacement of structures and wires with newer systems designed to deter bird nesting. This includes changing the shielding angle and raising the height of conductors. Updated designs that avoid and minimize potential conflicts between transmission infrastructure and wildlife including birds is an important consideration. It is unclear whether the designs for these projects will also eliminate or at least minimize potential for bird electrocutions. The Final EIRs should clarify this and there should be explicit commitments to utilizing designs that minimize the potential for avian harm and death2. As this is an evolving area of science and best practice, the utilities should make commitments to continuing to advance and apply the best available designs and retrofitting techniques.	The change in structure configuration from horizontal lattice towers to vertical monopole structures will reduce the potential for avian electrocution as it provides wider window for perching birds to launch from a structure or wire without being energized. Birds are prone to use the bridge of the existing lattice towers to construct nests. The change in structure configuration and the increase in the separation between energized phases within the same circuit (A1 or B2 Lines) and also between other circuits within the ROW significantly reduce the opportunities for birds to nest on the structure arms, thereby reducing potential for adverse interactions and bird electrocution.

NHESP/DFW		
DFW-1	Projects resulting in a Take of state-listed species may only be permitted if they meet the performance standards for a Conservation and Management Permit (CMP; 321 CMR 10.23).	Based on discussion with NHESP and the proposed avoidance, minimization, and mitigation efforts, NEP anticipates the Project will not result in an adverse effect to habitats of rare species. NEP will continue to work closely with NHESP throughout the MESA review process, including continued coordination and preparation of a CMP in the event a "Take" cannot be avoided.
DFW-2	Since the filing of the EENF, the Applicant has met with the Division to discuss minimization of permanent impacts and the Applicant discussed using construction matting to avoid permanent impacts to sensitive nesting habitats, but these figures were not finalized before submittal of the DEIR. The Division recommends that the Proponent continue to work proactively with the Division to: (1) further evaluate reductions to permanent habitat loss associated with gravel work pads and access roads (2) develop updated botanical survey protocols for pre-construction surveys within suitable habitat; and (3) develop robust rare-species protection plan(s) focusing on time-of-year restrictions, avoidance of active and breeding seasons, and daily sweeps of the work area during any active season work.	The Project Plans submitted with this FEIR reflect the permanent access and work area reductions discussed with NHESP (refer to **Appendix A**). NEP anticipates continued coordination with NHESP through the MESA Review process. As indicated in response comment CS-13, NEP is actively working with NHESP to address these recommendations.
DFW-3	Based on the ongoing consultations, the Division anticipates being able to resolve any outstanding concerns related to state-listed species during the MESA review process. We look forward to continued coordination with the Proponent to ensure that the Project addresses all issues related to state-listed species.	As indicated, NEP will continue consultation with NHESP to ensure that the Project considerations address all issues related to state-listed species.
Division of Transportation (MassDOT)		
DOT -1	The Proponent should coordinate with appropriate MassDOT sections, including the Public Private Development Unit (PPDU) and Districts 2 and 3 during the permitting process for the Project.	NEP will continue to coordinate with appropriate MassDOT sections, including the Public Private Development Unit ("PPDU") and Districts 2 and 3 when the traffic permitting is appropriate. Refer to *Table 1-6* for an updated review of agency outreach and consultations.
Division of Conservation and Recreation (DCR)		
DCR-1	DCR requests that the Proponent continue to coordinate with DCR Forestry, Ecology, Archaeology and Park staff to minimize impacts to sensitive resources, minimize clearing to the extent possible, and identify mitigation opportunities should a loss or conversion of wetlands, rare species habitat or other forest or recreational resources result from project work activities.	NEP will continue to coordinate with relevant departments within the DCR to identify comprehensive mitigation opportunities and minimize impacts to resource areas within the Project ROW.
DCR-2	We look forward to reviewing specific protection and restorations measures to be taken for sensitive natural and cultural resources on public conservation lands. Environmental permits for work activities on DCR land must be signed by the Department as "Owner" following review by DCR staff members and prior to submission to regulatory agencies.	NEP welcomes further coordination with DCR to review specific protection and restorations measures to be taken for sensitive natural and cultural resources on public conservation lands. NEP will continue to implement appropriate measures as required by the outcome of ongoing coordination with DCR.
DCR-3	DCR is concerned about recreational impacts of the access point in Warwick State Forest that is proposed to be co-located with the Metacomet Monandnock Trail of approximately 2,300 feet.	NEP has assessed the Metacoment Monadnock Trail for any additional impacts due to the Project. The Project's design reflects NEP's extensive efforts to avoid and then minimize any adverse impacts on the surrounding land within DCR land to the extent possible. NEP will coordinate with local authorities for work on local streets, and trails. At locations where construction equipment must be staged in a public way, the contractors will follow a pre-approved work zone traffic control plan. Additionally, erosion and sediment control BMPs will be implemented during the construction of the Project. Erosion and sediment control BMPs will function to mitigate construction-related soil erosion and sedimentation and will also serve as a physical boundary to delineate resource areas and to contain construction activities within approved areas. NEP contractors, supervisors, and environmental monitors will regularly monitor installed controls. NEP will continue to implement appropriate measures to mitigate recreational impacts during further consultation during the CAP permitting.
DCR-4	DCR is also concerned that the Project may result in increased Off Highway Vehicle access to the state forests, potentially causing degradation of natural and cutural resources. The Department requests coordination with NEP to develop and implement strategies to deter this unauthorized trail use.	NEP will continue to implement appropriate measures to mitigate recreational impacts during further consultation and the CAP permitting process.
DCR-5	Work activities on DCR property outside of existing easements associated with the NEP ROW, or requiring access across DCR property, will require a Construction and Access Permit ("CAP"). The CAP will include conditions to minimize impacts to trail access and ensure safety of trail users.	NEP acknowledges this comment and welcomes further coordination with DCR.
DEP Wetlands Program (MassDEP)		

DEP-1	As noted in our prior comments on the EENF, the proposed activities will substantially change and/or enlarge an existing service, and therefore the activity does not qualify as exempt from the Wetlands Protection Act (WPA) as maintenance pursuant to 310 CMR 10.02(a)2.	NEP acknowledges that some of the proposed activities will substantially change and/or enlarge an existing service, and therefore not all Project activities qualify as exempt from the WPA as maintenance pursuant to 310 CMR 10.02(a)2. However, the Project complies with the general performance standards of the MA WPA. The Project is eligible for "limited project" status, as defined in 310 CMR 10.53(3)(d) because it involves the "construction, reconstruction, operation and maintenance of underground and overhead public utilities." Refer to *Section 2.2.1.2* for details.
DEP-2	The project likely qualifies to be permitted as a limited project pursuant to 310 CMR 10.53(3)(d) provided that no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59 (unless a variance is issued). This will be determined during the WPA application review process.	NEP acknowledges that the project likely qualifies to be permitted as a limited project pursuant to 310 CMR 10.53(3)(d) provided that no such project may be permitted which will have any adverse effect on specified habitat sites of rare species, as identified by procedures established under 310 CMR 10.59 (unless a Variance is issued). NEP will continue to work closely with NHESP throughout the MESA review process, including continued coordination and preparation of a CMP in the event a "Take" cannot be avoided. The Project is eligible for "limited project" status, as defined in 310 CMR 10.53(3)(d) because it involves the "construction, reconstruction, operation and maintenance of underground and overhead public utilities." Refer to *Section 2.2.1.2* for further details on the Project's conformance with the Limited Project status.
DEP-3	Based on the information provided in the EENF, a Water Quality Certification (WQC) application for Major Fill/Excavation (BRP WW 10) pursuant to 314 CMR 9.04 will be required since the Project and its cumulative effects of dredged or fill material to Bordering Vegetated Wetland (BVW) and Land Under Water (LUW) and other impacts may jeopardize water quality and since there will be a discharge of dredge or fill material to Outstanding Resource Waters including Crystal Lake, Goodfellow Pond, Simonds Pond, Notown Reservoir, Morse Reservoir, Fall Brook Reservoir, and Perley Brook Reservoir. Furthermore, a Variance to the 401 WQC will be required pursuant 314 CMR 9.08 since the project will result in a discharge of dredged or fill material in wetlands or waters of the Commonwealth within 400 feet of a Class A surface water (314 CMR 9.06(4)).	NEP acknowledges that a 401 WQC will be required for the Project.
DEP-a	MassDEP acknowledges National Grid's efforts to reduce wetland resource area impacts to BVW from tree clearing, construction matting and other project activities. These efforts advance the goals of MEPA, and the WPA and WQC requirements to protect wetland resources while still providing much needed infrastructure that will help to support renewable and reliable energy.	NEP appreciates the acknowledgement.
DEP-4	National Grid should submit mitigation alternatives consistent with the WPA and WQC performance standards for jurisdictional wetland resource area impacts. For permanent loss of BVW, a 2:1 replacement ratio should be provided for all BVW impacts in ORWs, and 1:1 for other permanent BVW impacts.	To mitigate unavoidable loss of wetlands associated with structure installation in BVW, NEP is proposing to provide on-site wetland replication. Prospective wetland replication areas are currently under consideration and NEP will continue coordinating with the Conservation Commission to ensure that suitable sites are selected. Wetland replication has been provided at a minimum of 1:1 ratio of wetland replication to wetland loss and 2:1 ratio within ORW wetlands. NEP will work with MassDEP and the local Conservation Commissions to finalize the mitigation plans for the permanent loss of BVW associated with structure replacements. Refer to *Section 4.5* for further details.
DEP-5	In Lieu Fee as compensatory mitigation for secondary impacts from tree clearing would not be acceptable. Preservation would be an acceptable mitigation option if provided at an appropriate mitigation to impact ratio. For example, see Appendix C of the New England District Compensatory Mitigation Standard Operating Procedures (USACE 2020).	NEP will coordinate with USACE through the 404 permitting process to provide compensation for secondary impacts, in accordance with the Standard Operating Procedures ("SOP") Section 2.h. Recommended Mitigation for Temporary and / or Secondary Impacts to Aquatic Resources. As listed in Table 2Ca of Appendix C of the SOP, permanent conversion of forested wetlands to emergent or scrub-shrub wetlands has a mitigation ratio of 30% and 15%, respectively. As footnoted in the table, these standards are used to calculate the ILF payments for permanent conversion and the percentages may be reduced if appropriate BMPs are incorporated into the Project
DEP-6	Additionally, please provide techniques proposed to be used for tree clearing and management and removal of the tree debris	NEP utilizes a combination of mechanized and hand cutting/felling, mowing, selective pruning, and cut stump for tree removal methods. NEP typically will use hand cutting to selectively remove trees or smaller groups of trees, as this method will minimize disturbance/potential damage to other vegetation or structures. In some complex, uneven, or soft surface terrain, however, mechanical vegetation removal using equipment with a longer reach (such as feller bunchers or other tree handling equipment), may be necessary. In addition, NEP will consider the use of tree handlers, where applicable.
DEP-7	For temporary wetland alteration (which is not a loss) resulting from construction mats, please confirm that vegetation will be allowed to fully grow back and will not be managed. In addition to in-situ restoration, the proponent should propose mitigation for temporary loss of wetland function, such as increased preservation ratios.	NEP will preserve lower growing shrubs identified during this analysis in areas not required for construction work pads and access. Where work areas and access are required in wetlands, NEP will not mow or trim herbaceous vegetation and preserve shrubs and woody vegetation except in cases where more robust woody vegetation will impede matting placement.

DEP-8	Please see MassDEP's comments on the EENF dated October 19, 2022, as it pertains to comments made that are not addressed herein, and as it pertains to jurisdictional impacts under Wetlands Protection Act and Water Quality Certification requirements.	In the comments below (DEP-10 through DEP-29), NEP has provided additional information to support the comments identified in the EENF, dated October 19, 2022.
DEP-9	Note that 401 jurisdictional discharges that also impact state protected waters (see 314 CMR 9.02) should also be protected. MassDEP reserves the right to make additional comments during the permitting process based on the application materials.	NEP acknowledges MassDEP reserves the right to make additional comments during the permitting process based on the application materials.
DEP-10	The proposed activities will substantially change and/or enlarge an existing service, and therefore the activity does not qualify as exempt from the Wetlands Protection Act (WPA) as maintenance pursuant to 310 Code of Massachusetts Regulations (CMR) 10.02(a)2.	This comment has been addressed above in response to comment DEP-1.
DEP-11	The project may qualify to be permitted as a limited project pursuant to 310 CMR 10.53(3)(d) provided that no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59 (unless a variance is issued). Additionally, the proponent should document why the project qualifies for limited project status per 310 CMR 10.53(3) given the magnitude of the alteration and the significance of the project site to the interests of the Wetlands Protection Act; and the proponent should provide a serious evaluation of reasonable alternatives to the proposed activity (including alternatives to reduce the full extent of the proposed cutting), an evaluation of the extent to which adverse impacts are minimized, and documentation that full mitigation is provided for unavoidable impacts. Based on this demonstration, a Variance to the WPA regulations may be required pursuant to 310 CMR 10.05(10).	The first part of this comment has been addressed above in response to comment DEP-1. NEP has documented why the Project qualifies for limited project status per 310 CMR 10.53(3) given the magnitude of the alteration and the significance of the Project site to the interests of the WPA, please refer to *Section 2.2.1.2* for a detailed discussion. NEP provides an extensive evaluation of reasonable alternatives to the proposed activity including tree removal, access, and work areas in Section 2 of the DEIR. An evaluation of the extent to which adverse impacts are minimized, and documentation of full mitigation is provided for unavoidable impacts in *Section 9*.
DEP-12	Based on the information provided in the EENF, a Water Quality Certification (WQC) application for Major Fill/Excavation (BRP WW 10) will be required since the Project is proposed to result in the loss of more than 5000 square feet cumulatively of ordering vegetated wetland (BVW) and land under water (LUW) (314 CMR 9.04(1)) and since there will be a discharge of dredge or fill material to Outstanding Resource Waters including Goodfellow Pond, Simonds Pond, Notown Reservoir, Distributing Reservoir, Morse Reservoir, Fall Brook Reservoir, and Perley Brook Reservoir. Furthermore, a Variance to the 401 WQC will be required pursuant 314 CMR 9.08 since the project will result in a discharge of dredged or fill material in wetlands or waters of the Commonwealth within 400 feet of a Class A surface water (314 CMR 9.06(4)).	NEP acknowledges that a 401 WQC will be required for the Project.
DEP-13	The Applicant must demonstrate that all efforts have been made to avoid adverse impacts to BVW. When avoidance is not possible, demonstration must be made that the impacts have been minimized and that unavoidable impacts have been mitigated. The Environmental Impact Report must identify all temporary and permanent roads and/or routes in relation to resource areas that will be utilized for mechanized equipment to be engaged in tree clearing and on-going vegetation management. The proposed route bed should be identified (e.g., swamp mats to be placed at-grade, gravel roads, etc.). The Environmental Impact Report should analyze alternatives to avoid and minimize adverse impacts to BVW and propose alternatives to mitigate for resource area alteration.	As noted in the DEIR, NEP affirms all efforts have been made to avoid adverse impacts to BVW. NEP has provided demonstrations that impacts have been minimized and that unavoidable impacts have been mitigated in *Section 9-1*.
DEP-14	Erosion and sediment control is required during the tree clearing and land destabilization phase pursuant to 310 CMR 10.05(6)(b) and Stormwater Management Standard 8 (310 CMR 10.05(6)(k)8. and 314 CMR 9.06(6)(a)8.). As such, a plan must be submitted with the Notice of Intent and Water Quality Certification application 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 (CP/PP Plan)).	As noted in the DEIR, NEP will prepare a SWPPP for the Project in compliance with the EPA's NPDES program under the Stormwater CGP. The 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 plan shall be submitted with the NOI and WQC application.
DEP-15	The CP/PP should include measures to reduce potential impacts to resource areas from areas used to store swamp mats and felled trees. Use of feller-bunchers during clearing, trimming, and removal operations should be analyzed as one alternative to reduce erosion and sediment control impacts to resource areas. Working from swamp mats should also be considered. However, any temporary impacts caused to resource area from swamp mats must be proposed to be fully mitigated.	NEP will provide appropriate BMPs to mitigate any temporary impacts caused to resource areas from swamp mats. Additionally, 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, NEP forestry crews will preserve understory scrub-shrub and herbaceous vegetation to avoid and minimize creating areas of bare soil surfaces. Please refer to *Section 4.5.1* for further details on mitigation for temporary wetland impacts.

DEP-16	The proponent should note that the requirements at 310 CMR 10.05(6)(b), 10.05(6)(k)8., and 314 CMR 9.06(6)(a)8. to provide erosion and sediment controls apply even if the project qualifies as a limited project.	NEP notes this comment. BMPs, as discussed in Section 3.3 and Section 8 of the DEIR, will be implemented to control stormwater run-on to and runoff from the proposed access improvements are displayed on the DEIR Plans in Appendix A.The extent to which the Standards apply to the Project will be addressed as part of the MA WPA and 401 Water Quality permitting process. Additionally, NEP will submit an NOI and prepare a SWPPP for the Project in compliance with the EPA's NPDES program under the Stormwater CGP.
DEP-17	The Environmental Impact Report should include a conceptual level Erosion and Sediment control plan for comment. Note that any land disturbance greater than 1-acre requires coverage under the U.S. Environmental Protection Agency's Construction General Permit (CGP). The Stormwater Pollution Prevention Plan (SWPPP) required by the CGP may serve as the CP/PP Plan, if it includes measures required to be in the CP/PP Plan in addition to the measures specifically required by the EPA Construction General Permit.	The 100% design plans will include an erosion and sediment control plan. This will be incorporated into the SWPPP and filed with the NOI and CWQC submittals.
DEP-18	The CP/PP Plan or SWPPP will need to be approved in the Final Order of Conditions and Water Quality Certification prior to the commencement of any tree clearing and disturbance within resource areas.	The 100% design plans will include an erosion and sediment control plan. This will be incorporated into the SWPPP and filed with the NOI and CWQC submittals.
DEP-19	If a project is within Estimated Habitat indicated on the most recent habitat map of State-ListedRare Species published by the Natural Heritage and Endangered Species Program (NHESP), the applicant must demonstrate no short- or long-term adverse effects of habitat of local species in accordance with 310 CMR 10.59.	Based on discussion with NHESP and the proposed avoidance, minimization, and mitigation efforts, NEP anticipates the Project will not result in an adverse effect to habitats of rare species. NEP will continue to work closely with NHESP throughout the MESA review process, including continued coordination and preparation of a CMP in the event a "Take" cannot be avoided.
DEP-20	The Environmental Impact Report should overlay the proposed scope of work atop the Estimated Habitat maps. Where tree clearing and disturbance is proposed within Estimated Habitat of Rare Species, the Environmental Impact Report should analyze alternatives to avoid adverse impacts.	*Table 8-1* in *Section 8* above shows impacts in Priority Habitat overlaying the proposed scope of work atop the Estimated Habitat maps.
DEP-21	The project activities including on-going vegetation management through numerous areas of Habitat of Potential Regional or Statewide Importance (MassDEP Important Habitat Maps can be found at: https://umasscaps.org/data_maps/massdep-maps.html); therefore, the applicant must submit a Detailed Habitat Evaluation and demonstrate no adverse impacts in accordance with 310 CMR 10.60 and MassDEP's Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands at https://www.mass.gov/doc/massachusetts-wildlife-habitat-protection-guidance-for-inland-wetlands/download.	NEP has conducted a Wildlife Habitat Evaluation for the Project in accordance with 310 CMR 10.60 and MassDEP's Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands. The locations assessed included areas mapped as Habitat of Potential Regional or Statewide Importance. Summary results of the WHE survey were presented in Section 4 and a WHE Report was provided in Appendix F of the EENF (submitted to MEPA on September 12, 2022). Town-specific results will be provided in the individual NOIs submitted to the Towns.
DEP-22	Although a Detailed Evaluation is required for permitting, the Environmental Impact Report should include an alternatives analysis to avoid adverse impacts that may be caused by on-going vegetation management. This shall include an analysis of Potential Vernal Pools and NHESP Certified Vernal Pools in each Resource Area and identify those that are presumed significant in accordance with the Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands. Certified Vernal Pools are classified as Outstanding Resource Waters of the Commonwealth. Potential Vernal Pools should be analyzed by the proponent to determine whether they are eligible to be certified and present the results of this analysis in the Environmental Impact Report.	NEP's consultant BSC Group evaluated a single identified Potential Vernal Pool to determine whether it is eligible to be certified. A full discussion is provided in Section 4.2.1 of the DEIR. BSC Group did not find sufficient evidence to support eligibility for certification.
DEP-23	Based on the EENF, the project will result in permanent fill in Bordering Land Subject to Flooding (BLSF) due to 632 square feet of concrete caissons. Compensatory flood storage must be provided for any fill in BLSF. Compensatory flood storage is a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation, on a foot-by-foot basis. The Applicant must demonstrate that seasonal high groundwater is at or below the elevation which the compensatory flood storage will be provided. The Environmental Impact Report should analyze alternatives to provide the compensatory flood storage and provide a cut-and-fill table for each alternative analyzed.	As noted in the DEIR, the flood storage loss is *de minimis* within each BLSF where structures are replaced, and the foundations will not impact flood storage capacity. Where required, NEP will design compensatory storage such that the storage area will have unrestricted hydraulic connection to waterway or water body displaced by the Project in compliance with 310 CMR 10.57 (4)(a) and that the storage area will be above seasonal high ground water or below the elevation of which the compensatory flood storage will be provided. For MA WPA permitting, NEP will consult with each municipality to determine appropriate BLSF compensatory mitigation.
DEP-24	The Applicant shall demonstrate that the proposed compensatory flood storage has an unrestricted hydraulic connection to same waterway or water body displaced by the Project as stated in 310 CMR 10.57(4)(a)(1). The compensatory flood storage analyzed in the Environmental Impact Report must be proposed near where the fill is proposed so as to provide an unrestricted connection to the same waterway.	In addition to the response to CS-20, wherever NEP will design compensatory storage such that the storage area will have unrestricted hydraulic connection to waterway or waterbody displaced by the Project in compliance with 310 CMR 10.57 (4)(a) and that the storage area will be above seasonal high ground water or below the elevation of which the compensatory flood storage will be provided.

DEP-25	The Environmental Impact Report must include an analysis about Stormwater Management. Removal of trees increases the peak runoff rate, triggering compliance with 310 CMR 10.05(6)(k)2. and 314 CMR 9.06(6)(a)2. 10.05(6)(k)2. applies to alterations in resource areas regardless of if the project qualifies as a limited project.	NEP has performed an analysis of example watersheds along the Project ROW to assess the stormwater implications of the alterations associated with removal of trees, specifically. The removal of trees has a minimal effect on the overall hydrology of the watersheds along the ROW, and, in most design storm scenarios, does not cause a measurable increase at all. The overall impact to hydrology due to the work proposed (access improvements and tree clearing) is marginal and similar to, and in most scenarios less than, that associated with single-family residential development, which is exempt from compliance with the Stormwater Management Standards (310 CMR 10.05(k)(6)(1)). Refer to *Section 4.3* for detailed information.
DEP-26	Alternatives must be analyzed in the Environmental Impact Report to reduce the peak runoff rate from the proposed alterations, including tree clearing. Tree clearing increases the peak runoff rate. Besides traditional methods to provide mitigation such as detention basins, replacement of trees should be analyzed as an alternative to reduce the peak runoff rate. Any trees replaced would need to be within the same sub-watershed to be considered as peak rate mitigation.	Based on analyses performed, the removal of wooded areas from within the Project ROW will result in marginal increases to peak flow rates and, in many cases, no change to peak flow rates. A summary of the analysis of the peak runoff rate from the proposed alterations, including tree removal, has been provided in *Section 4.3*.
DEP-27	A discussion should be included about canopy area lost due to the project and estimate the time period likely to recover the same or larger tree canopy.	Since much of the land adjacent to the ROW is forested and the tree removals are along the edges of an existing managed transmission line ROW, the tree canopy removal represents an overall negligible impact on canopy cover. Tree and shrub canopy that is of a compatible height with the conductors will be left to naturally regenerate once construction is complete.
DEP-28	The recharge and TSS treatment standards apply when impervious area is being created or redeveloped. Towards those requirements, a discussion should be included in the Environmental Impact Report about whether the proposed caissons or access roads will create new impervious area. Special requirements apply to Critical Areas, such as Outstanding Resource Waters (310 CMR 10.05(6)(k)6. and 314 CMR 9.06(6)(a)6.).	The nature of the Project is relatively low impact compared to typical development considering the use of gravel to construct access along the ROW and the minimal additional impervious area from caisson foundations. Where appropriate, NEP has proposed swales, check dams, and plunge pools to control stormwater runoff, promote infiltration, prevent erosion, and minimize changes to the existing hydrology of the ROW. Through promoting infiltration and spreading stormwater flows into vegetated areas of the ROW, the proposed BMPs are consistent with the intent of Low Impact Development ("LID") and integrated management practices.
DEP-29	The Environmental Impact Report should note whether any temporary or permanent stream crossings are proposed. If any crossings are proposed, the Environmental Impact Report should include an alternatives analysis to ensure that the crossing will be designed to facilitate aquatic organism and wildlife passage, and not increase flood levels of the resource area. Any stream crossing should meet the criteria listed in 310 CMR 9.06(2)(b).	As noted in the DEIR, the Project has no proposed permanent stream crossings for access. Proposed stream crossings will be temporary in nature and will be bridged using construction mats or equivalent installed to not impact the hydrology, bed, or bank of the stream.

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Final Environmental Impact Report
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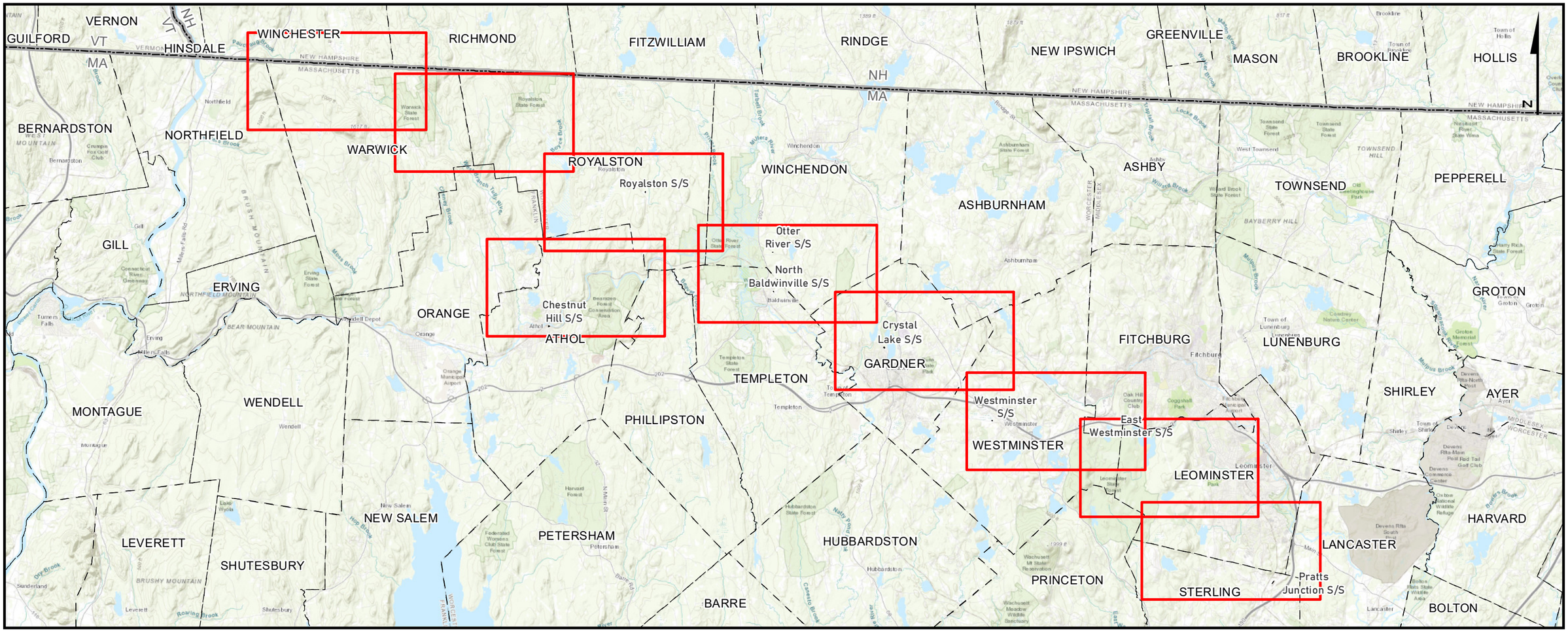
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BSC Project Number: 89620.66

A1/B2 Asset Condition Refurbishment Project

Warwick, Royalston, Athol, Winchendon, Gardner,
Westminster, Fitchburg, Leominster, & Sterling, MA
USGS Locus Maps
April 30, 2024



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INDEX OF FIGURES

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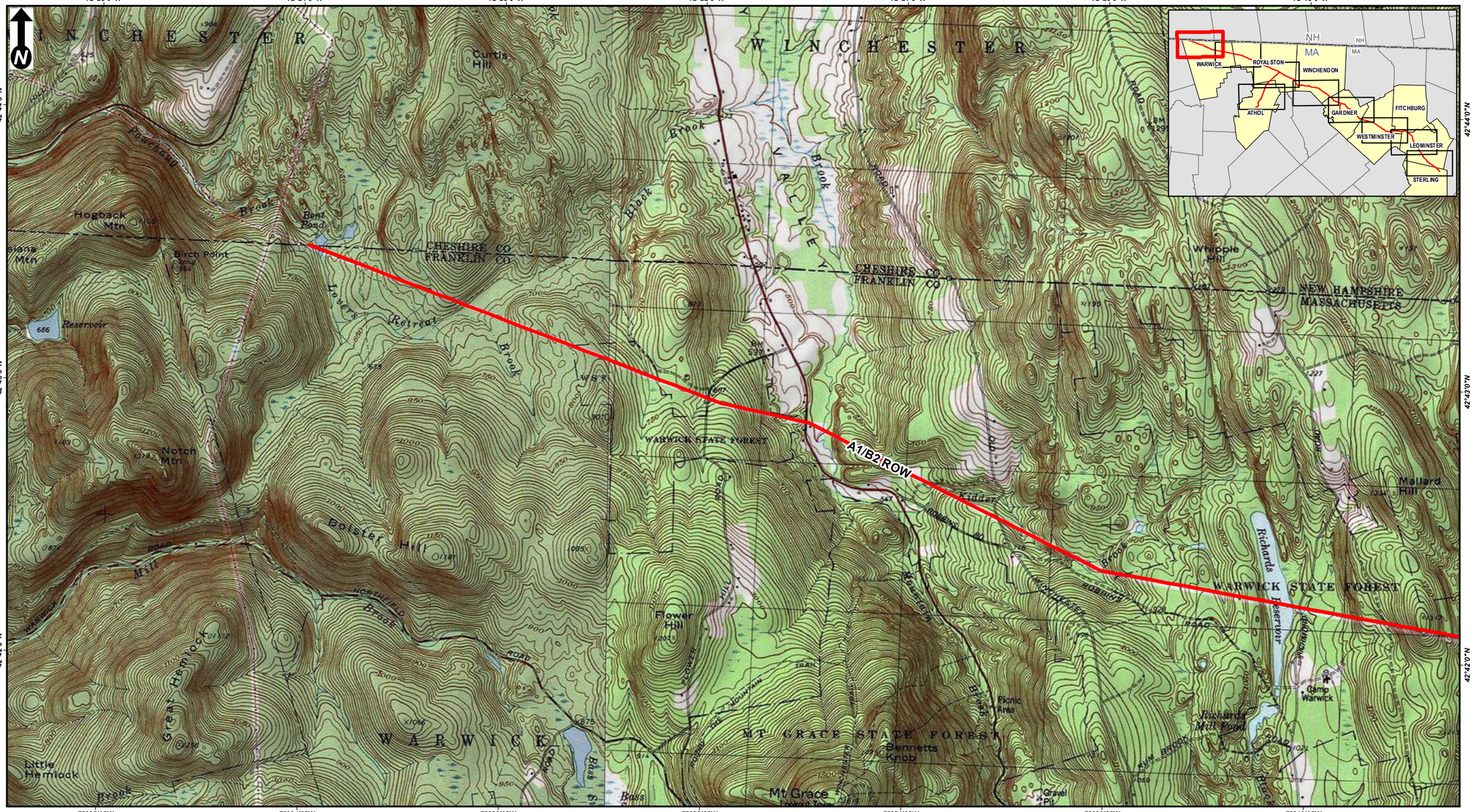
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42°44'0"N | 42°43'0"N | 42°42'0"N



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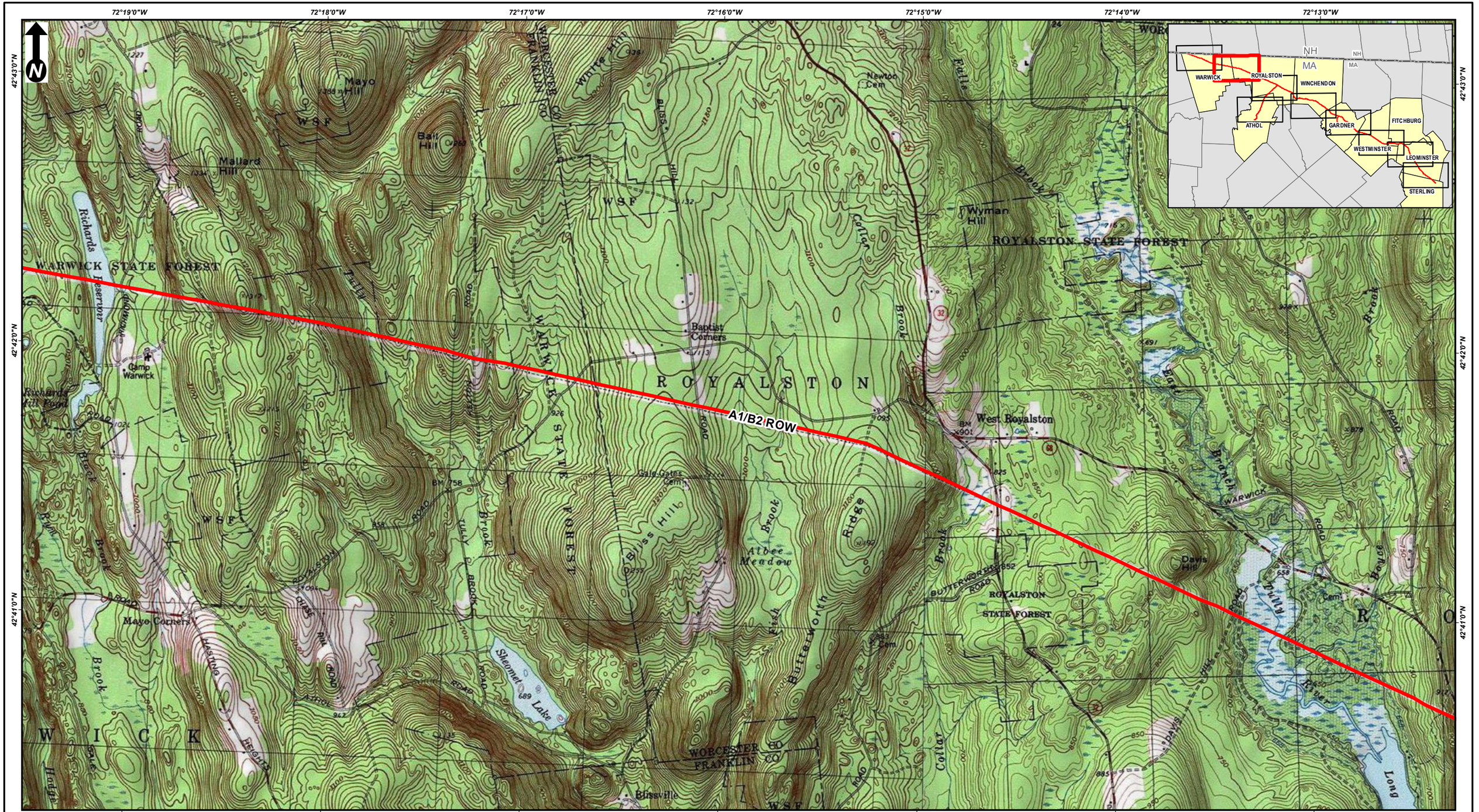
A1/B2 ASSET CONDITION REFURBISHMENT PROJECT
USGS Site Location Maps
Warwick, MA
Page 1 of 9

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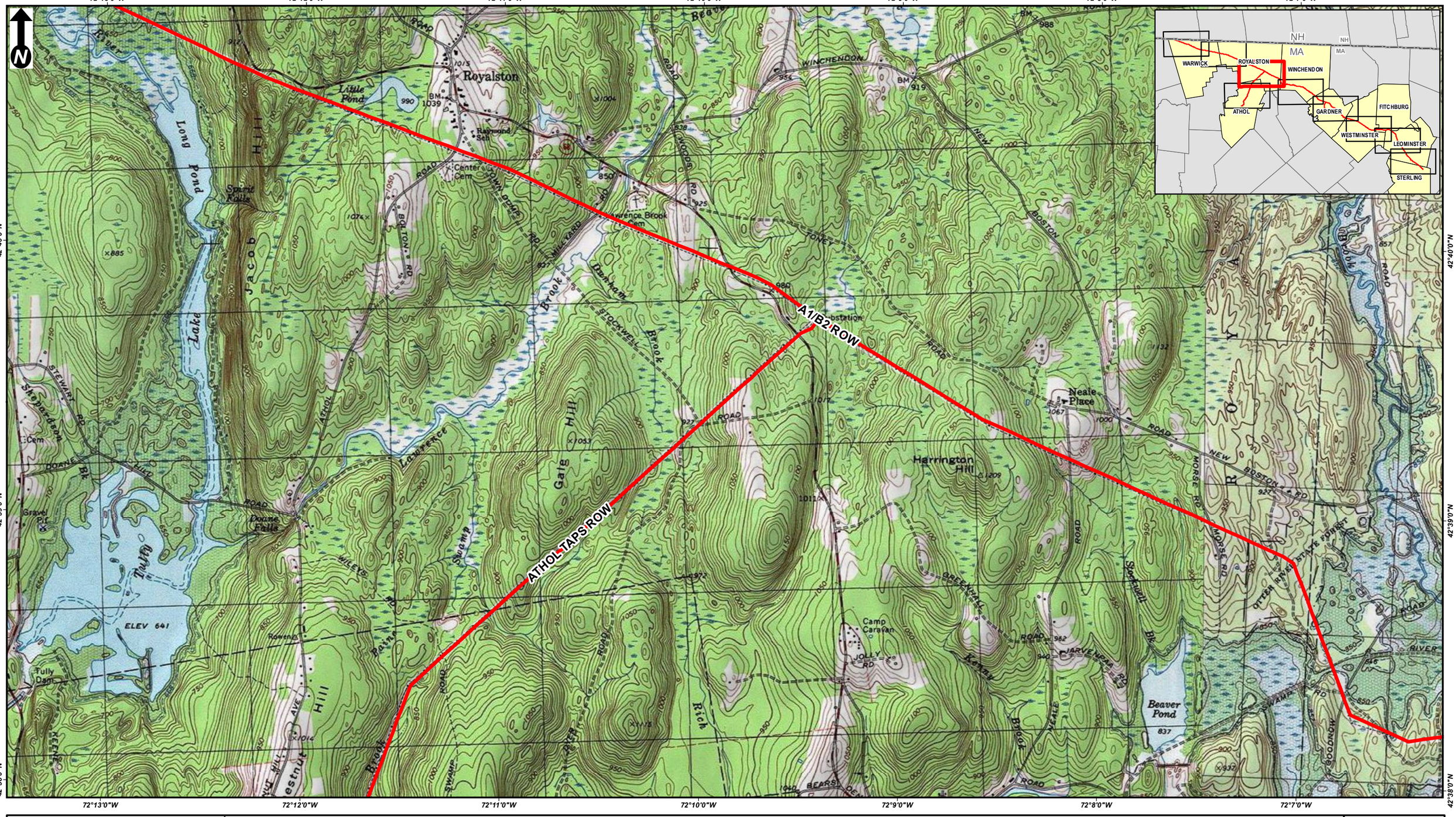
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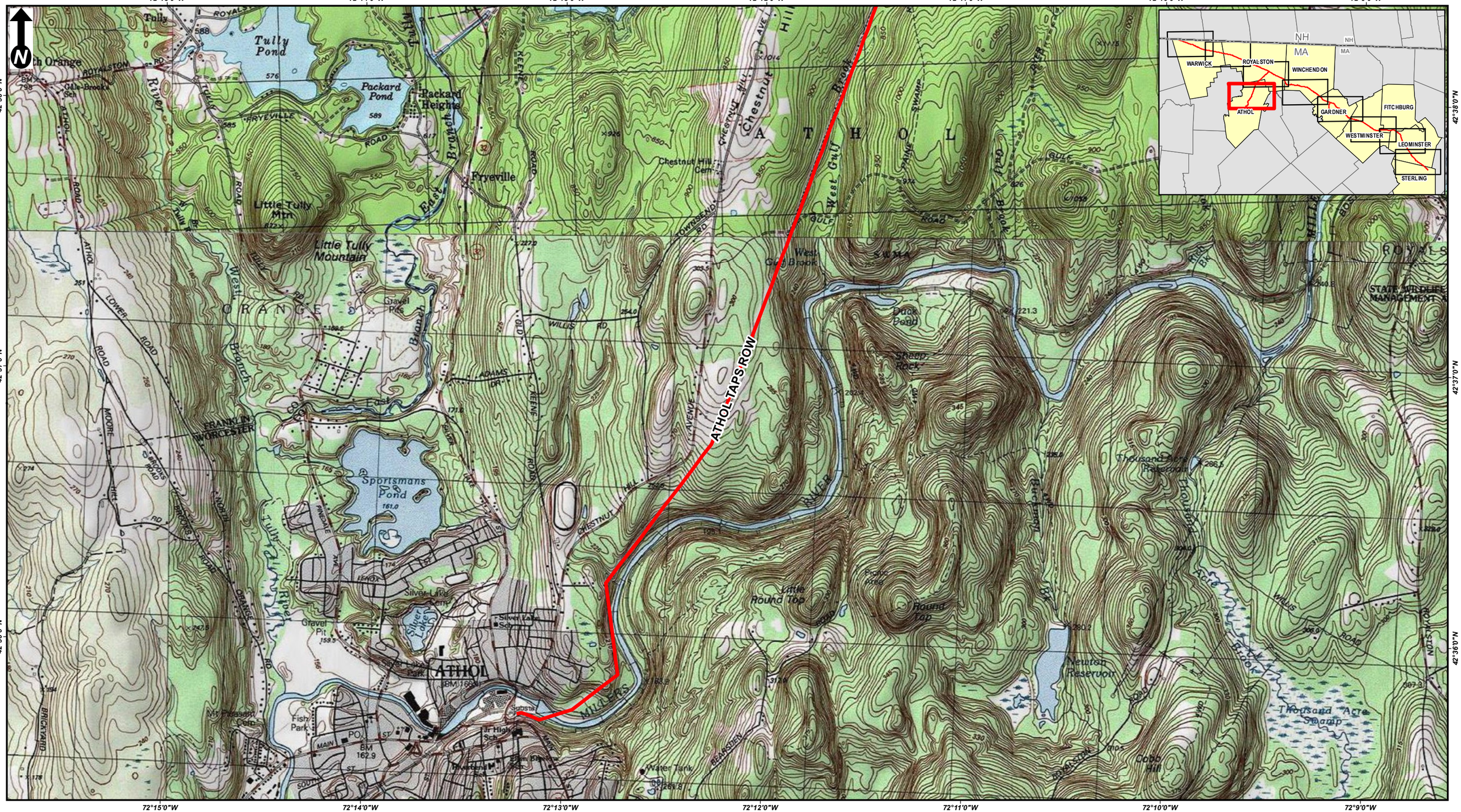
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Royalston, Athol, & Winchendon, MA
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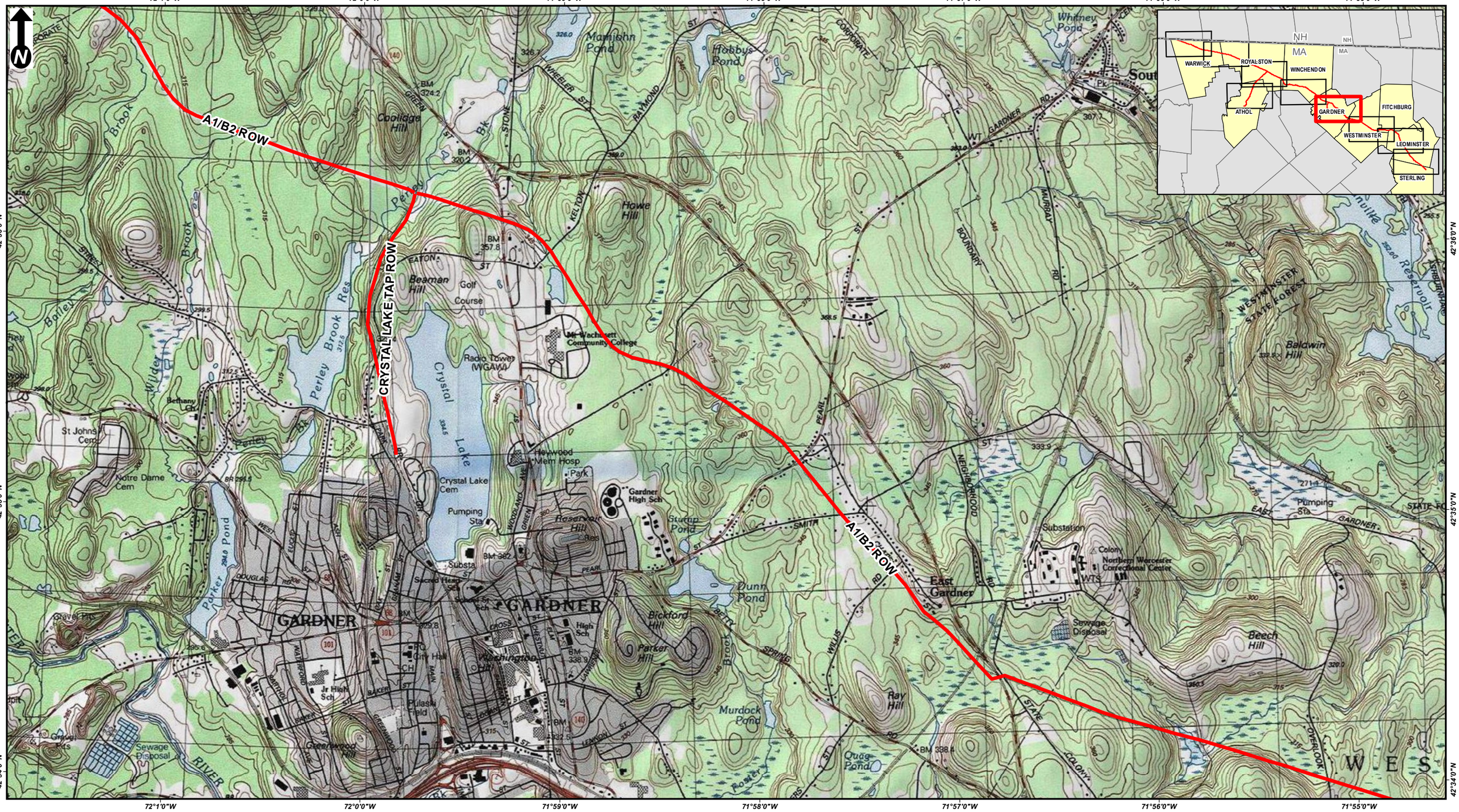
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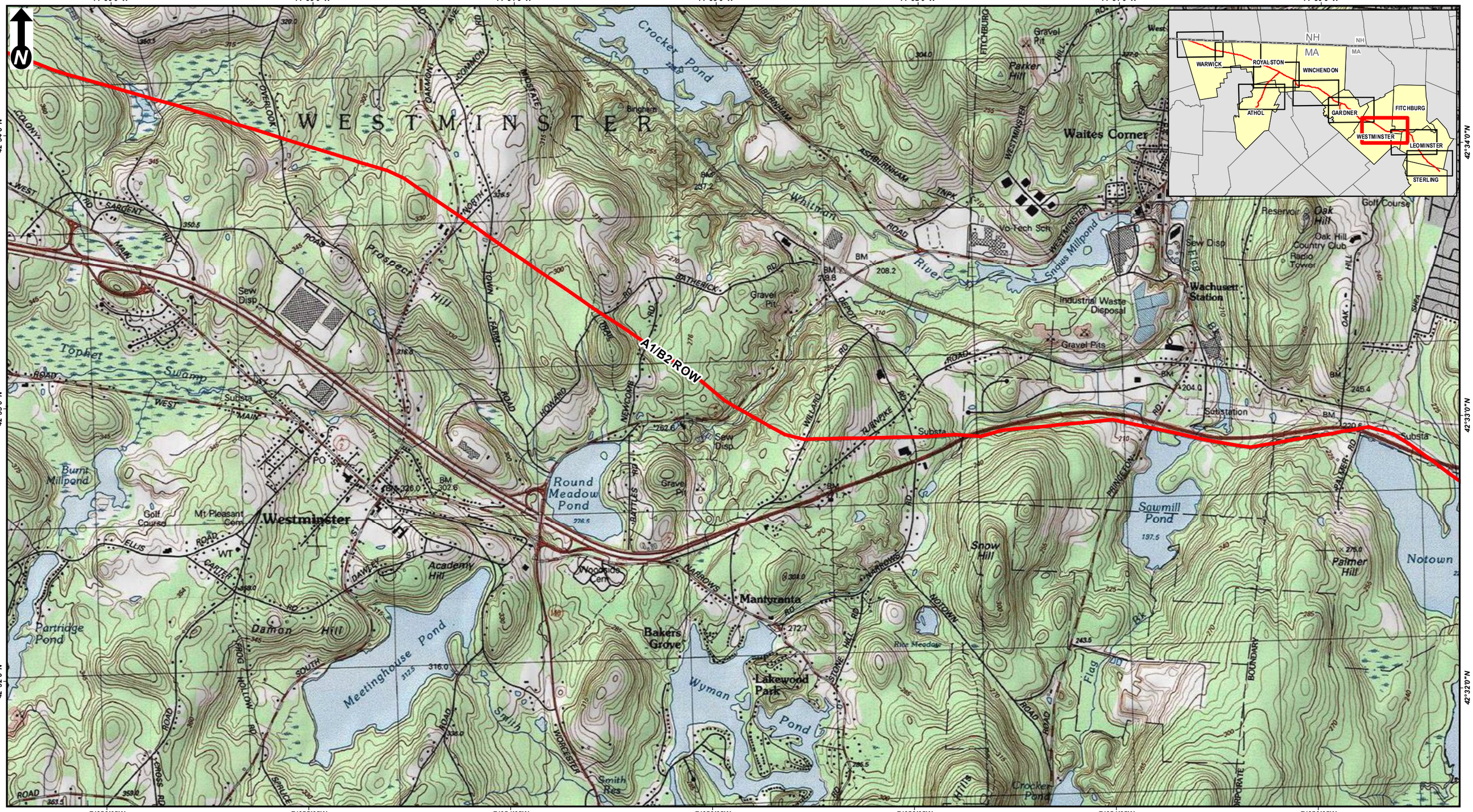
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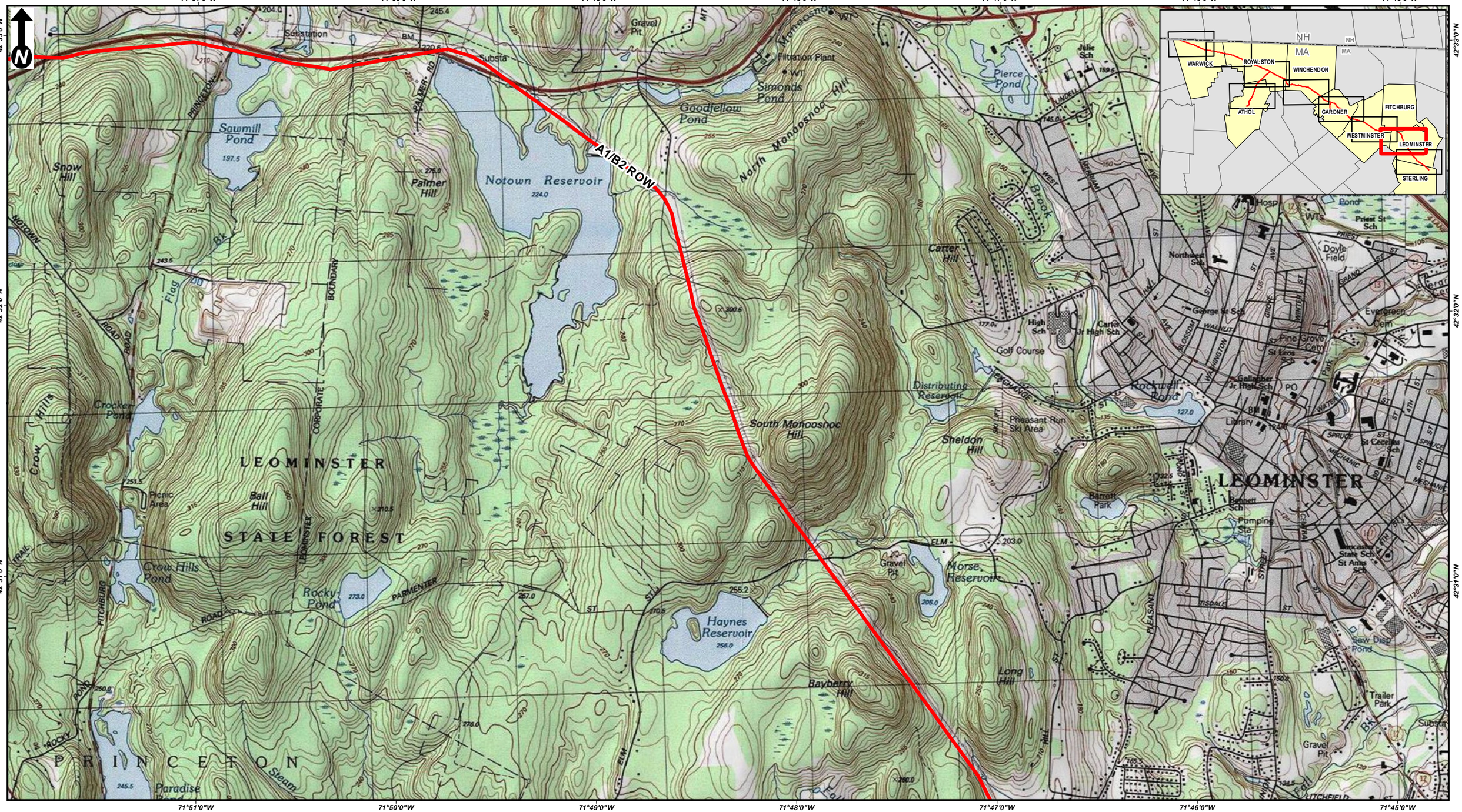
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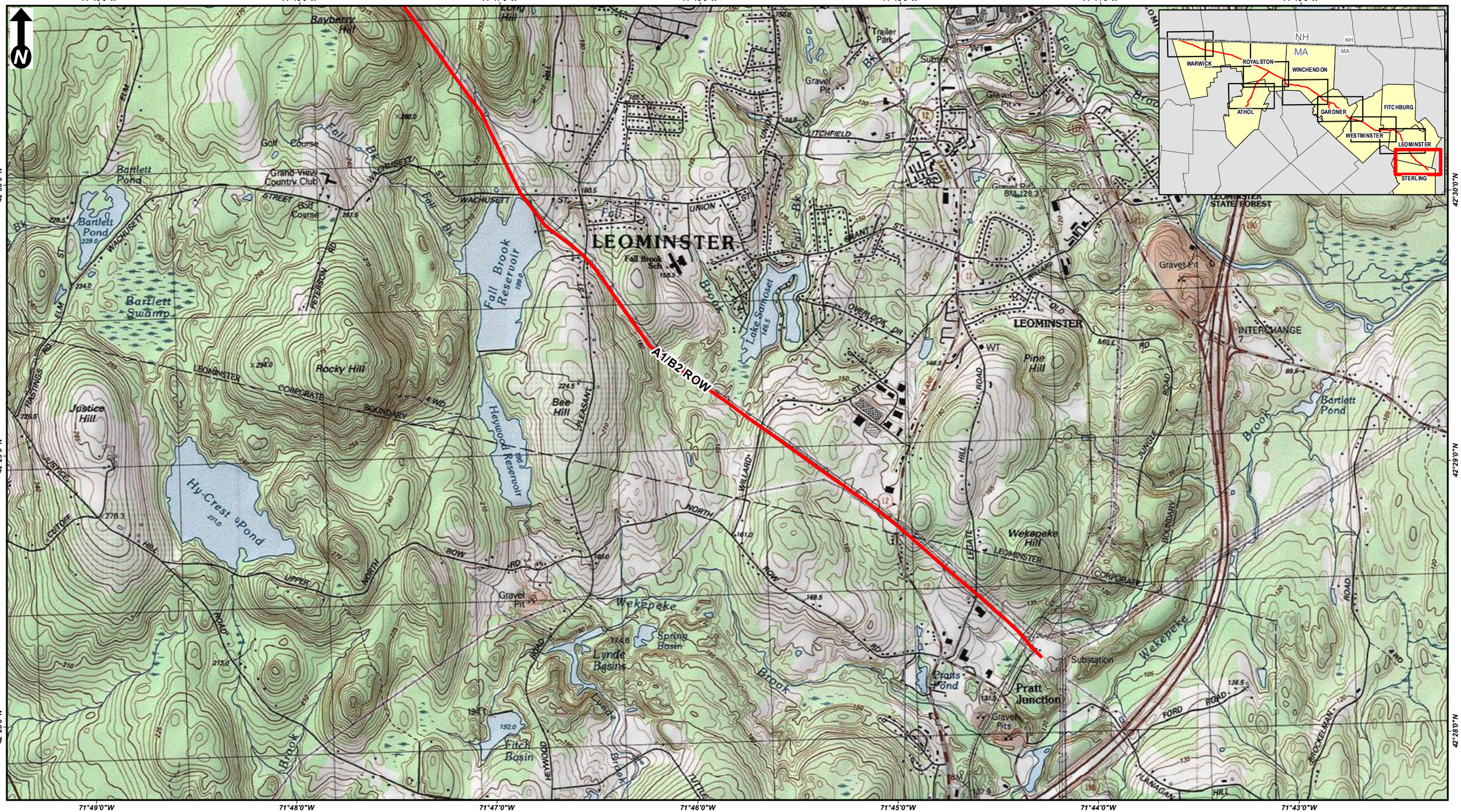
A1/B2 ASSET CONDITION REFURBISHMENT PROJECT
USGS Site Location Maps
Westminster, Fitchburg, & Leominster, MA
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A1/B2 ASSET CONDITION REFURBISHMENT PROJECT
USGS Site Location Maps
Leominster & Sterling, MA
Page 9 of 9

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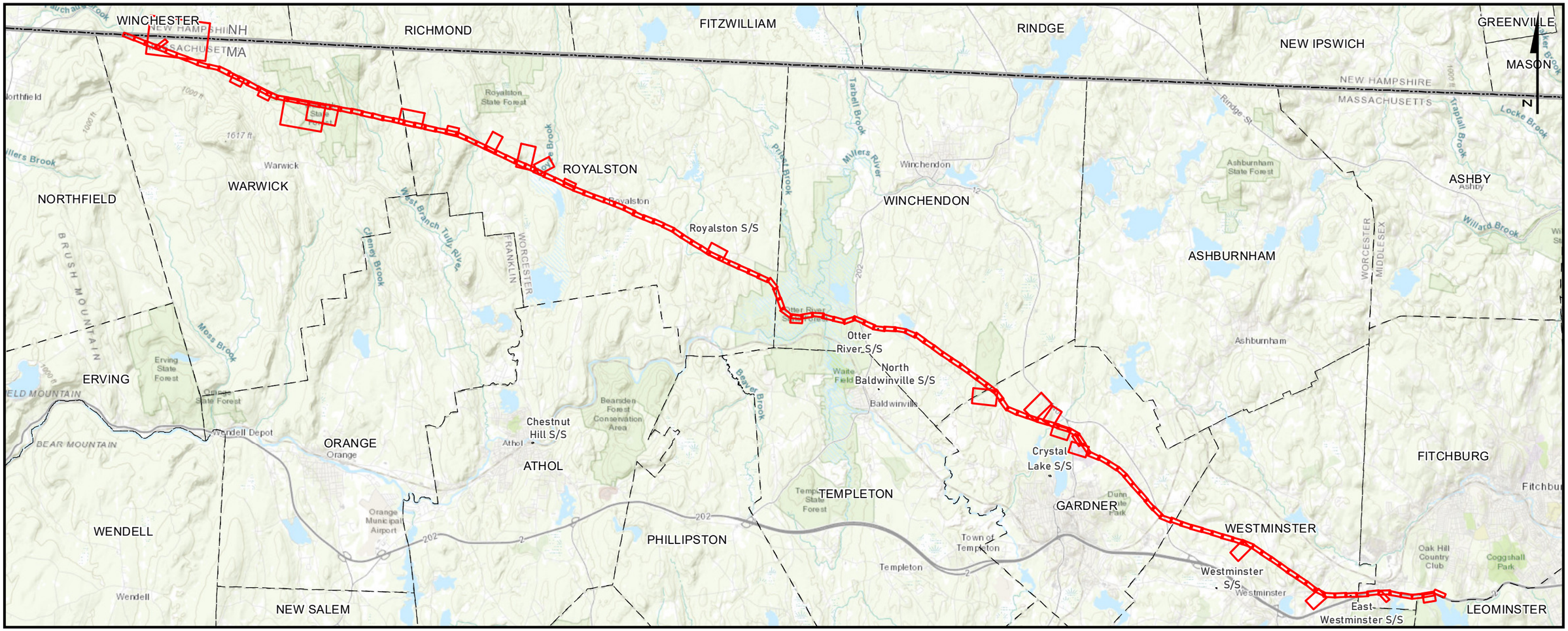
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Appendix A – Figures and Plans
Figure 2 MEPA General Purpose Plans (FEIR Plans)

BSC Project Number: 89620.66

Asset Condition Refurbishment (ACR) Project - A1/B2 Mainline

Warwick, Royalston, Athol, Winchendon, Gardner,
Westminster, Fitchburg, & Leominster, MA
MEPA General Purpose Plans - 75% Design
July 17, 2024



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INDEX OF FIGURES

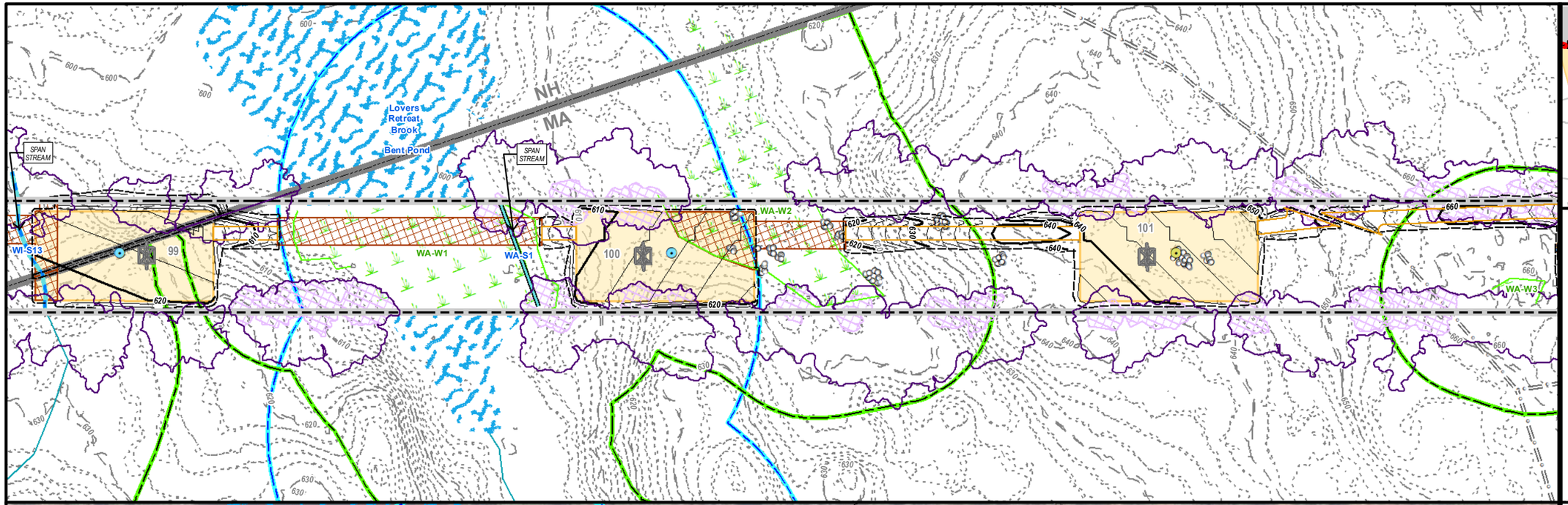
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1 - 137 - MAP SHEETS
1A - 137A - OFF ROW ACCESS SHEETS

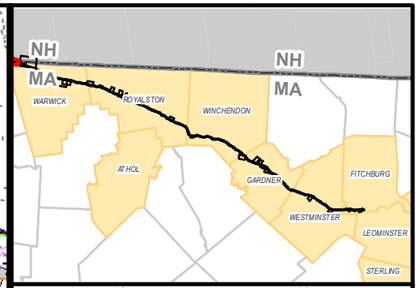
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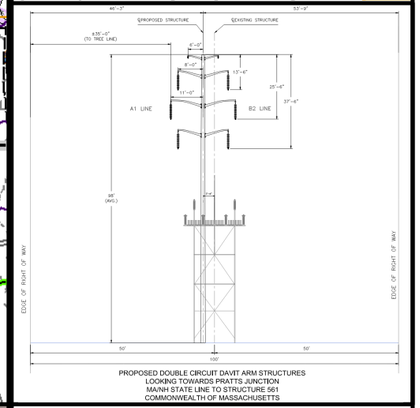
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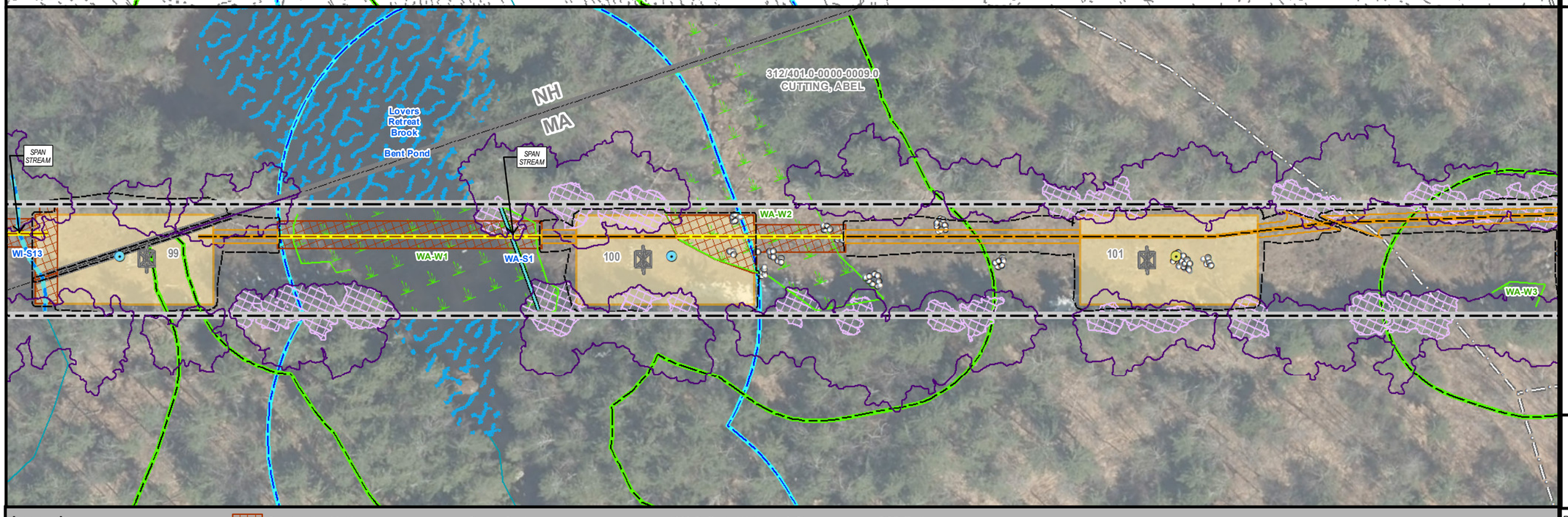
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 1 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
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- Vernal Pool Extent*
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- Gate
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- Fence
- Stonewall
- Guardrail
- Existing Minor Contour
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Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

***Hybrid work envelopes (part temp. construction matting and part gravel) may display contours within a wetland that are representative of matted work area elevations.*

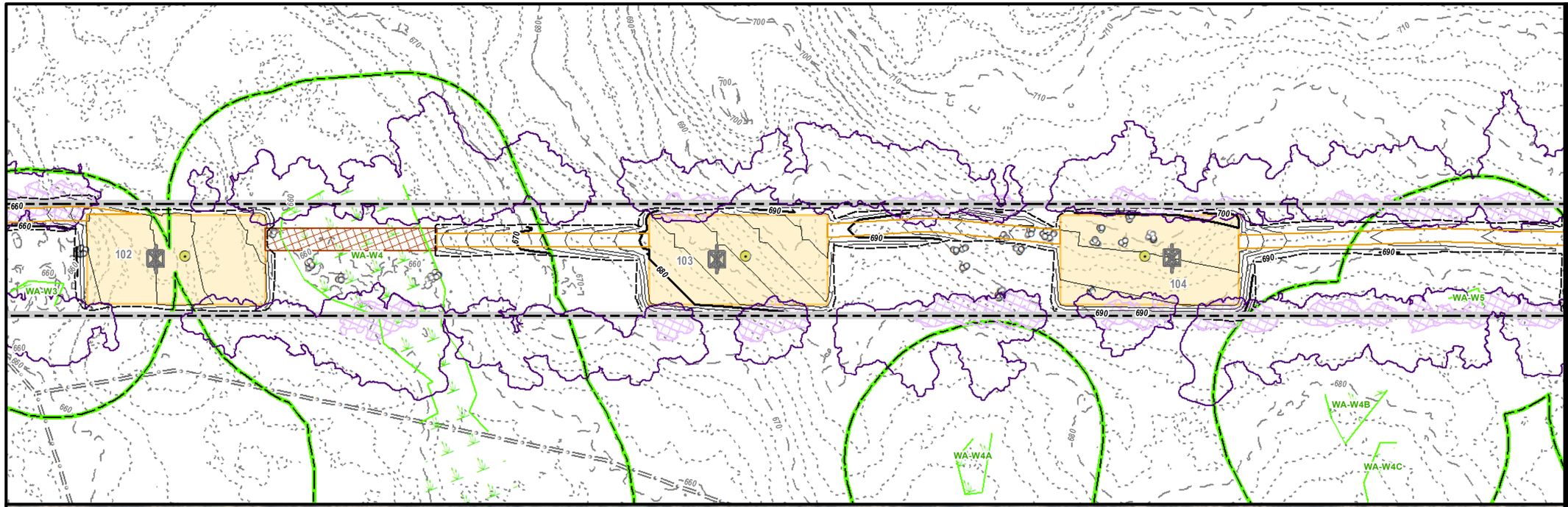
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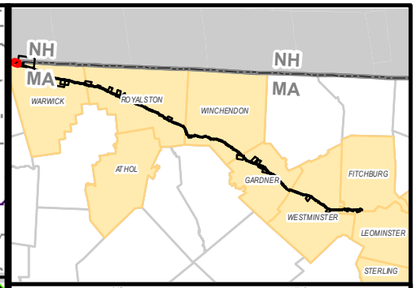
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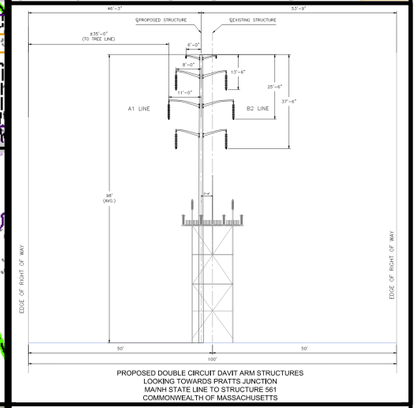
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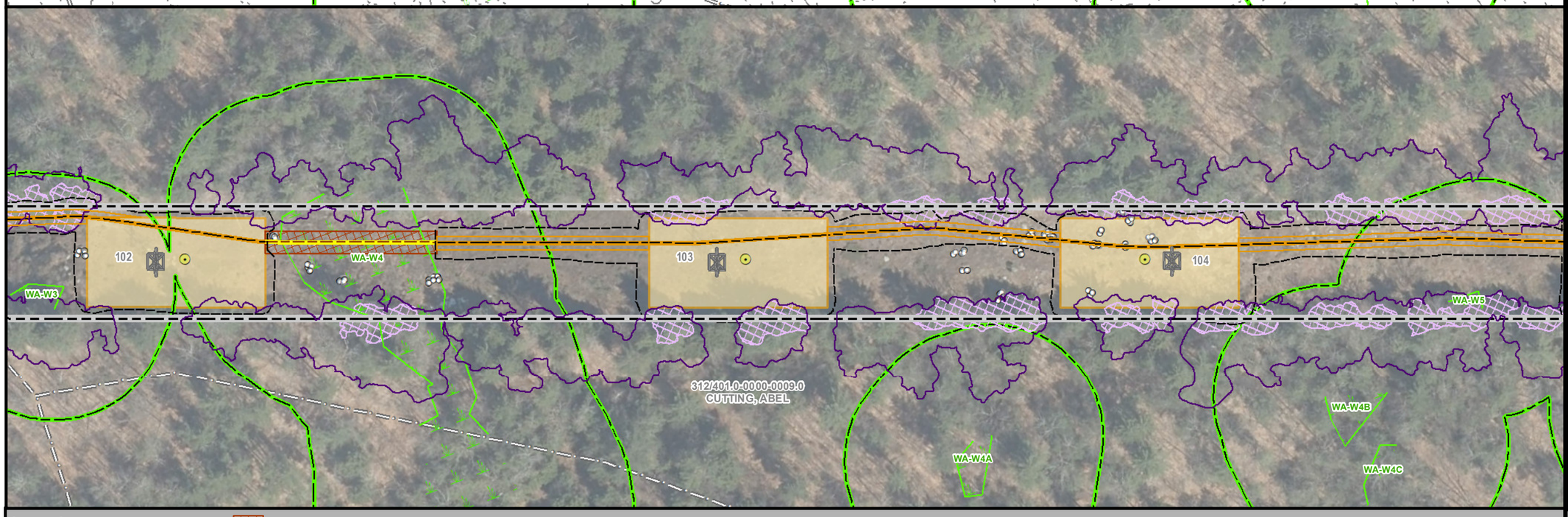
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 2 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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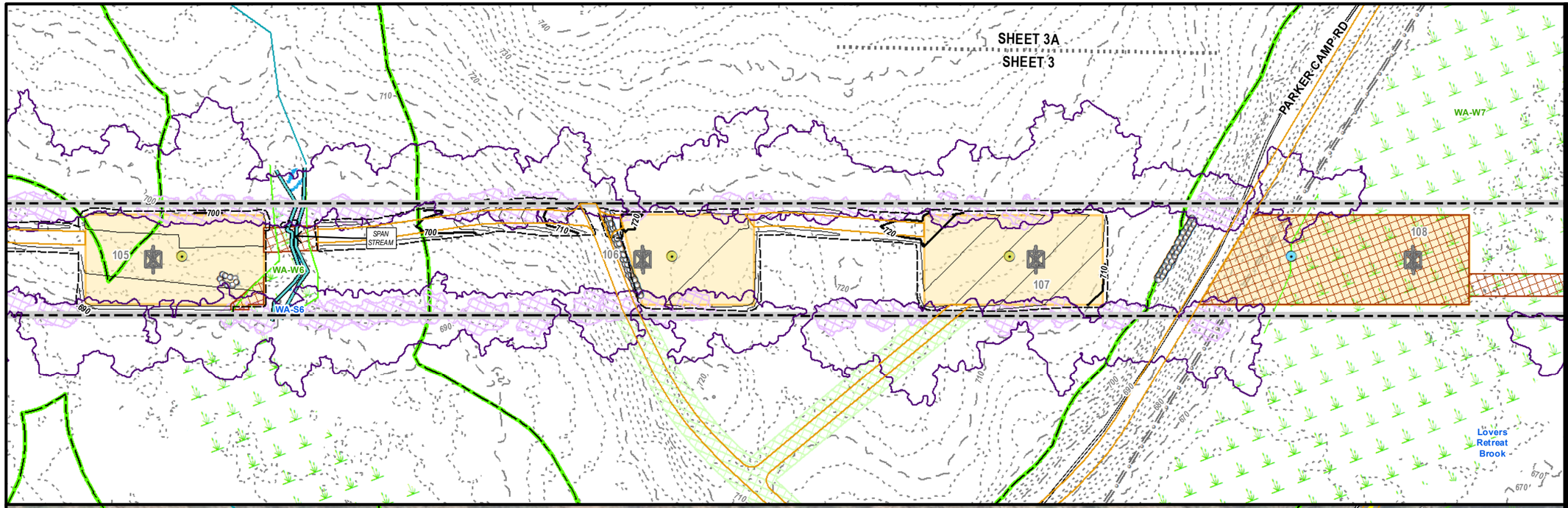
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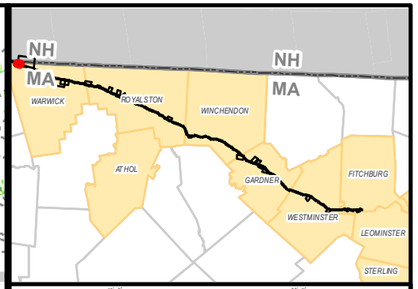
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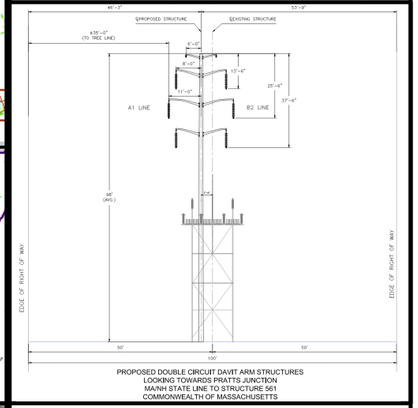
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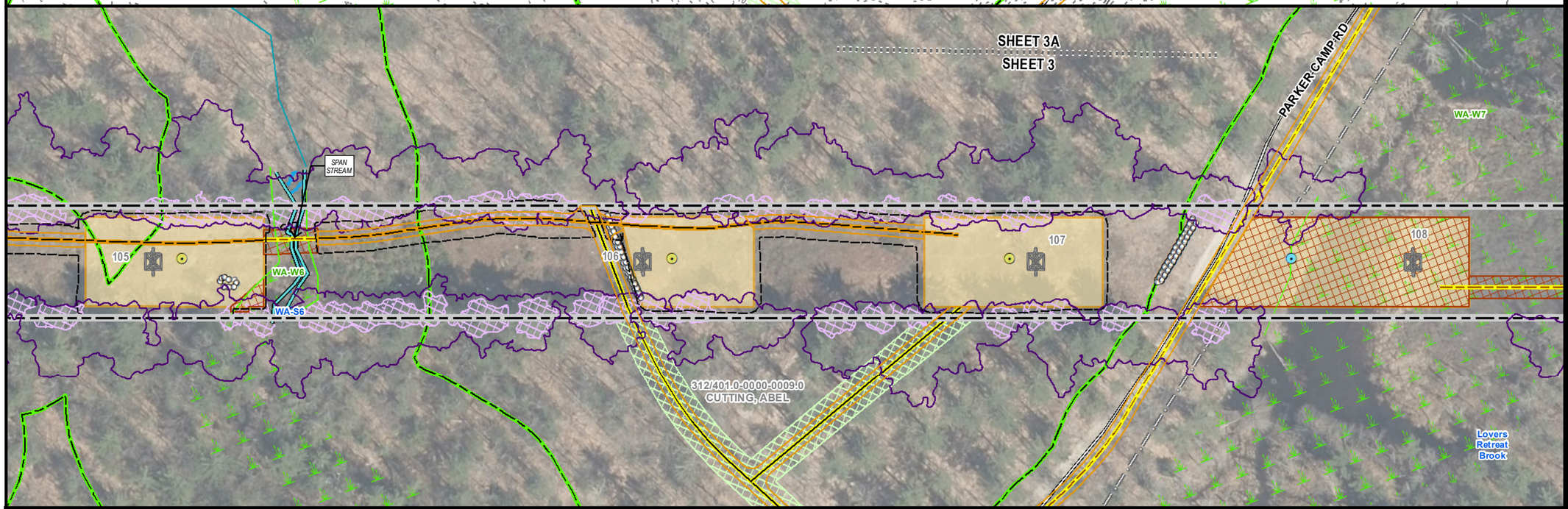
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
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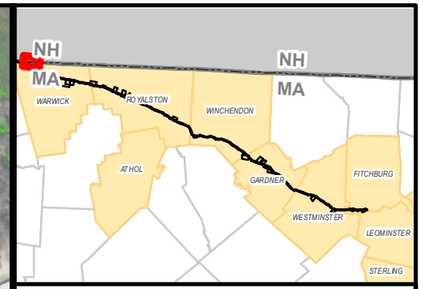
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHESTER, NH &
WARWICK, MA
PAGE 3A OF 137

1 inch = 500 feet
0 250 500
Feet

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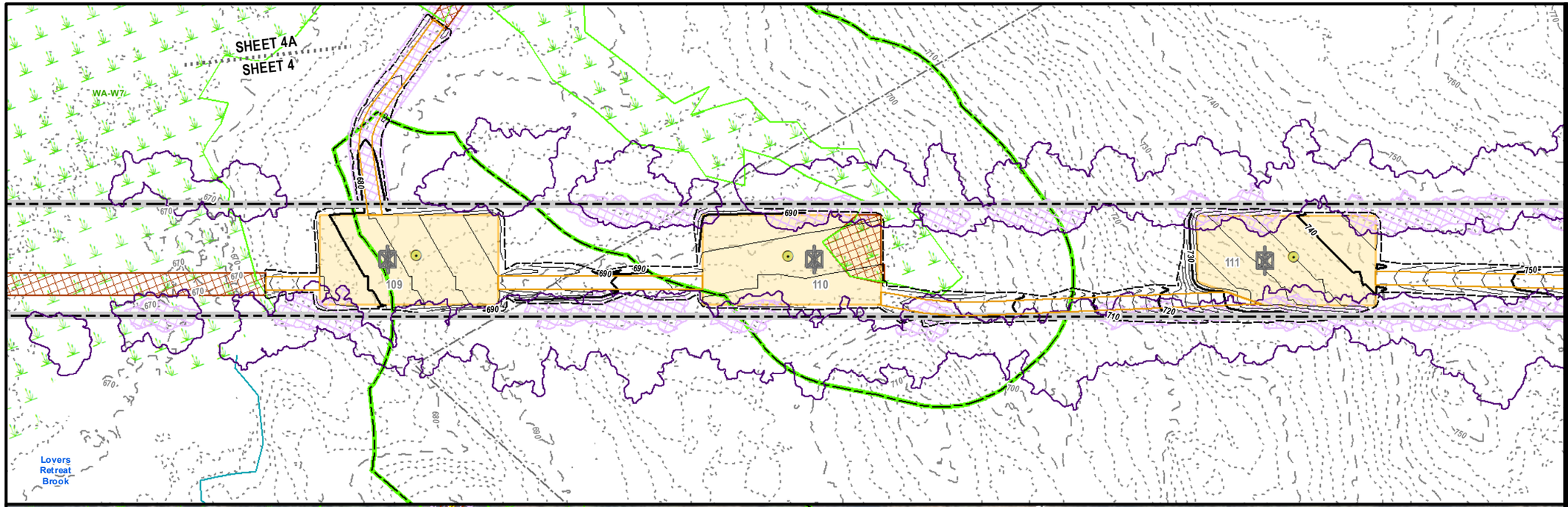
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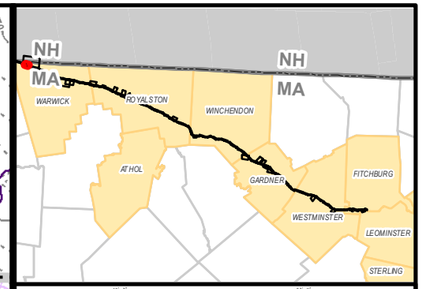
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

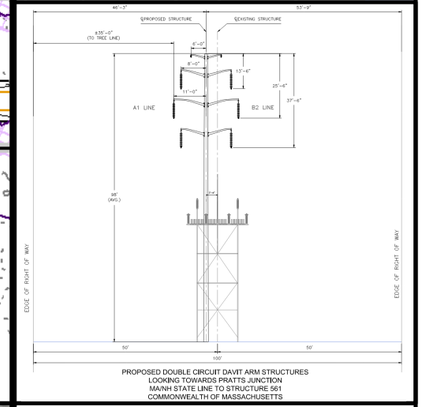
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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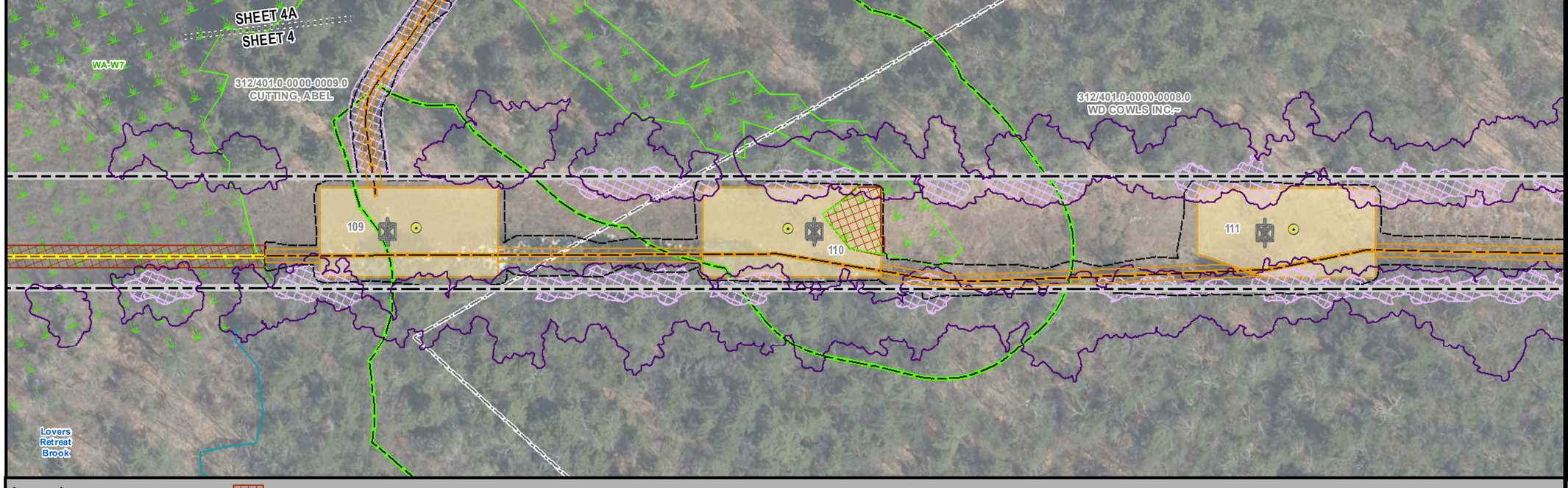
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 4 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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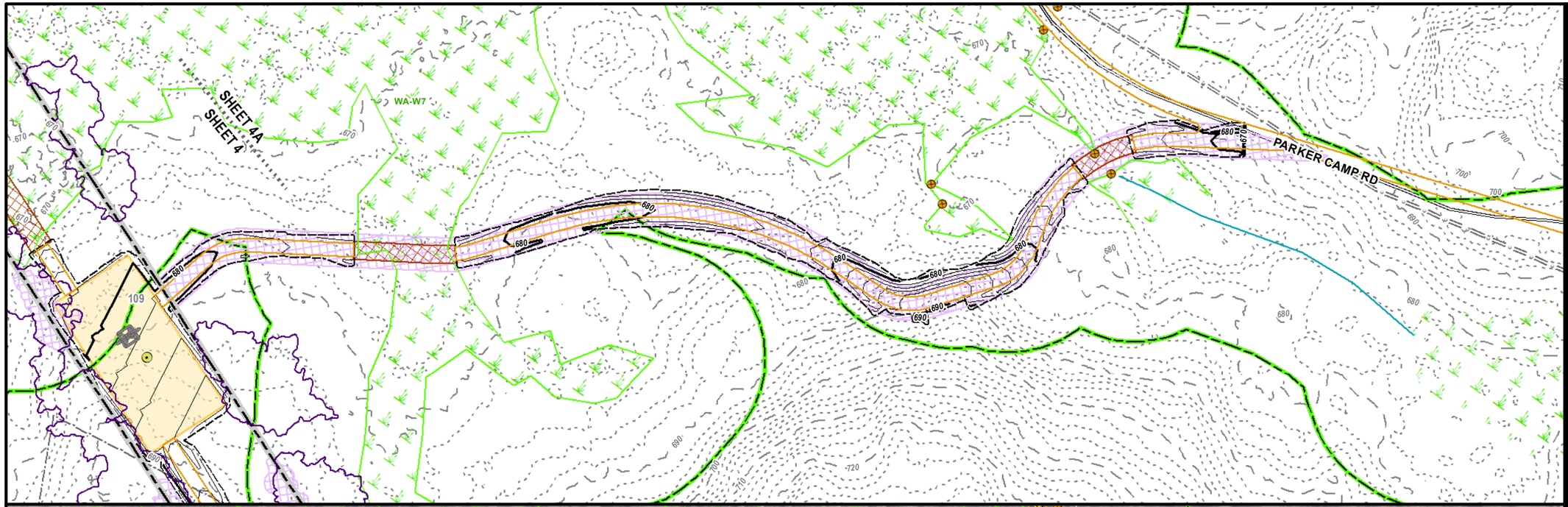
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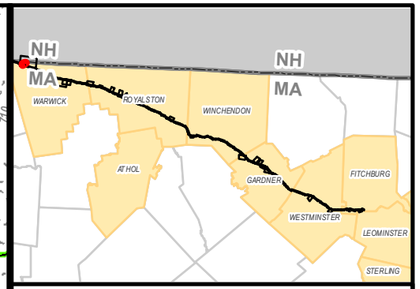
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

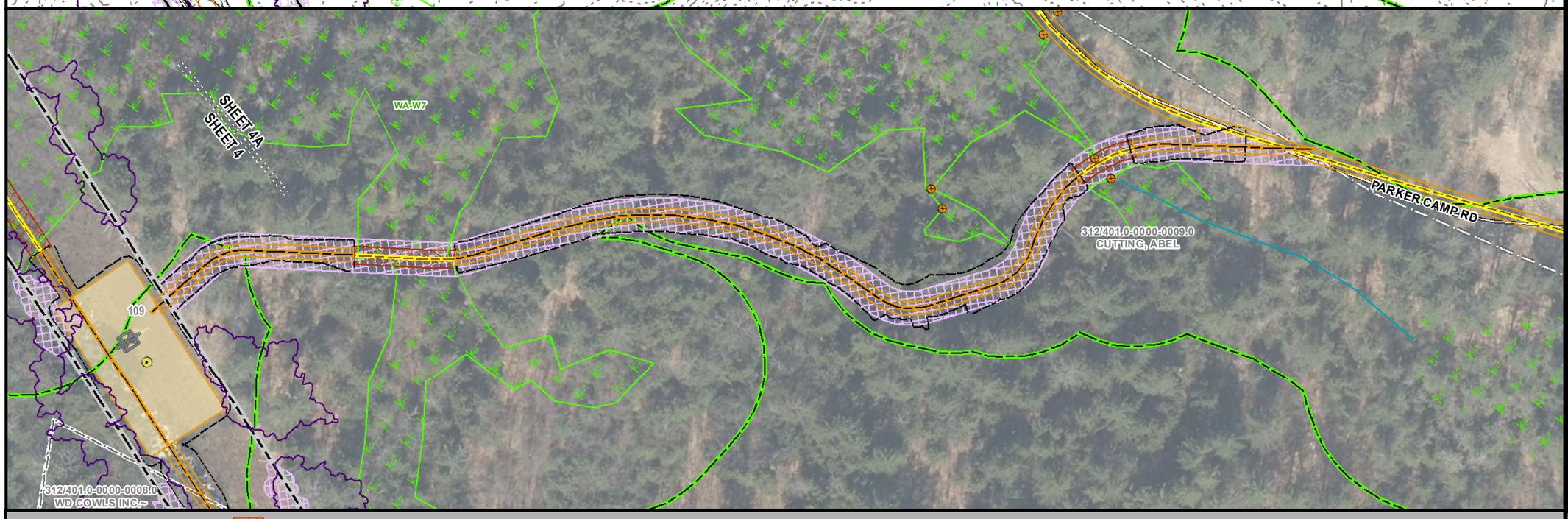
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1 MERCANTILE STREET SUITE 601
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK, MA
PAGE 4A OF 137

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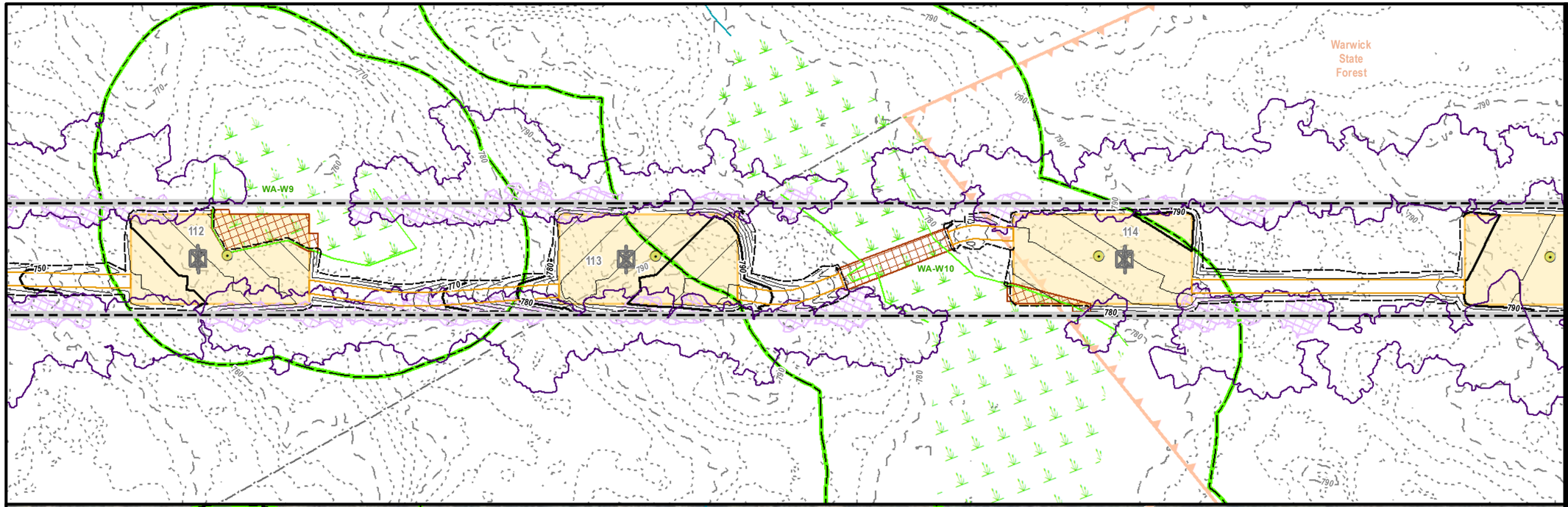
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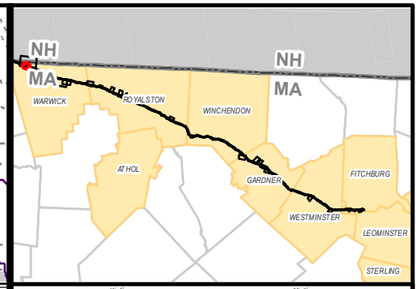
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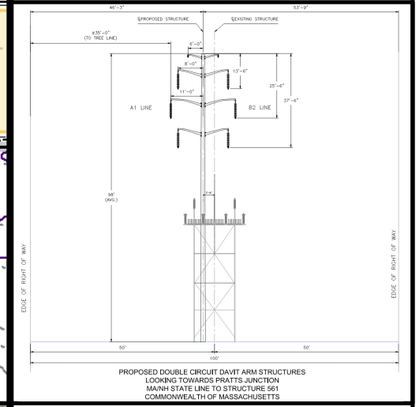
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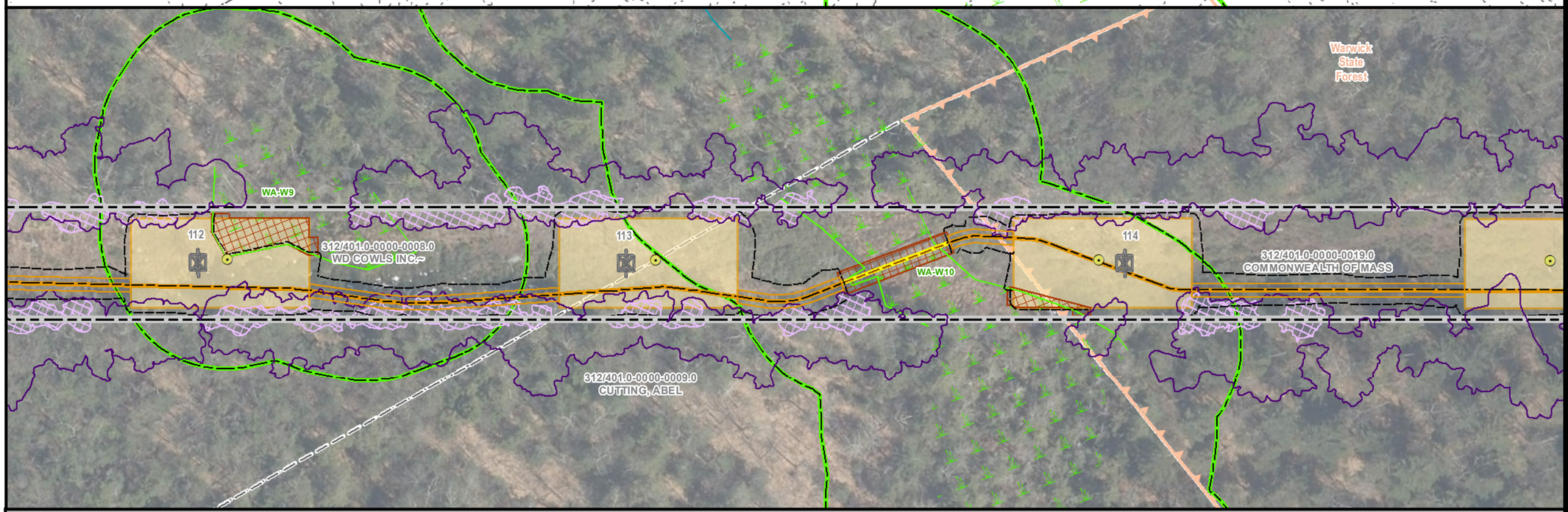
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 5 OF 137

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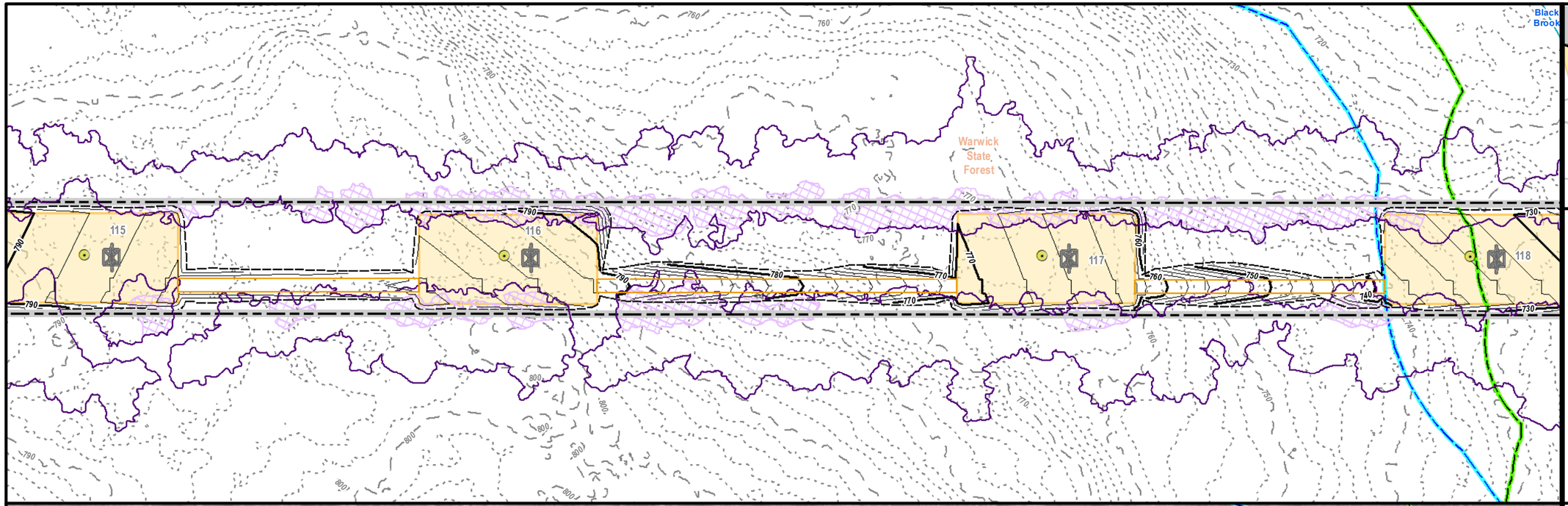
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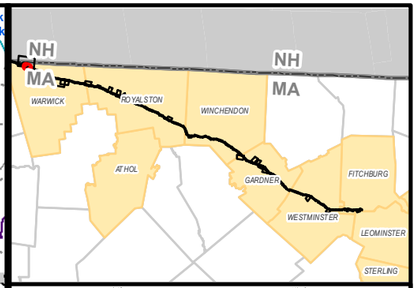
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

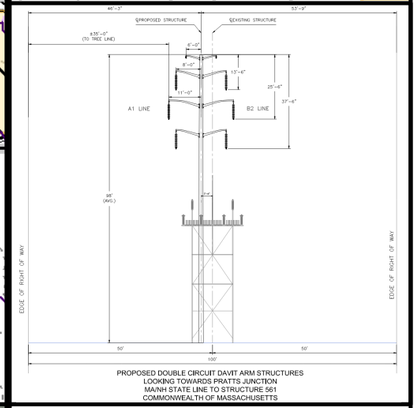
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
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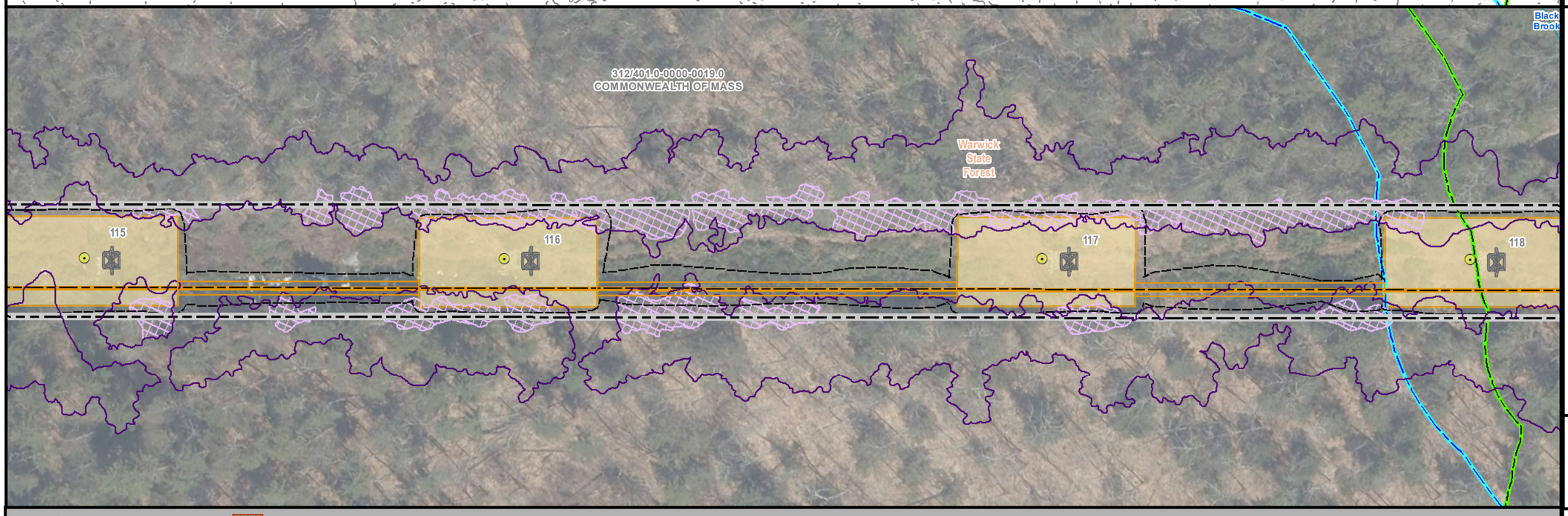
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 6 OF 137

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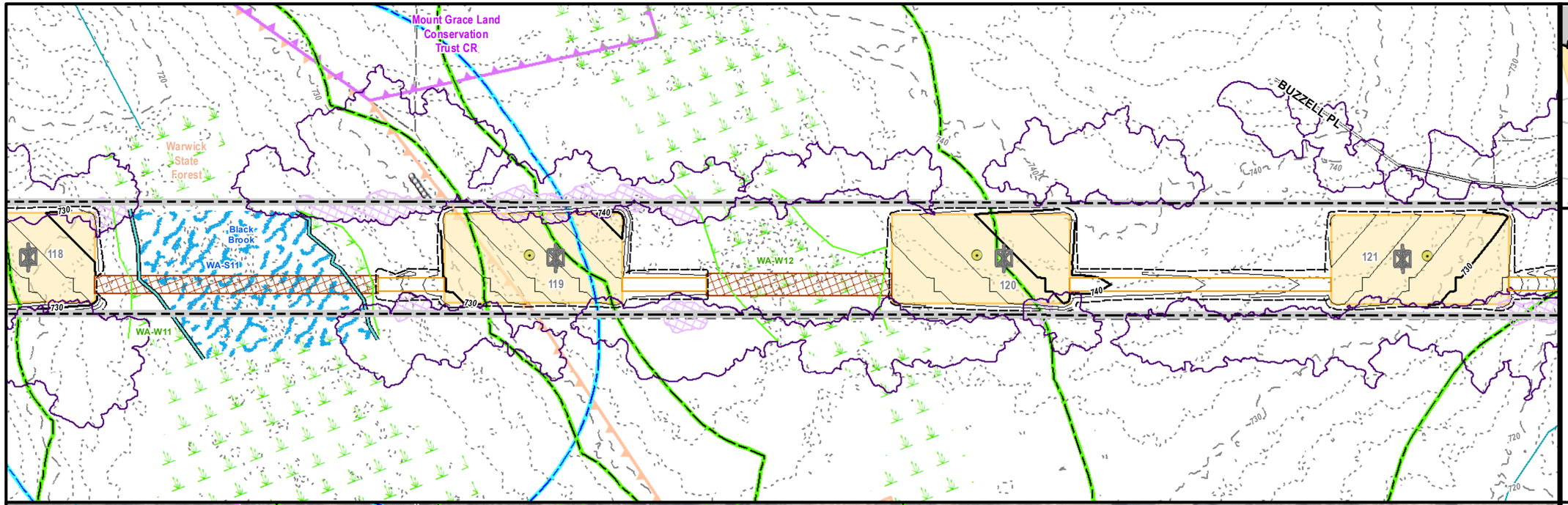
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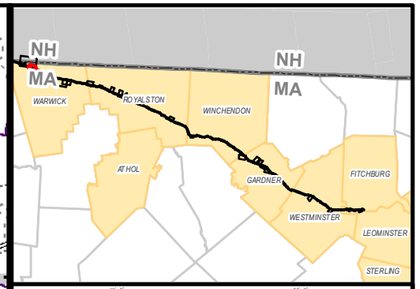
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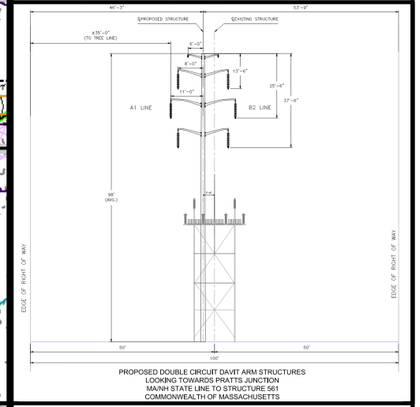
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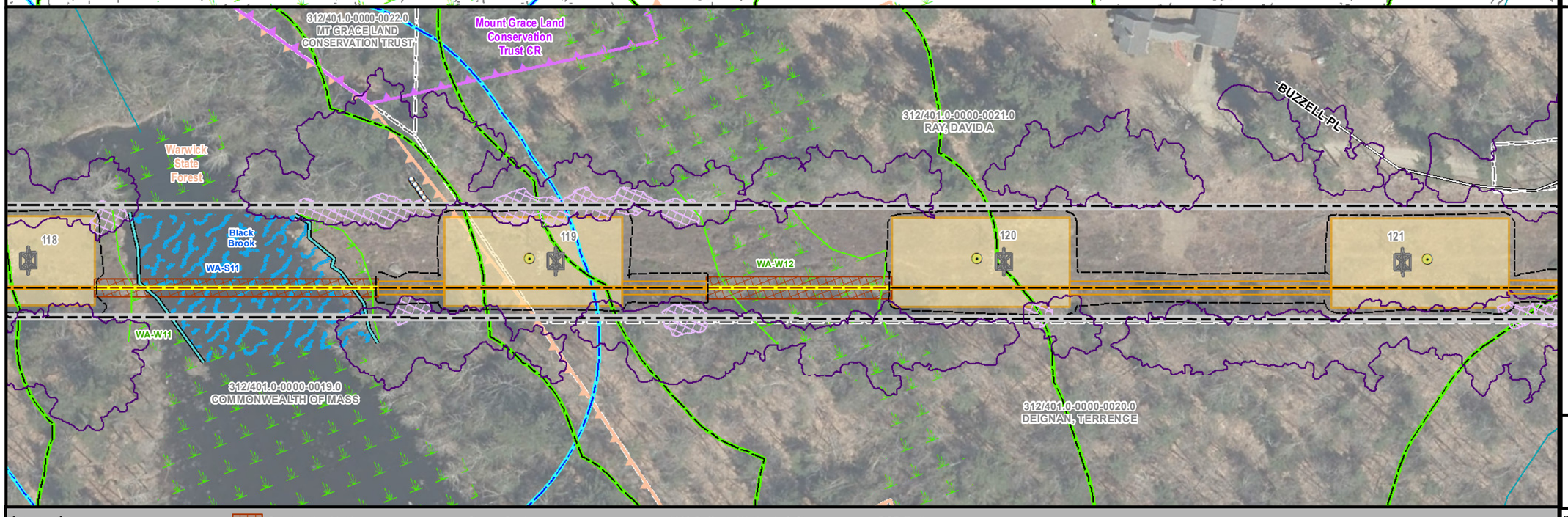
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MEPA General Purpose Plans

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WARWICK MA
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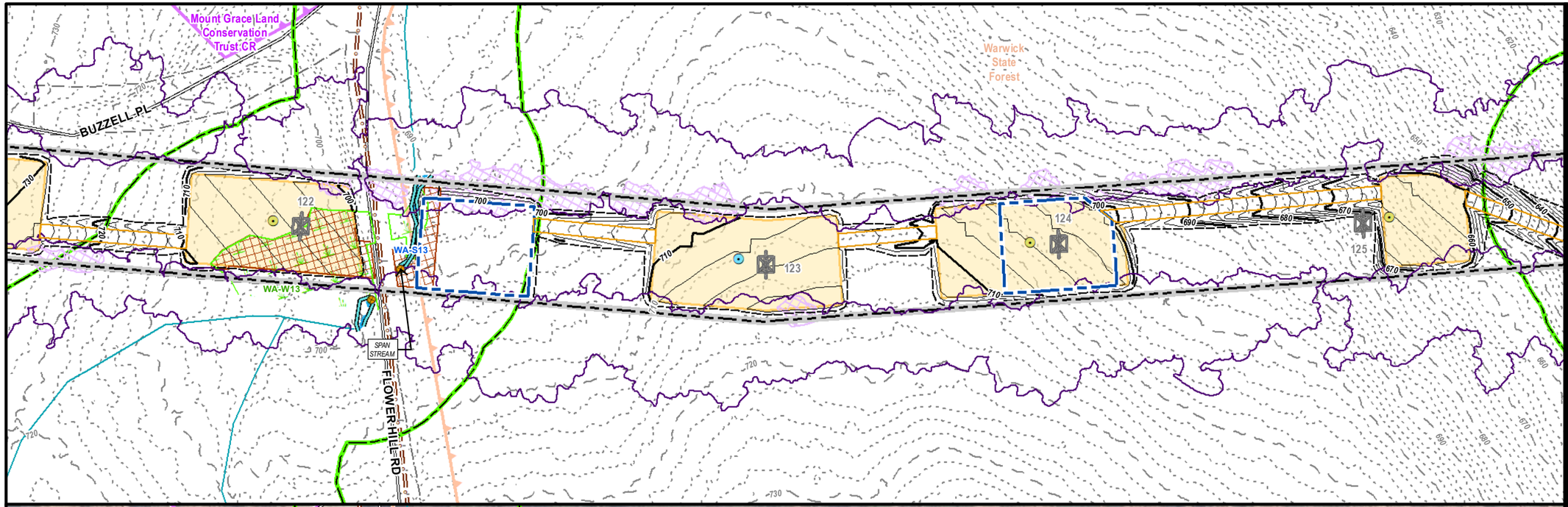
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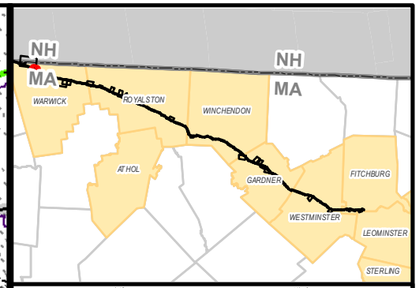
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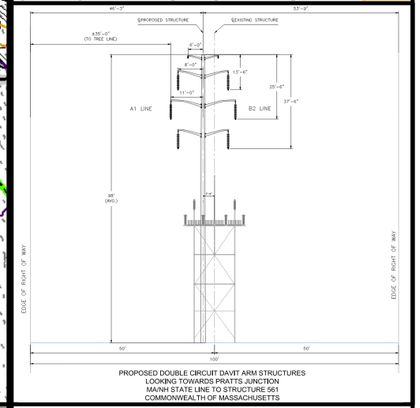
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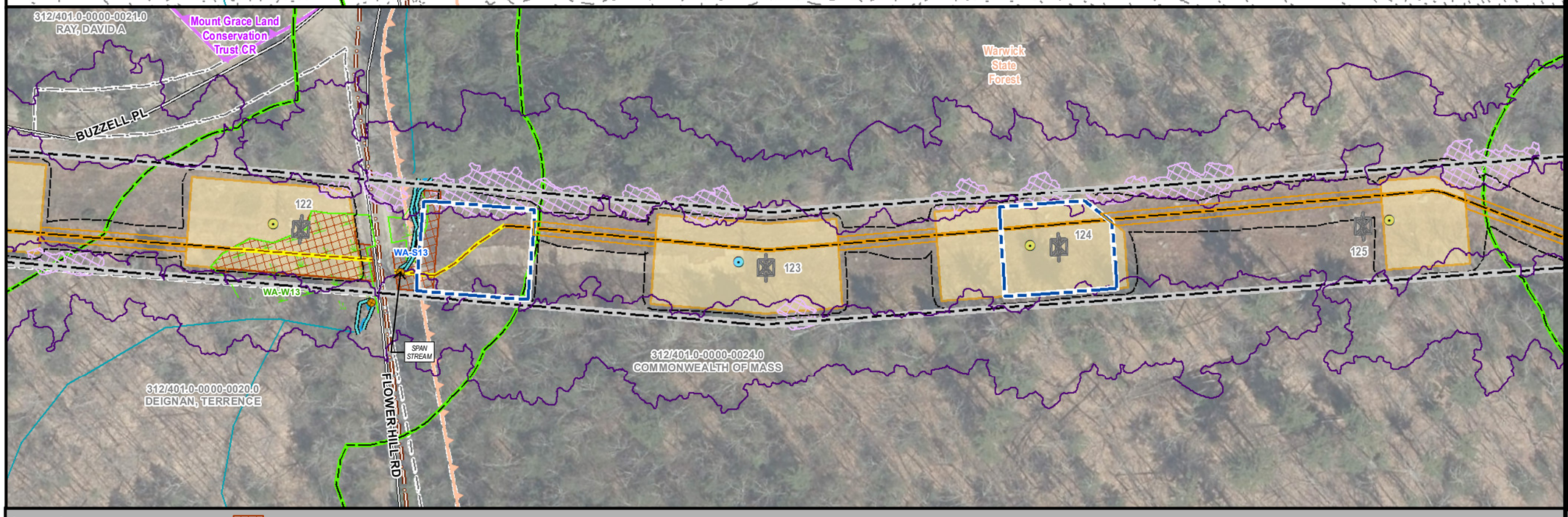
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 8 OF 137

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0 50 100
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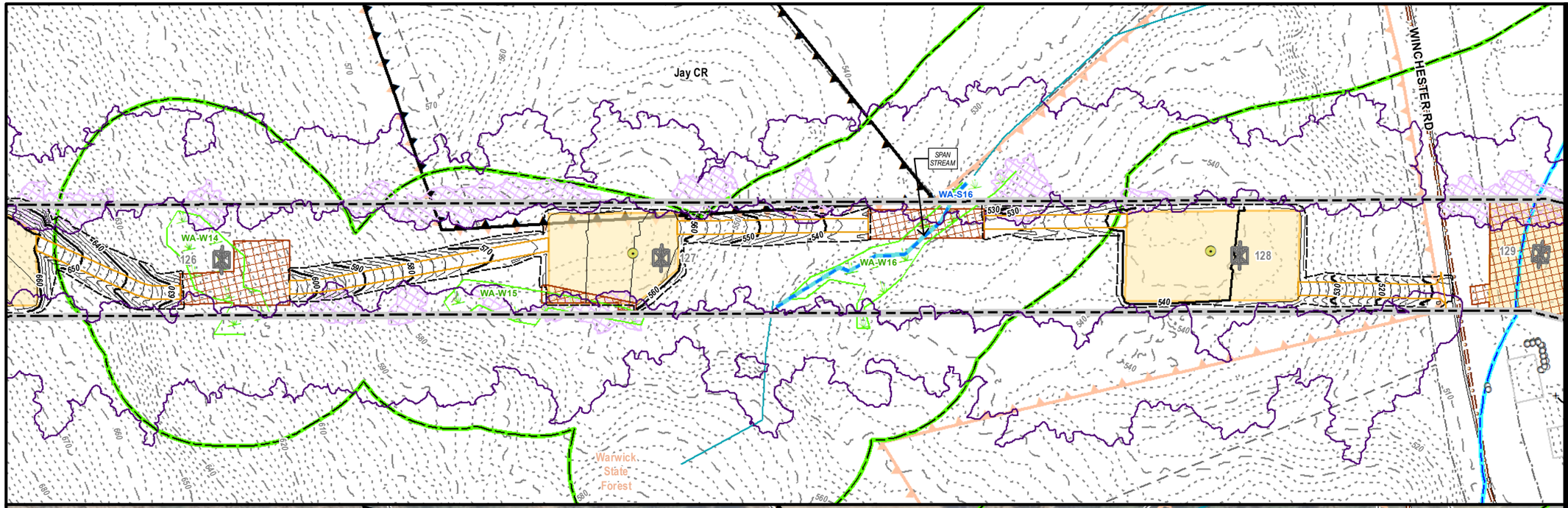
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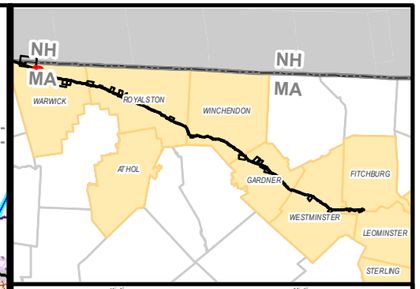
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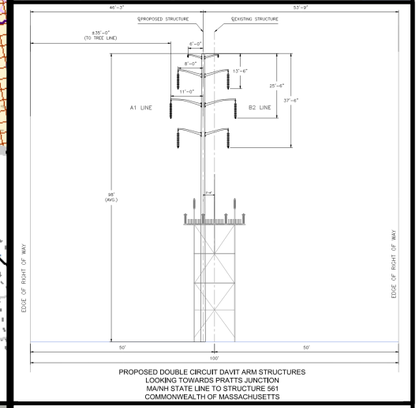
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WORCESTER, MA 01608

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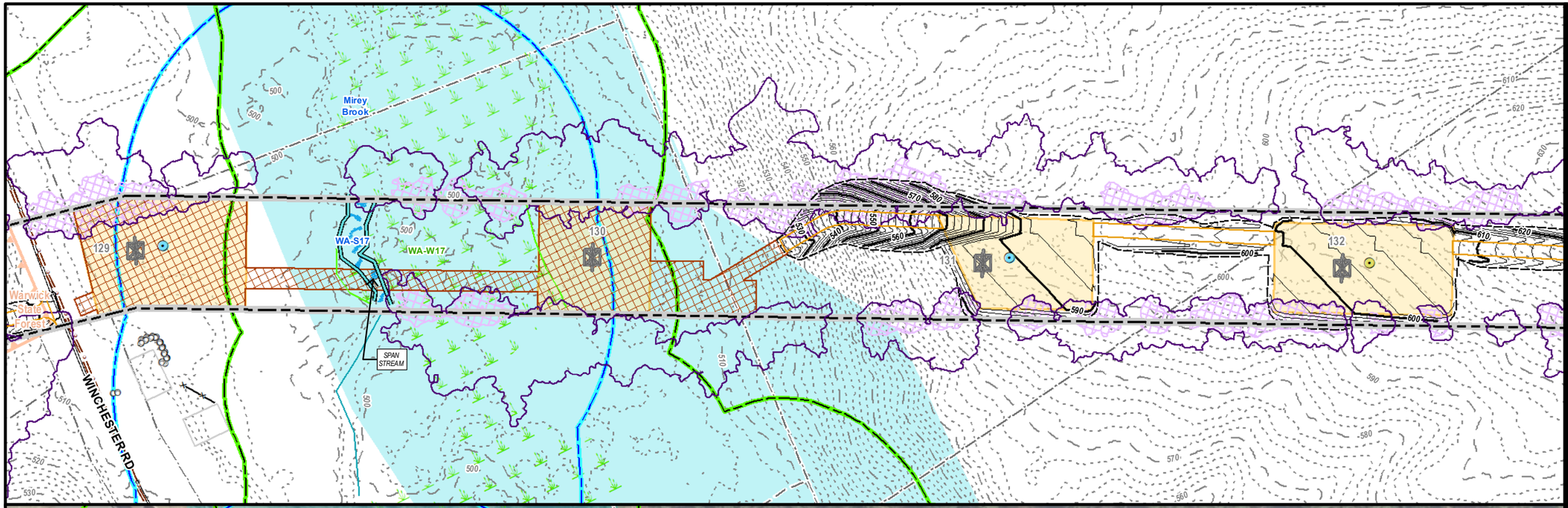
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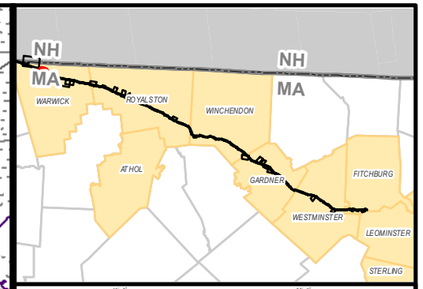
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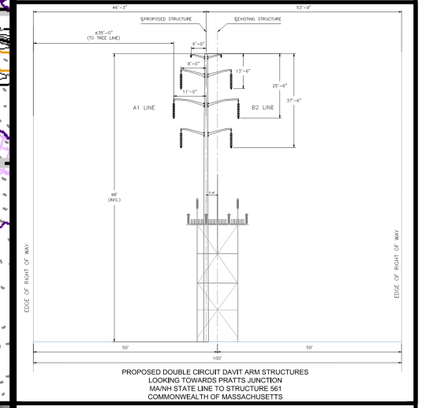
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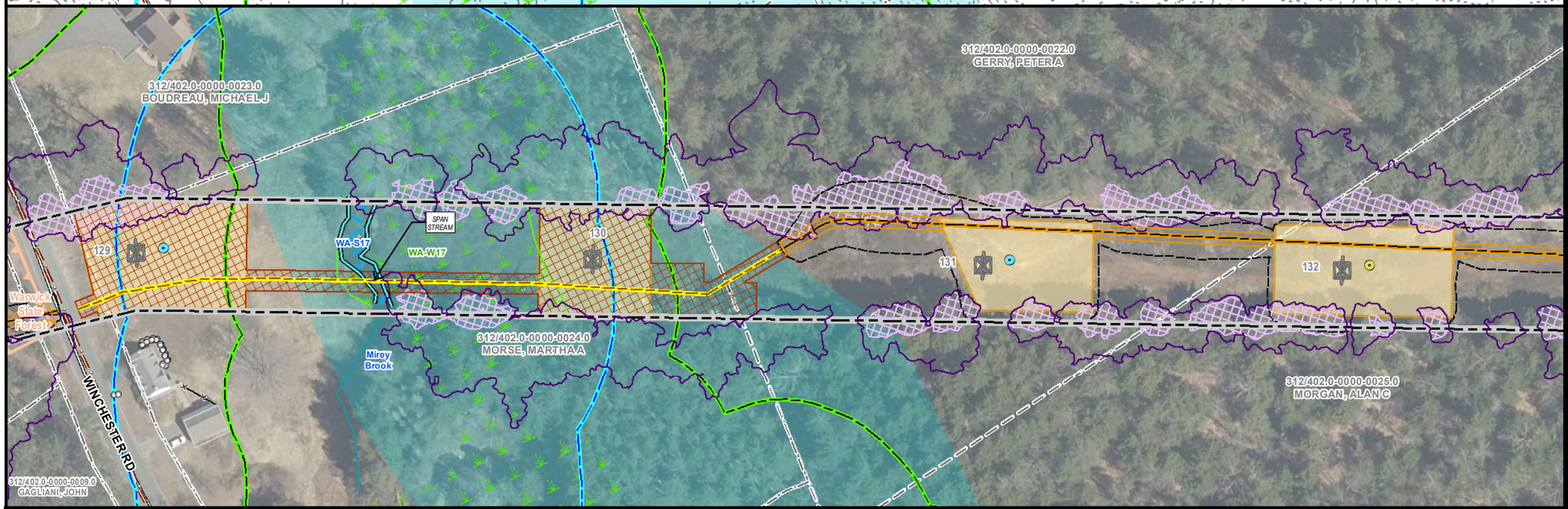
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WARWICK MA
PAGE 10 OF 137

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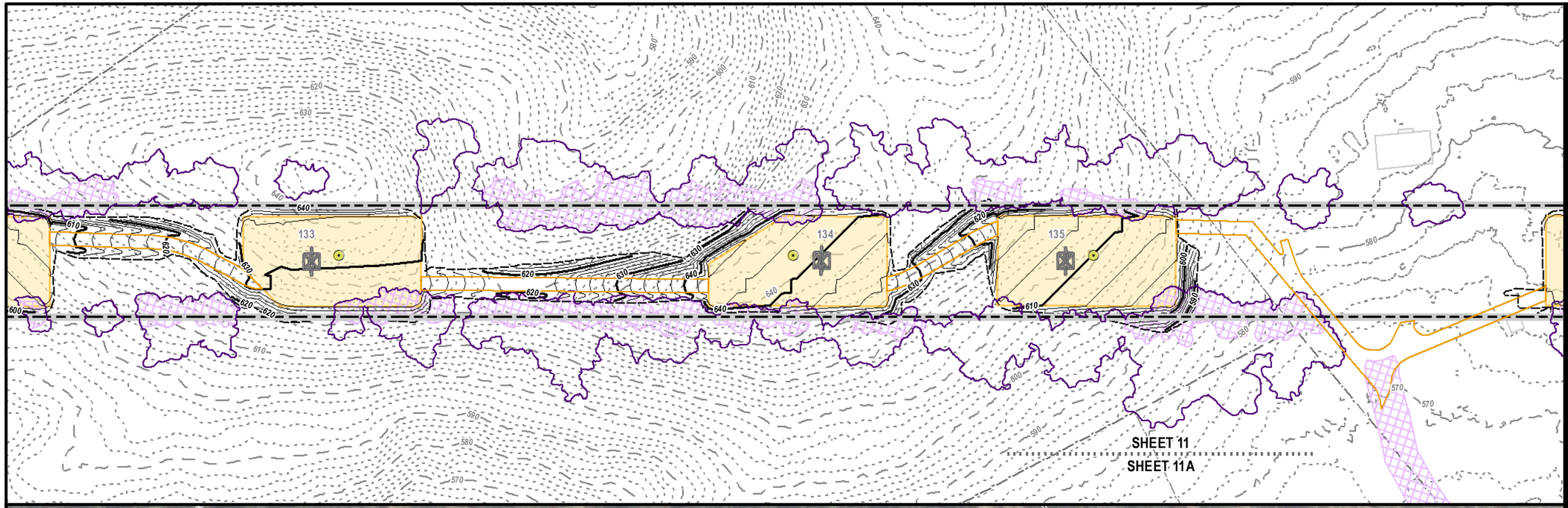
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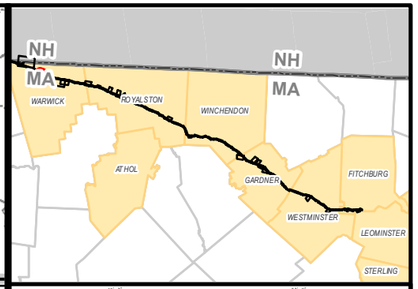
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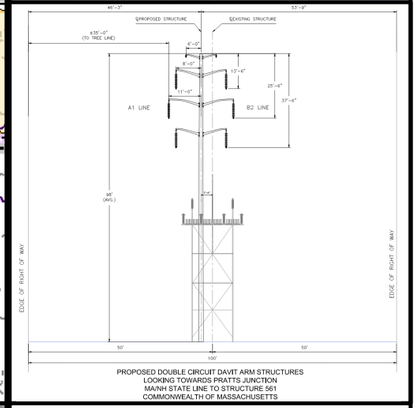
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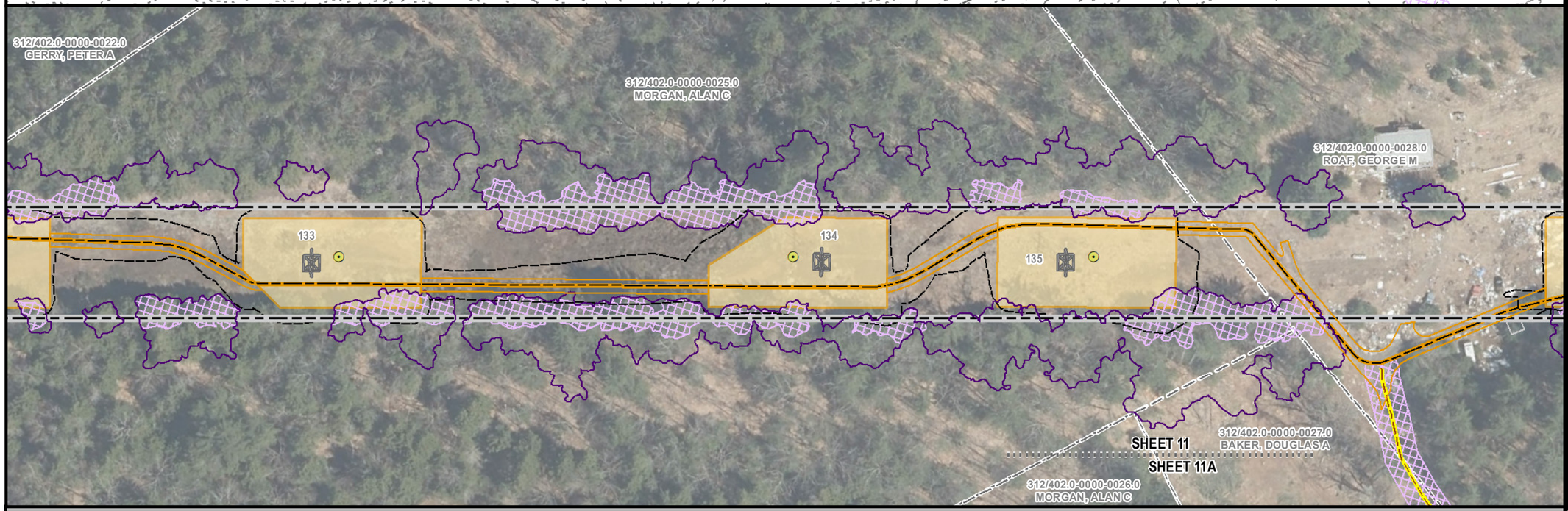
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
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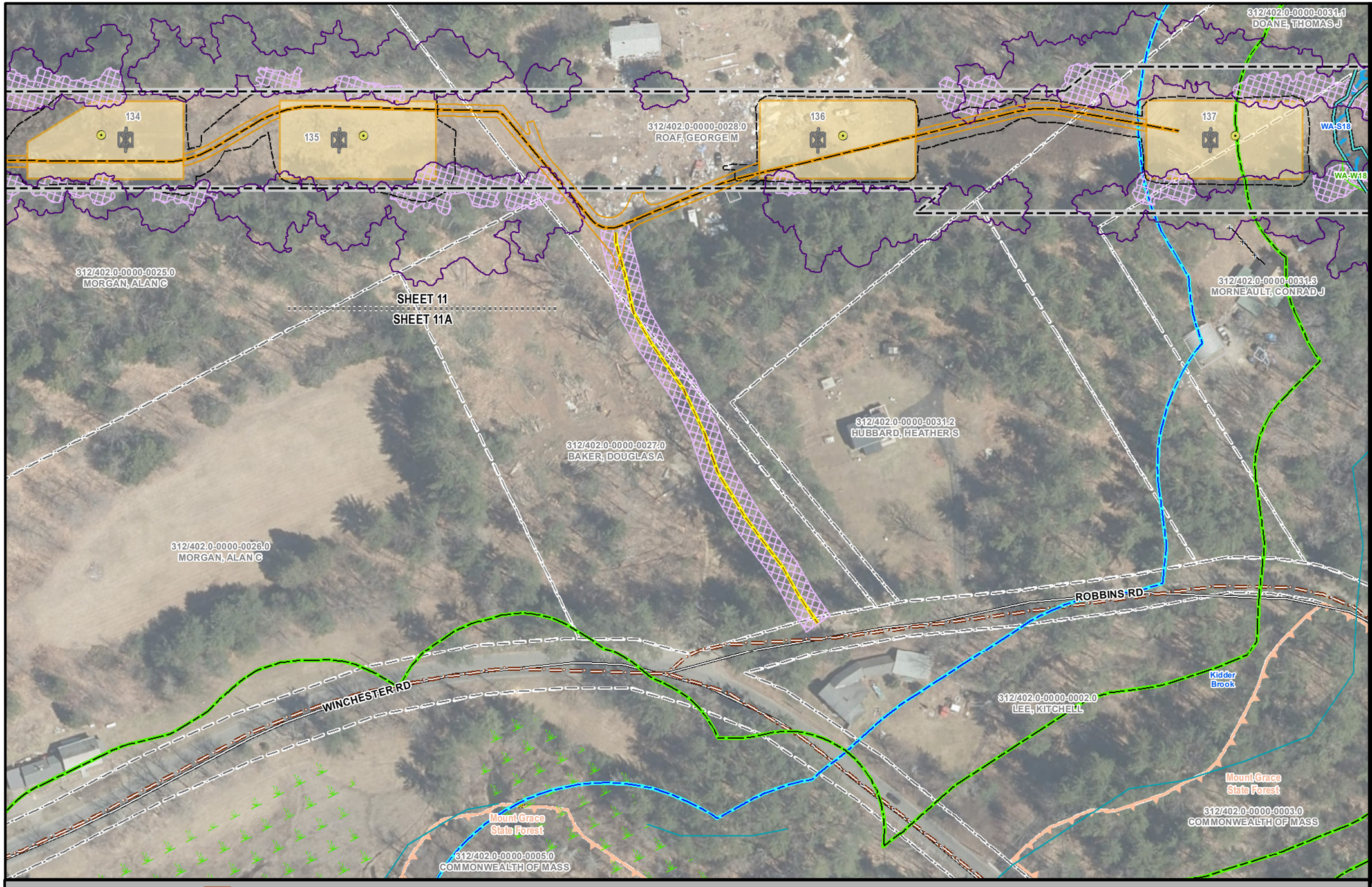
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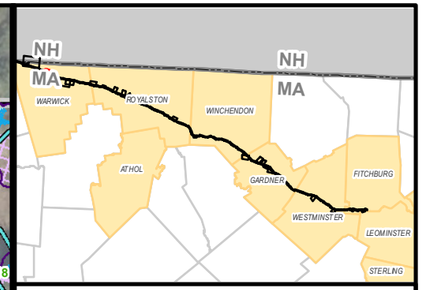
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WALTHAM, MA 02451

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MEPA General Purpose Plans

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WARWICK, MA
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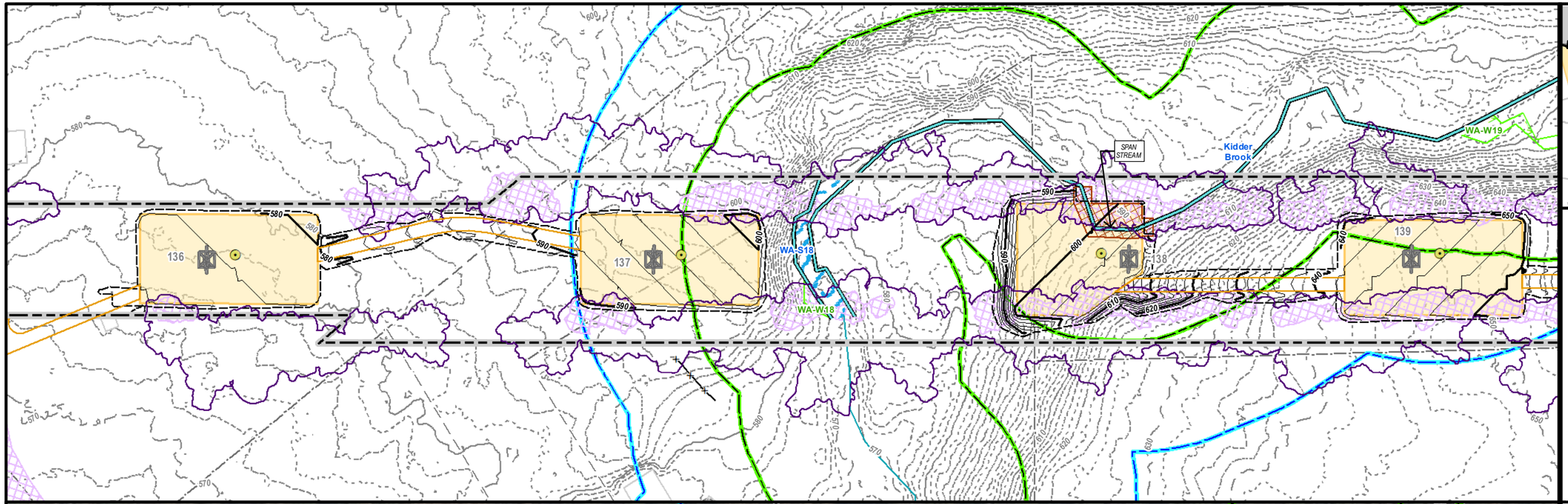
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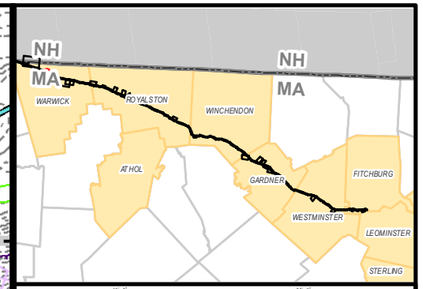
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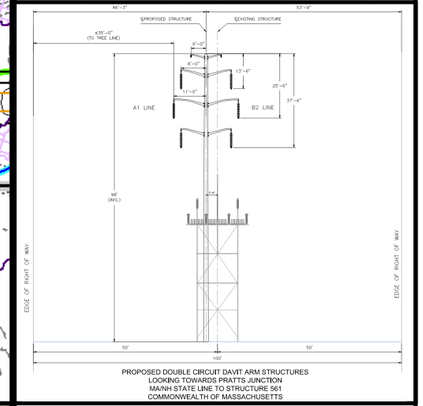
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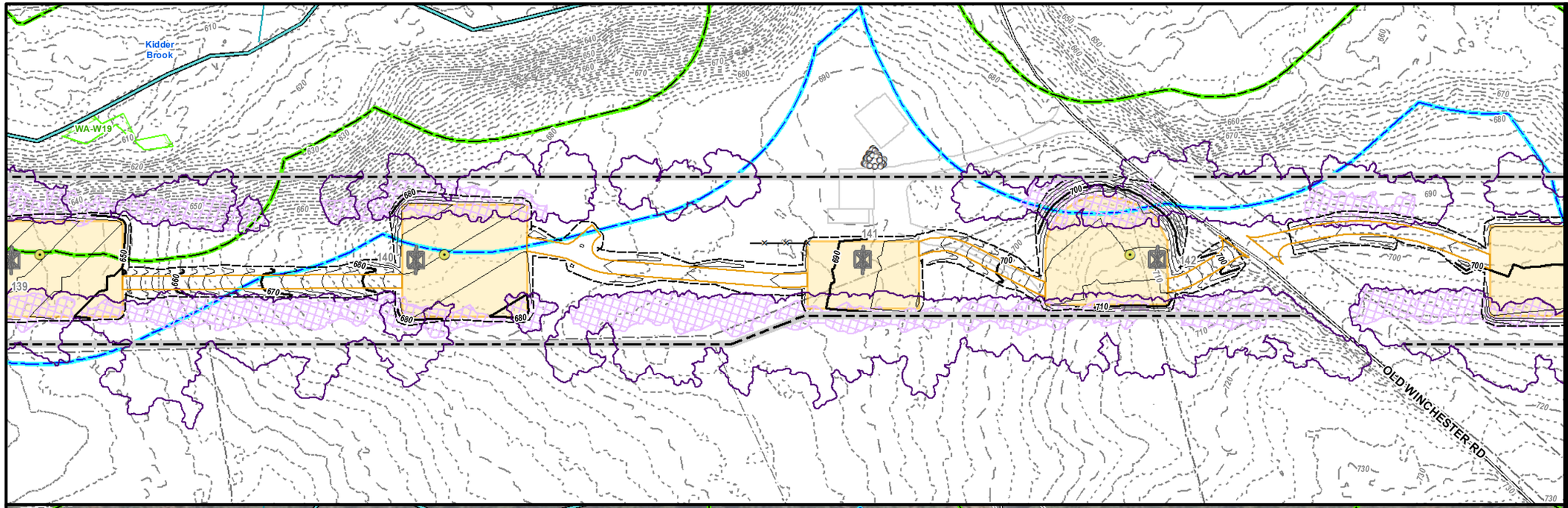
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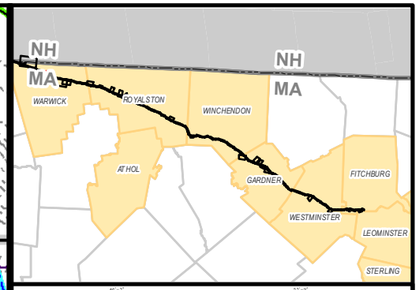
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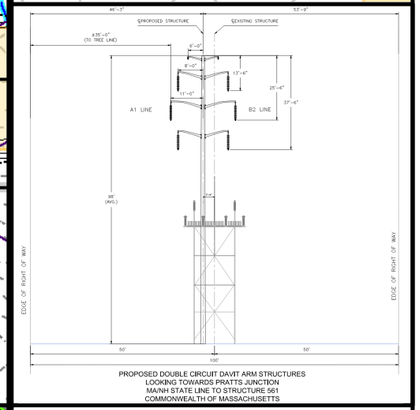
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 13 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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Article 97 Lands

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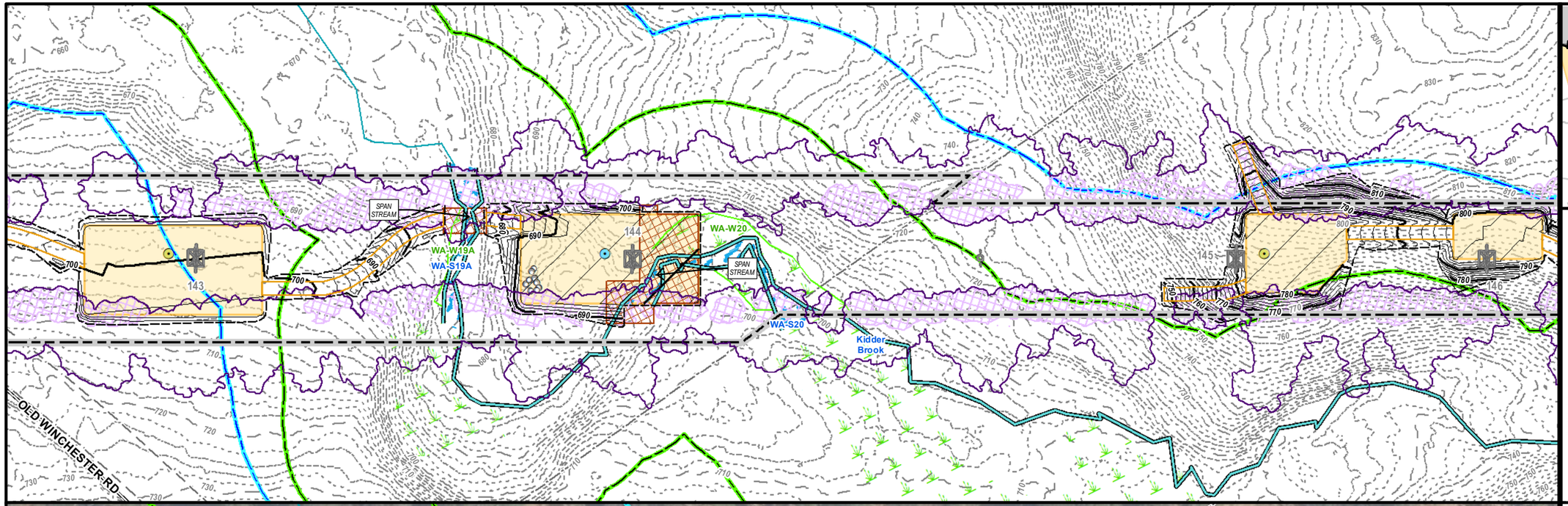
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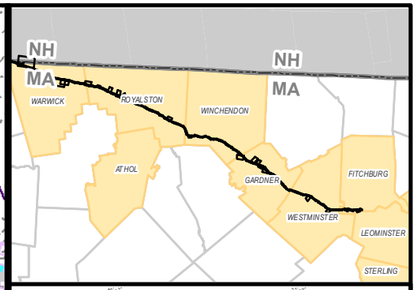
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WALTHAM, MA 02451

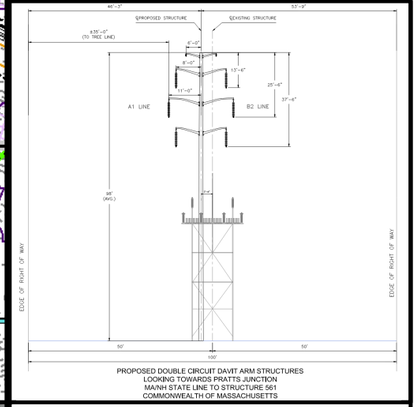
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WARWICK MA
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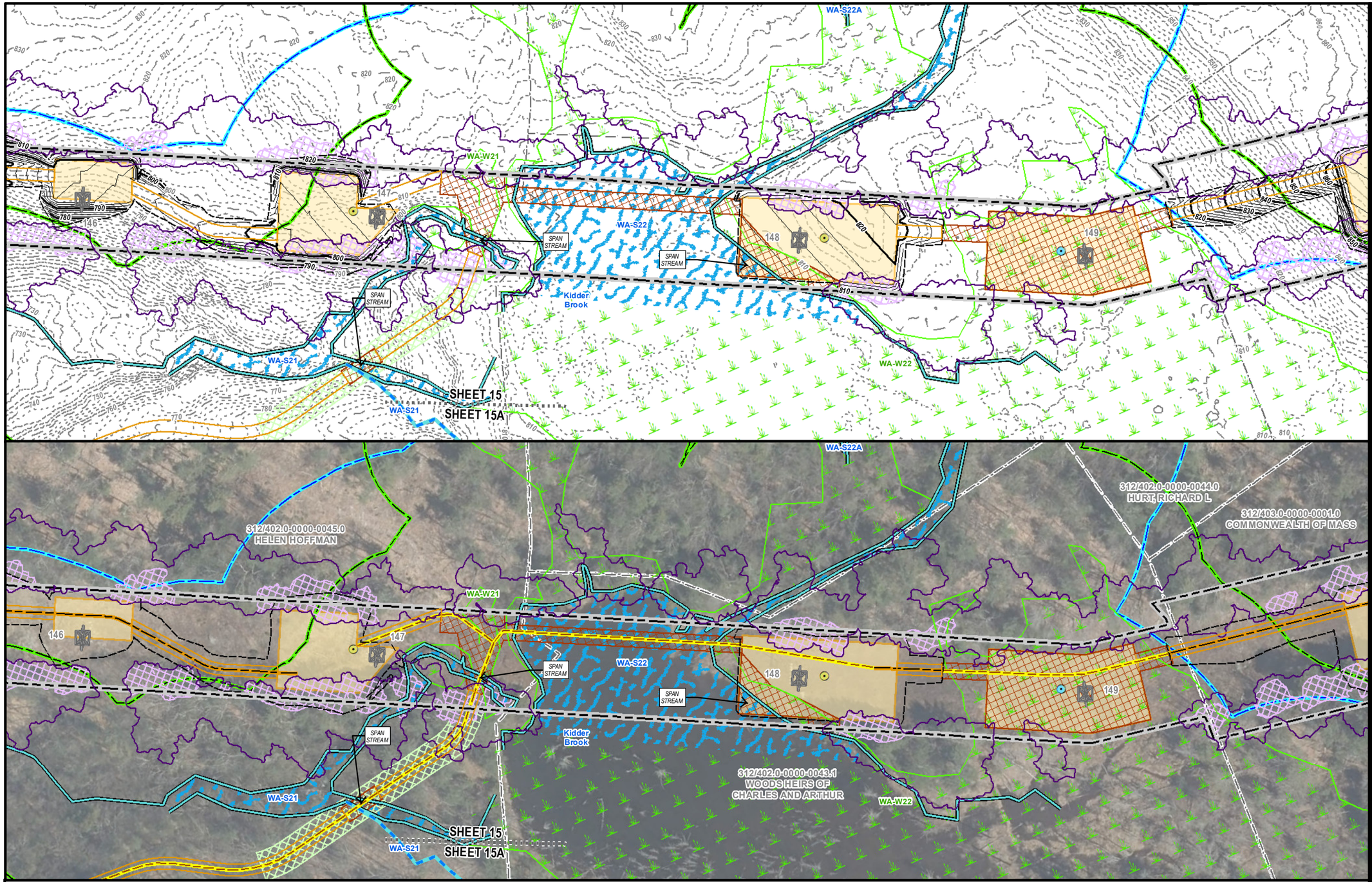
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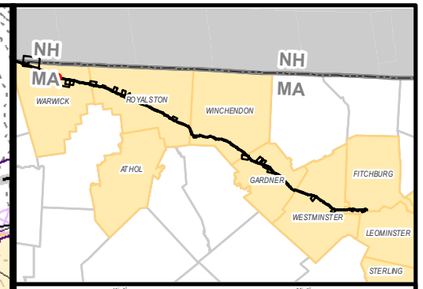
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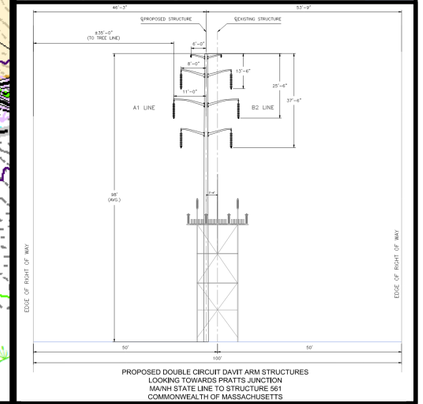
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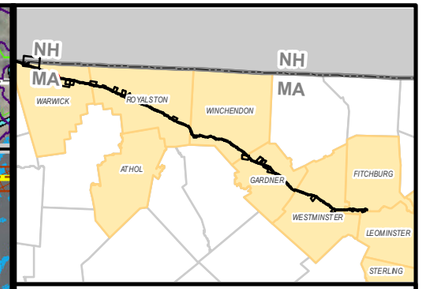
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK, MA
PAGE 15A OF 137

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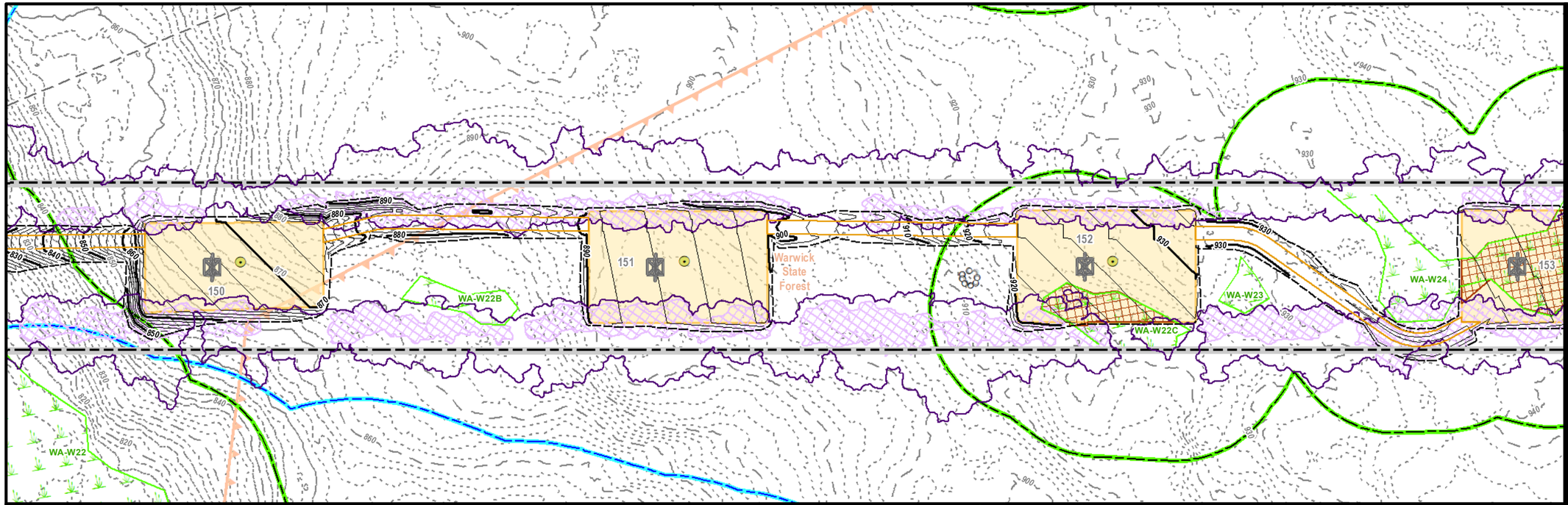
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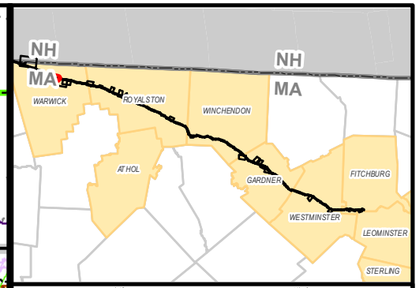
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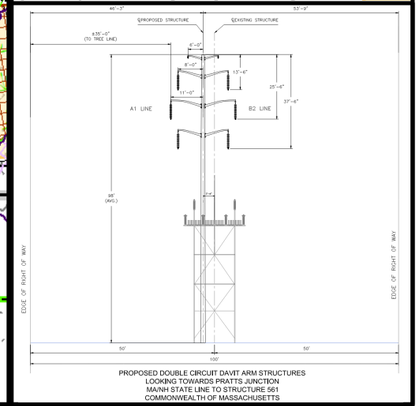
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 16 OF 137

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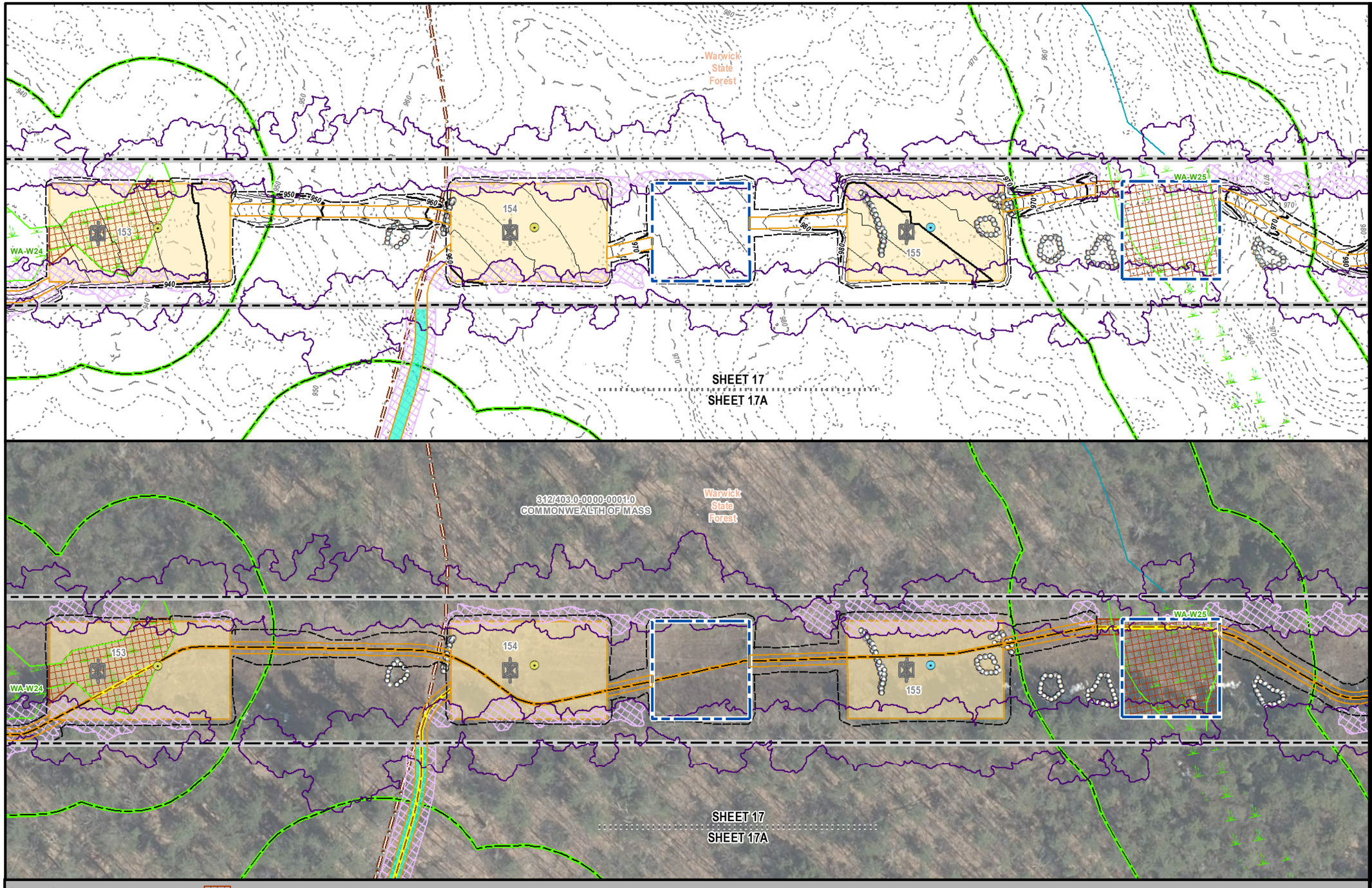
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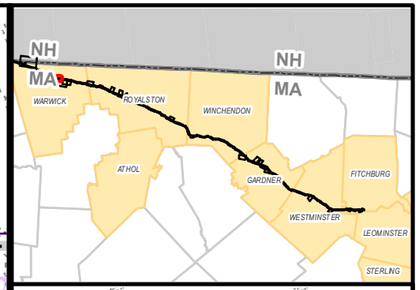
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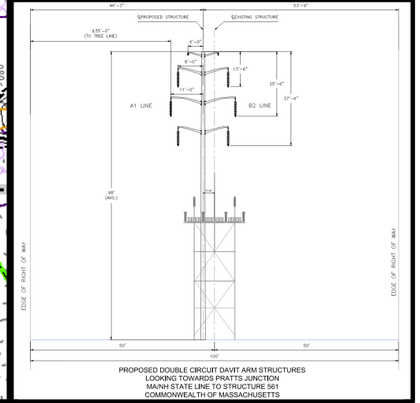
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PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 17 OF 137

N

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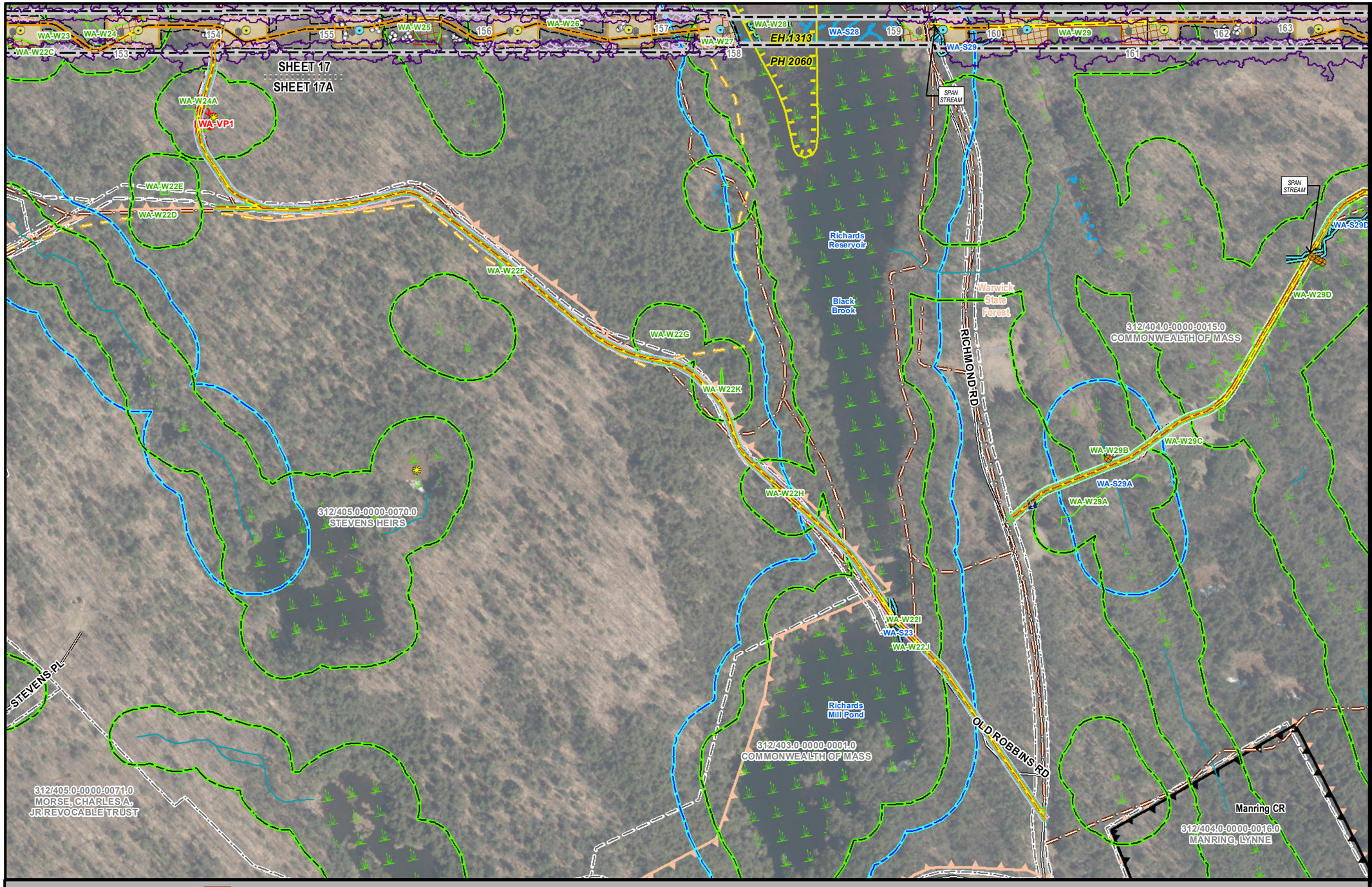
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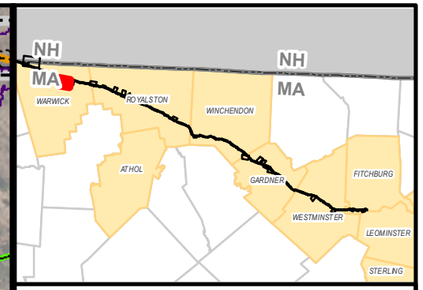
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- Fence
- Stonewall
- Guardrail
- Existing Minor Contour
- Existing Major Contour
- Proposed Major Contour
- Proposed Minor Contour

Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

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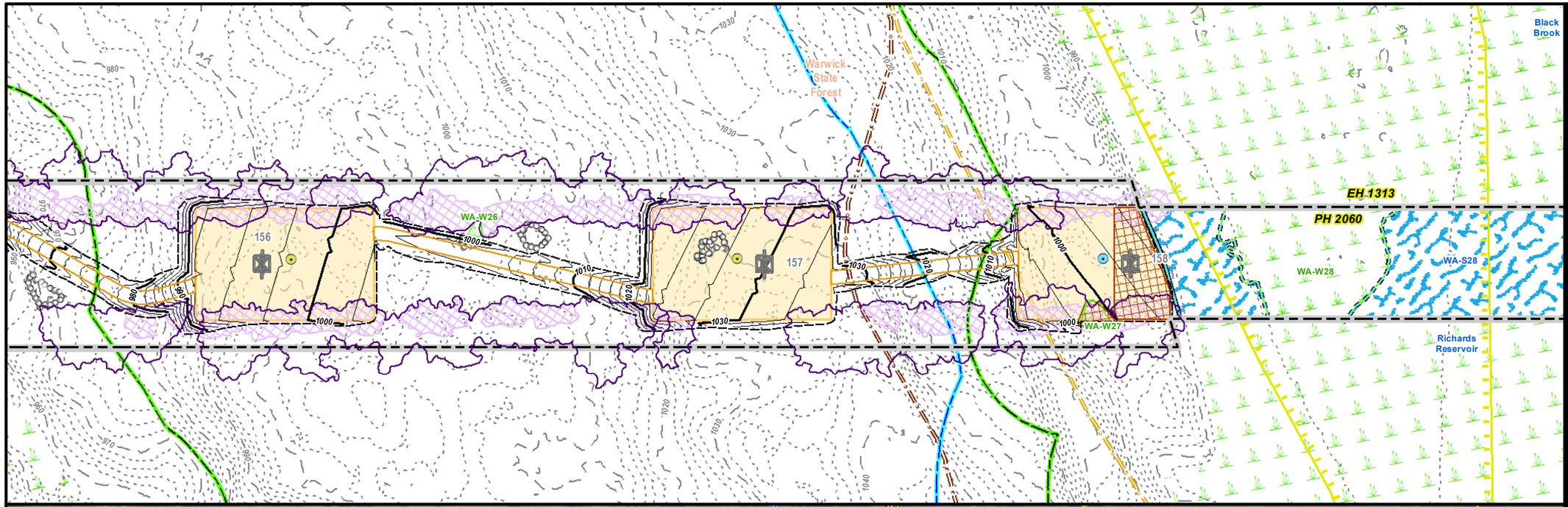
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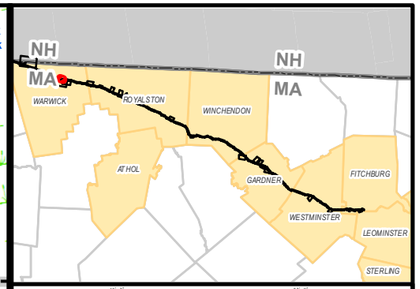
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

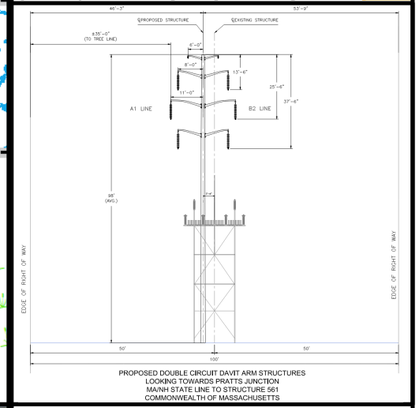
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; Certified Vernal Pools; Potential Vernal Pools; NHESP Priority Habitats; NHESP Estimated Habitats; NHESP Restricted Data; Hydrography; MADEP Hydrologic Connections; MADEP Wetlands; FEMA 100yr Floodplain; Public Water Supply; Zone II Wellhead Protection Area; Interim Wellhead Protection Area; Surface Water Protection Zone; Outstanding Resource Water; Areas of Critical Environmental Concern; Watershed Protection Act Zones; Ch. 91 Tidelands Jurisdiction; Article 97 Land; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed)

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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 18 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
- Stream Centerline
- Ordinary High Water
- Approximate Stream Bank
- Approximate Centerline
- Approximate Ordinary High Water
- Approximate Swale
- State Stream
- Open Water
- 100ft Buffer to Wetlands & Streams
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- FEMA 100yr Floodplain*
- Certified Vernal Pools
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Article 97 Lands

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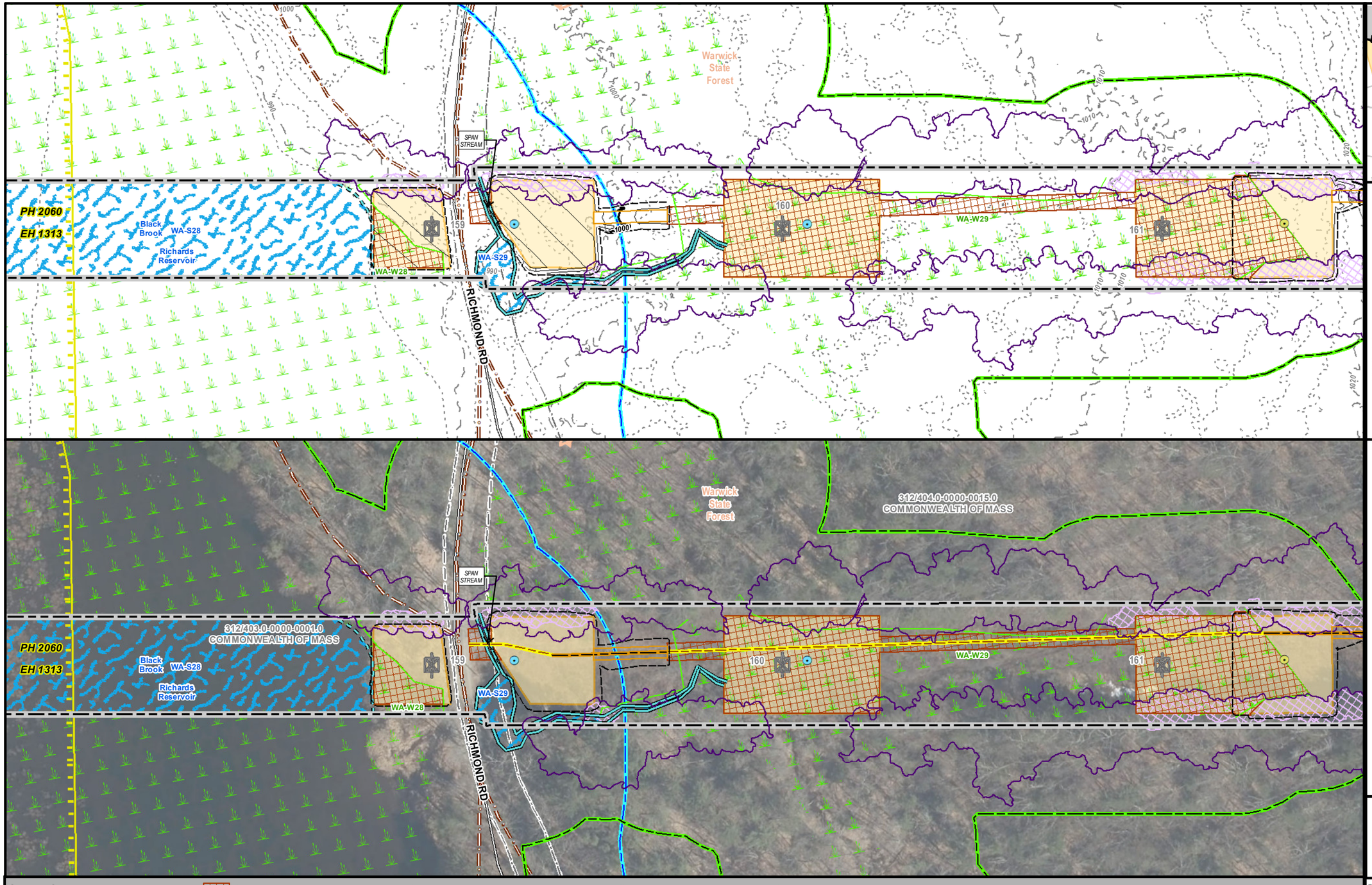
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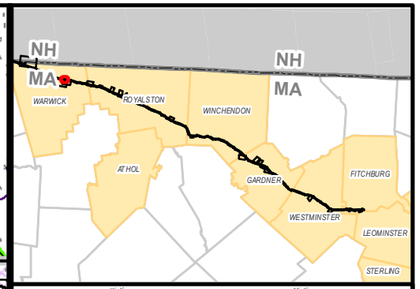
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

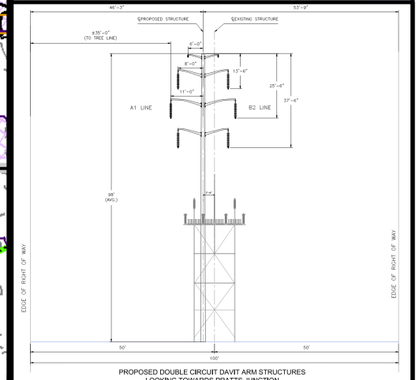
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 19 OF 137

N

1 inch = 100 feet

0 50 100

Feet

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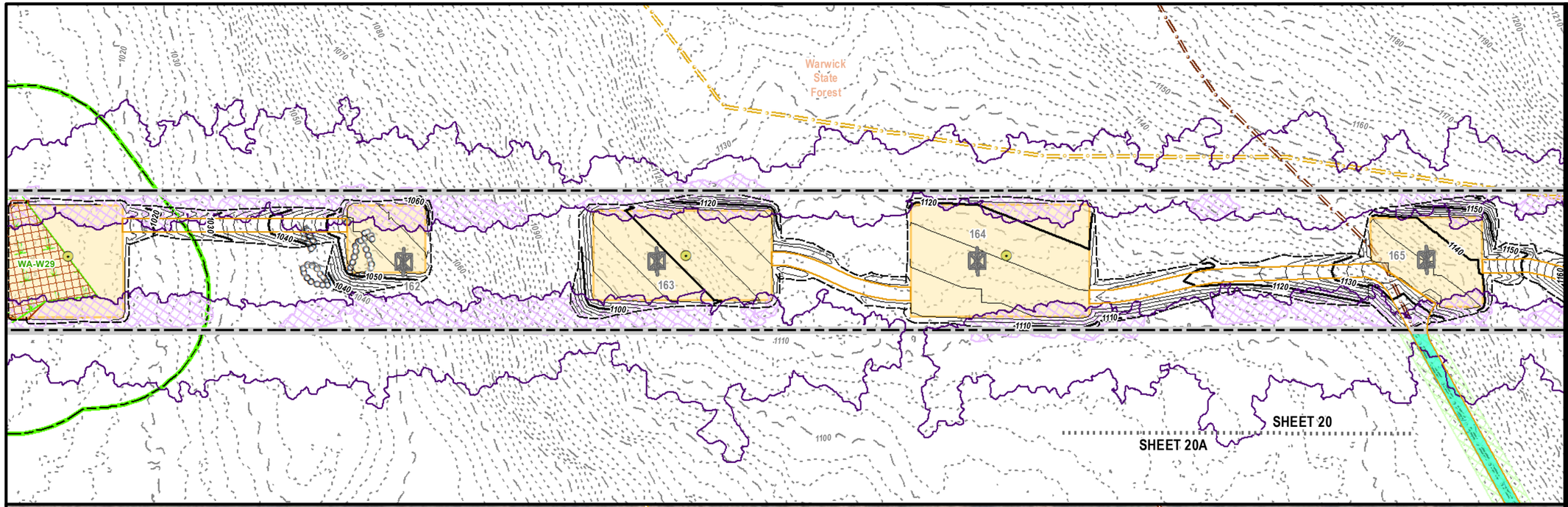
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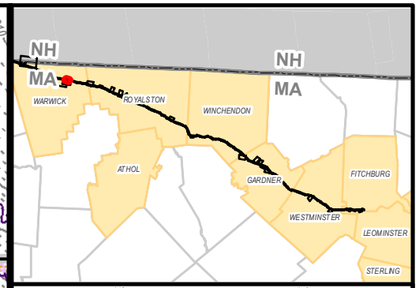
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

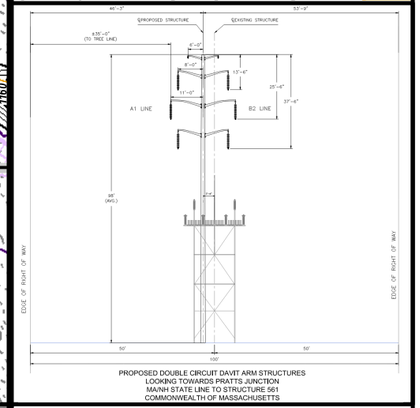
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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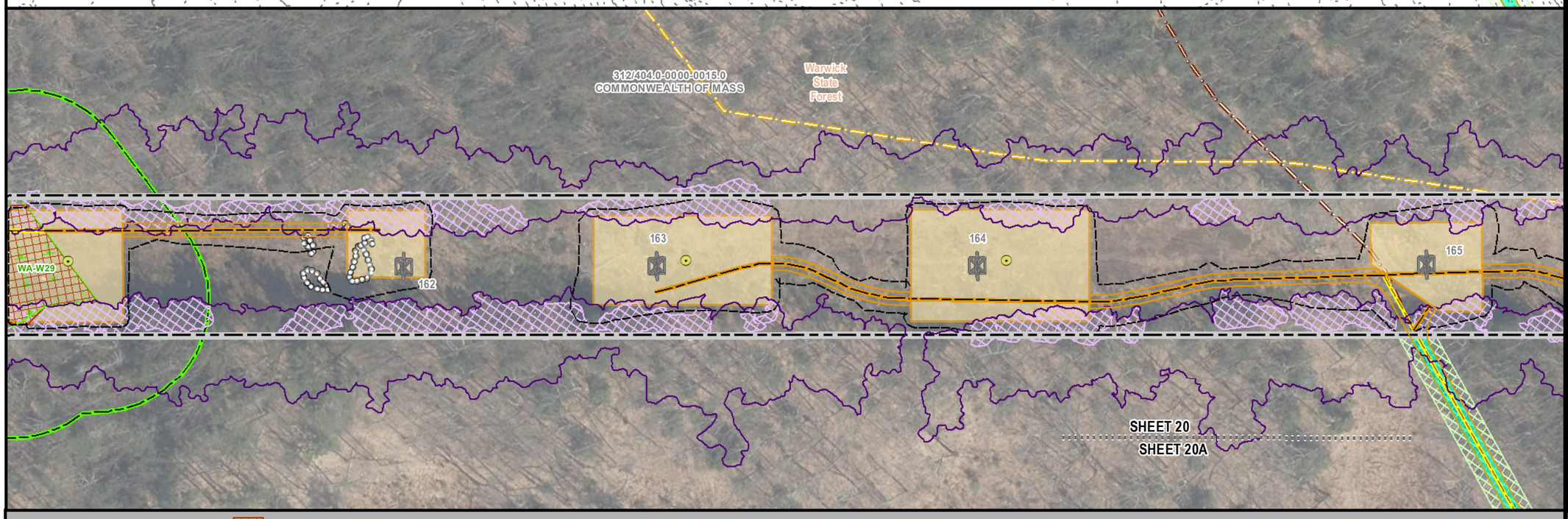
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 20 OF 137

N

1 inch = 100 feet

0 50 100

Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
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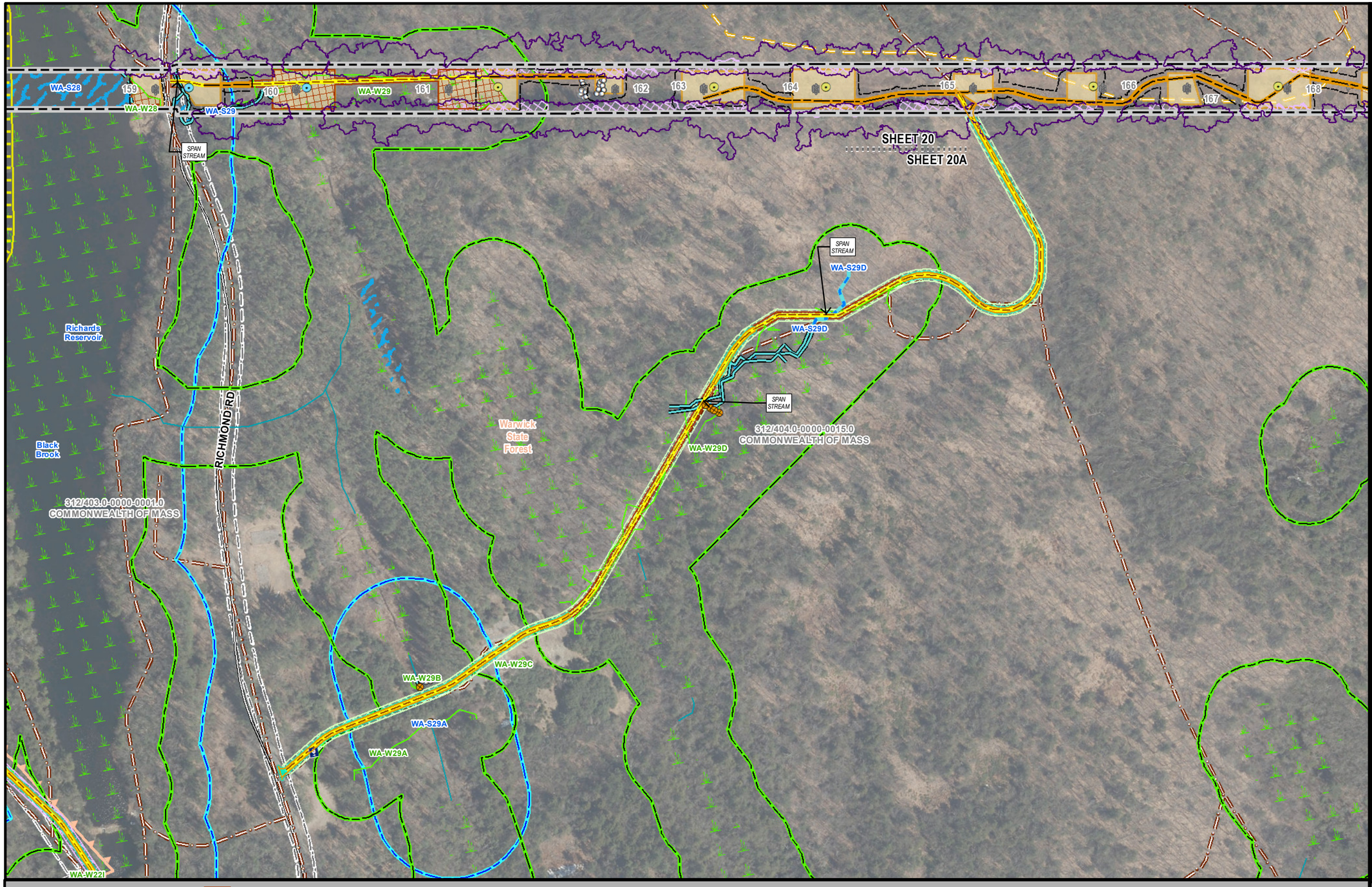
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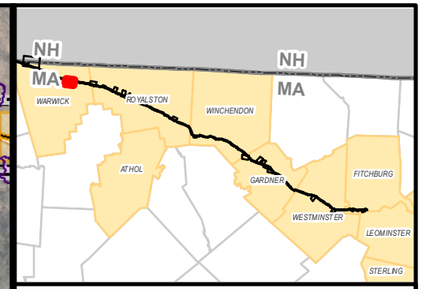
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK, MA
PAGE 20A OF 137

1 inch = 250 feet
0 125 250
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
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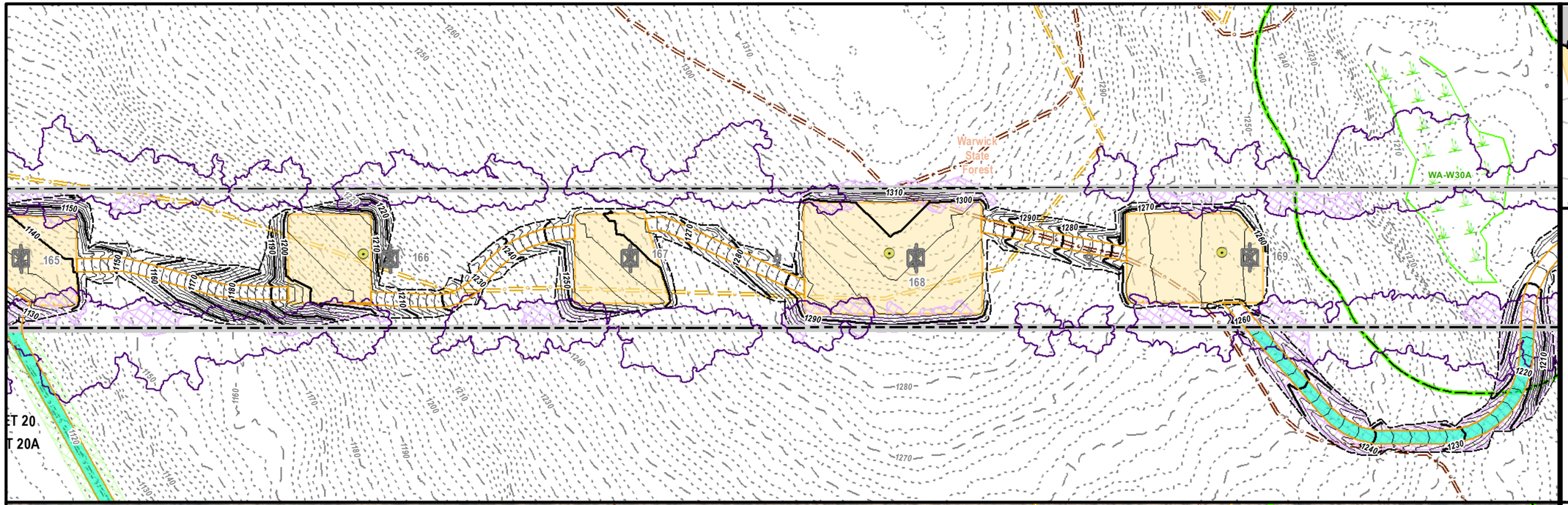
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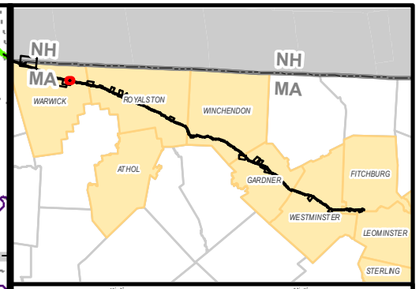
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nationalgrid
170 DATA DRIVE
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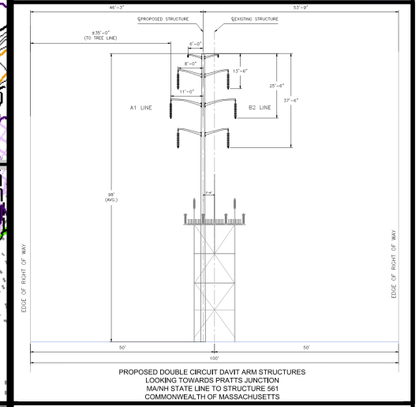
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 21 OF 137

N

1 inch = 100 feet

0 50 100

Feet

Legend

- Install Structure (Concrete Caisson)
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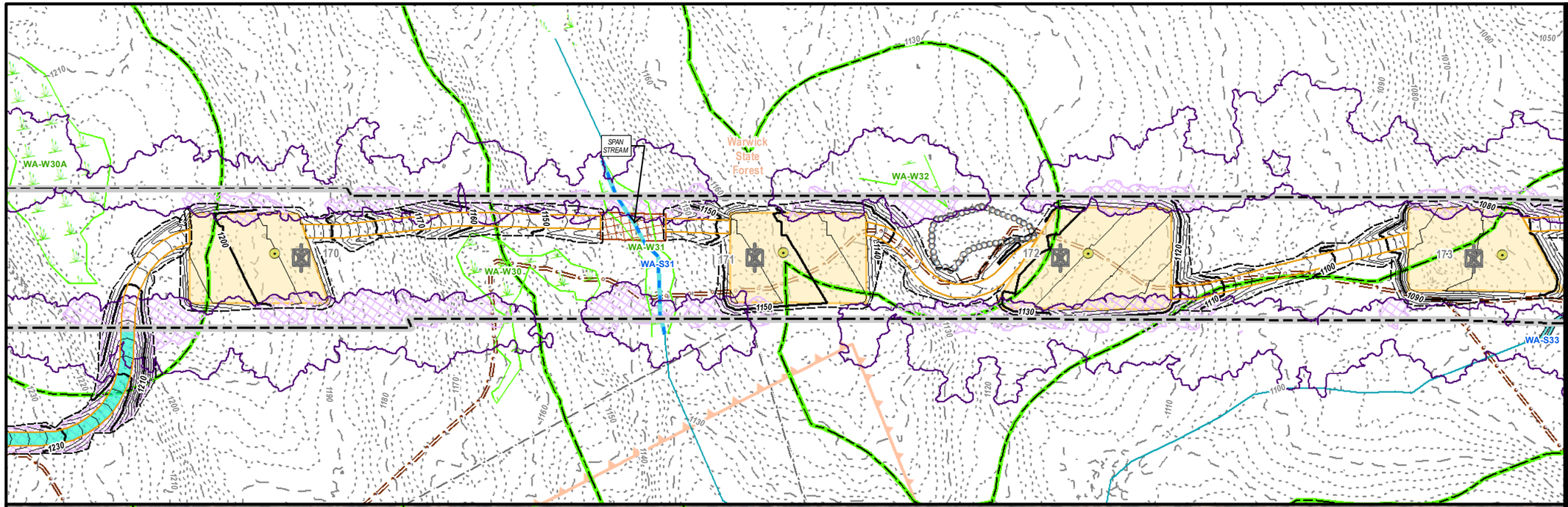
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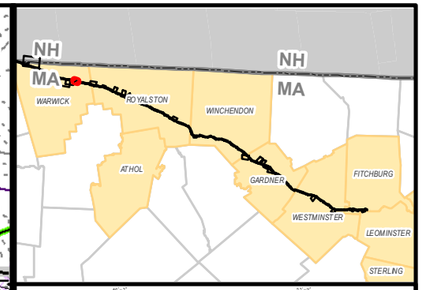
PREPARED FOR:
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170 DATA DRIVE
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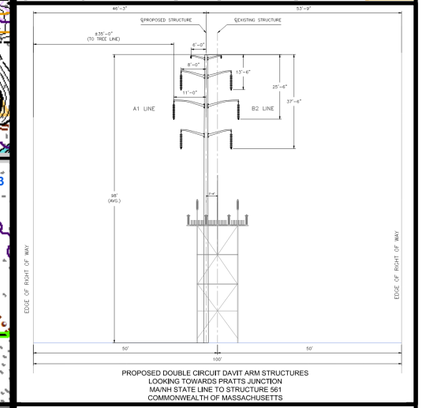
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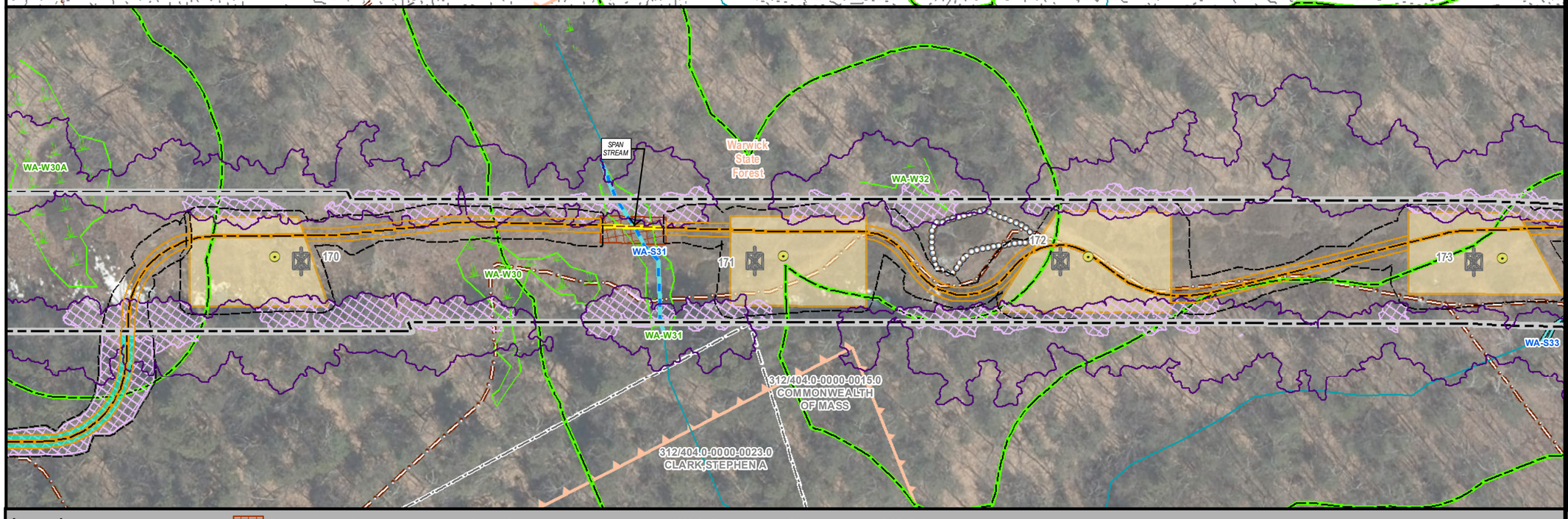
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 22 OF 137

N

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Feet

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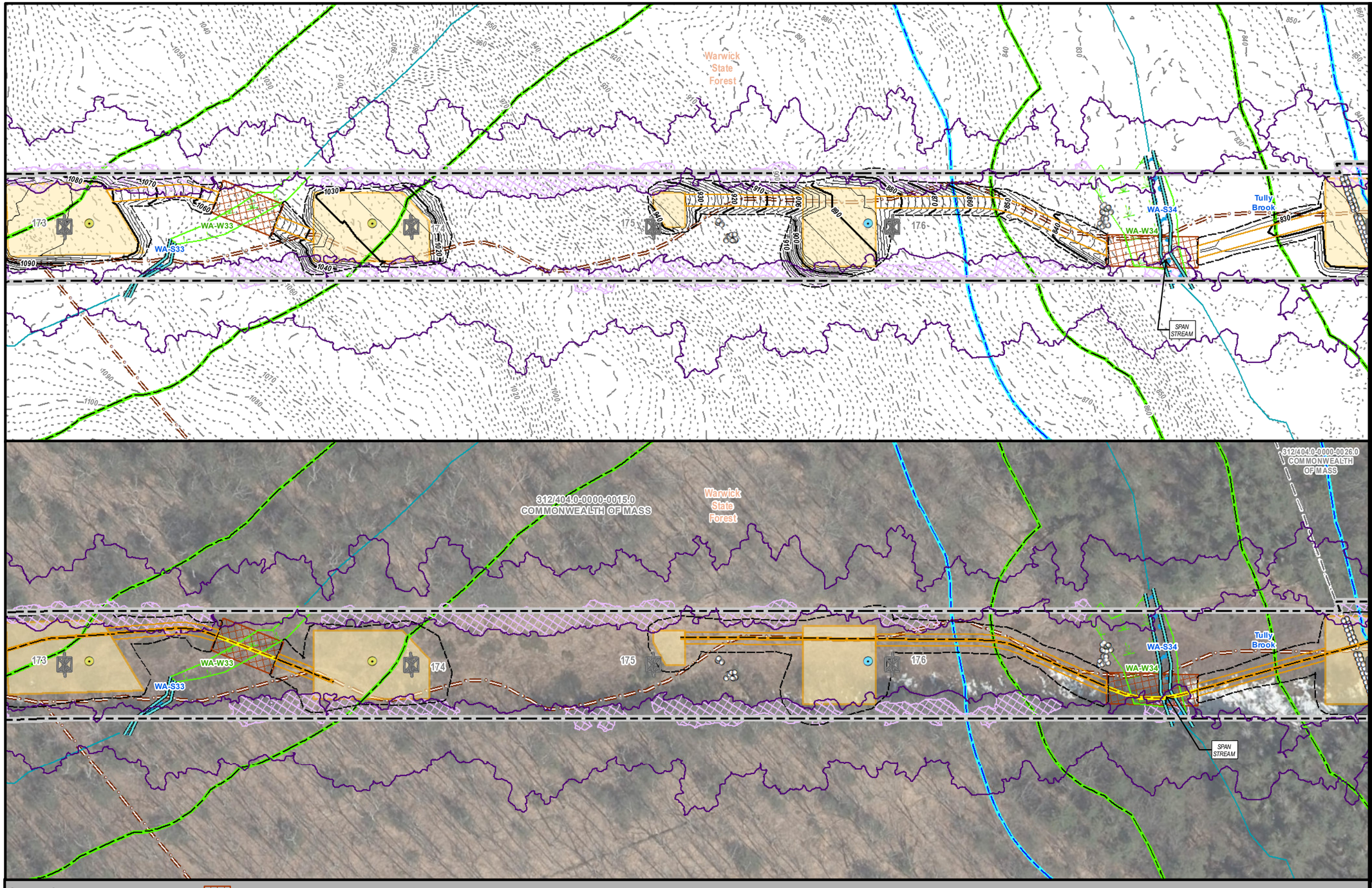
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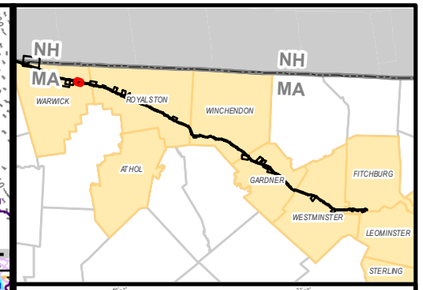
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

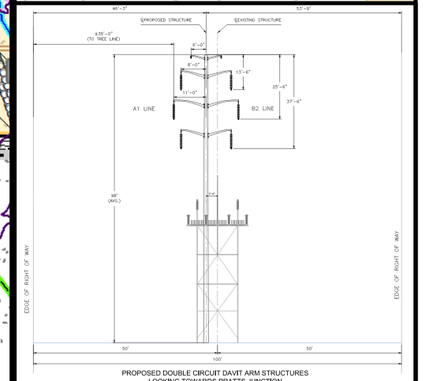
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 23 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
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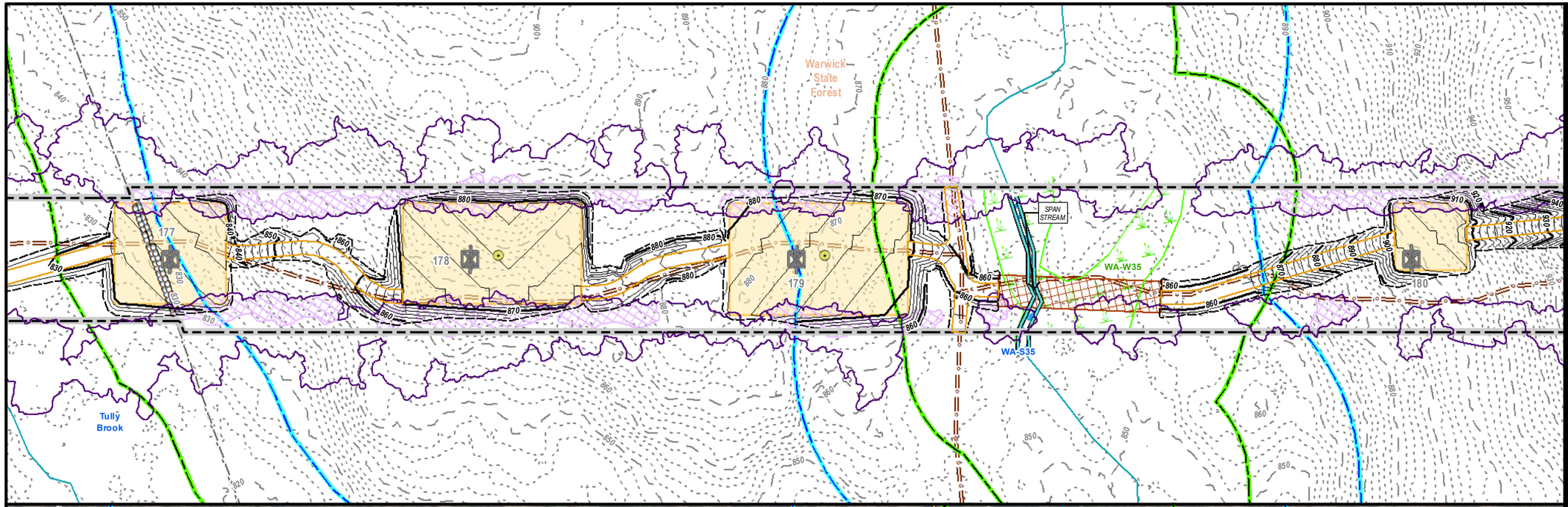
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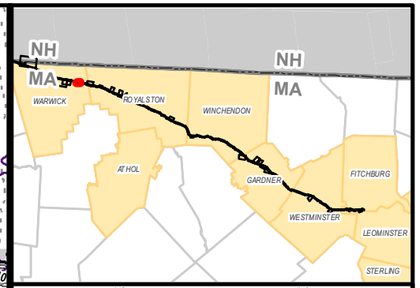
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WALTHAM, MA 02451

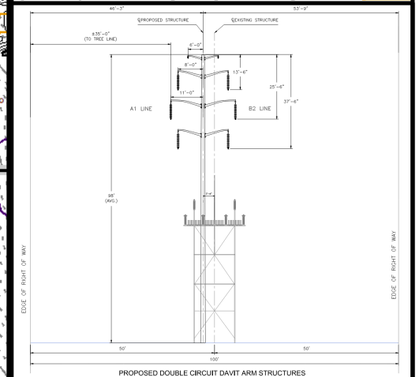
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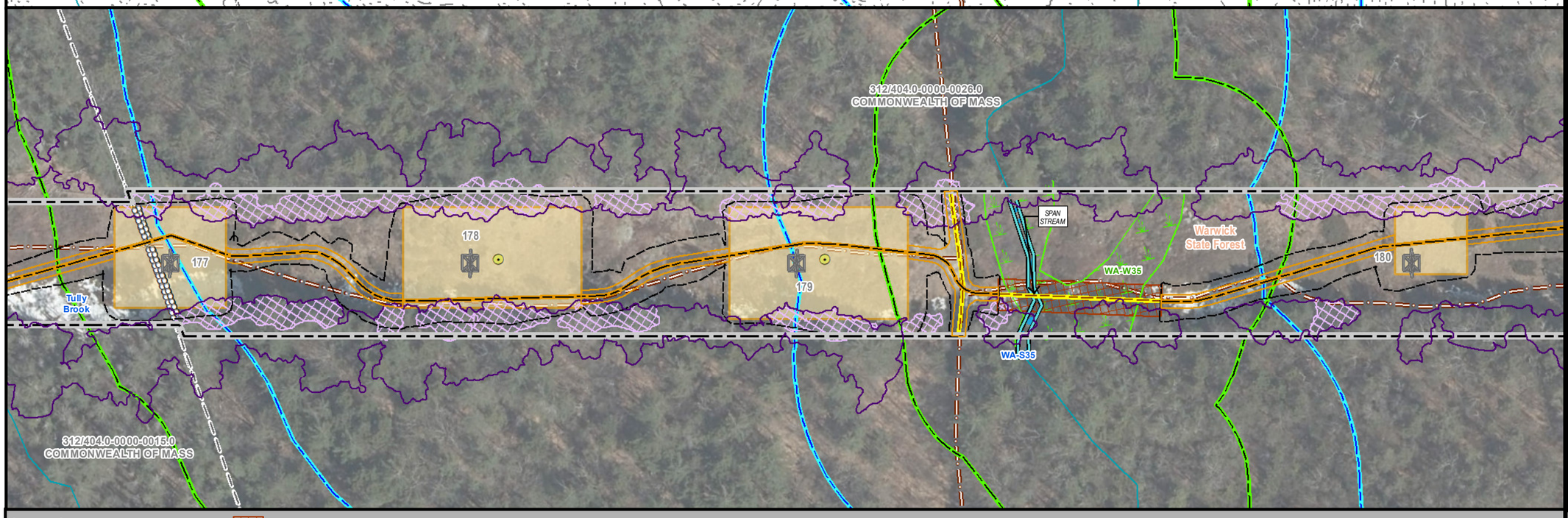
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 24 OF 137

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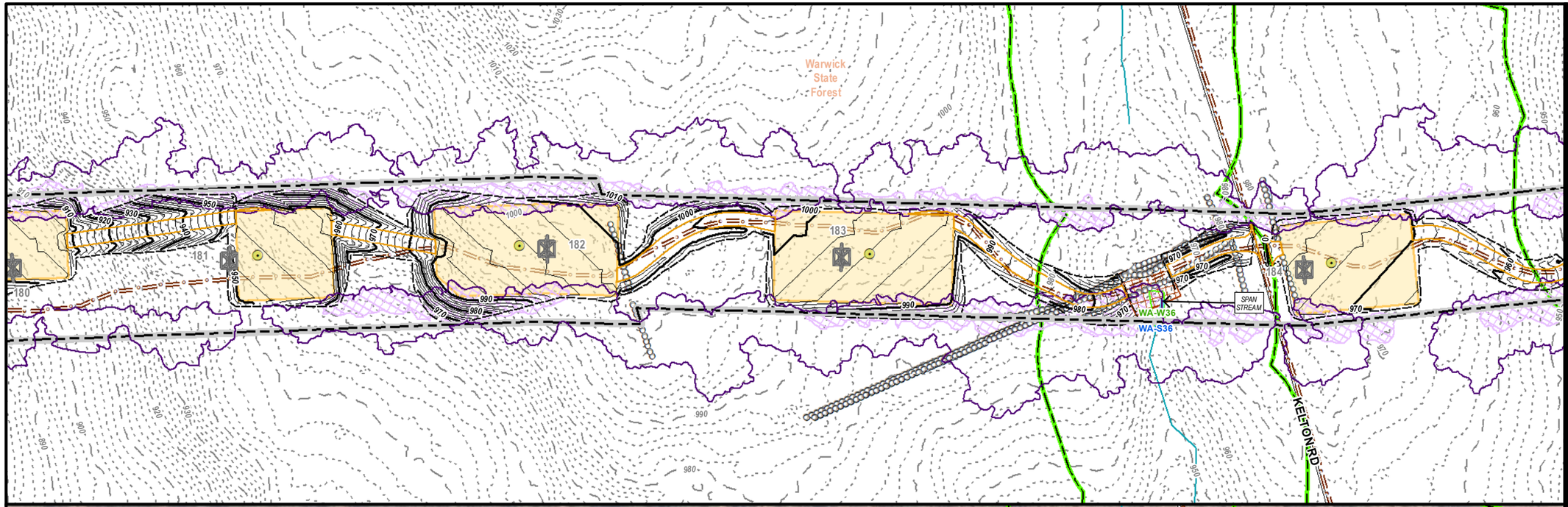
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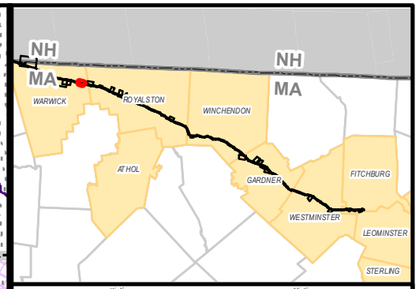
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WALTHAM, MA 02451

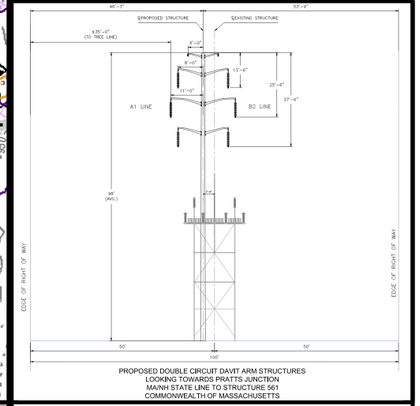
PREPARED BY:
BSC GROUP
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WORCESTER, MA 01608

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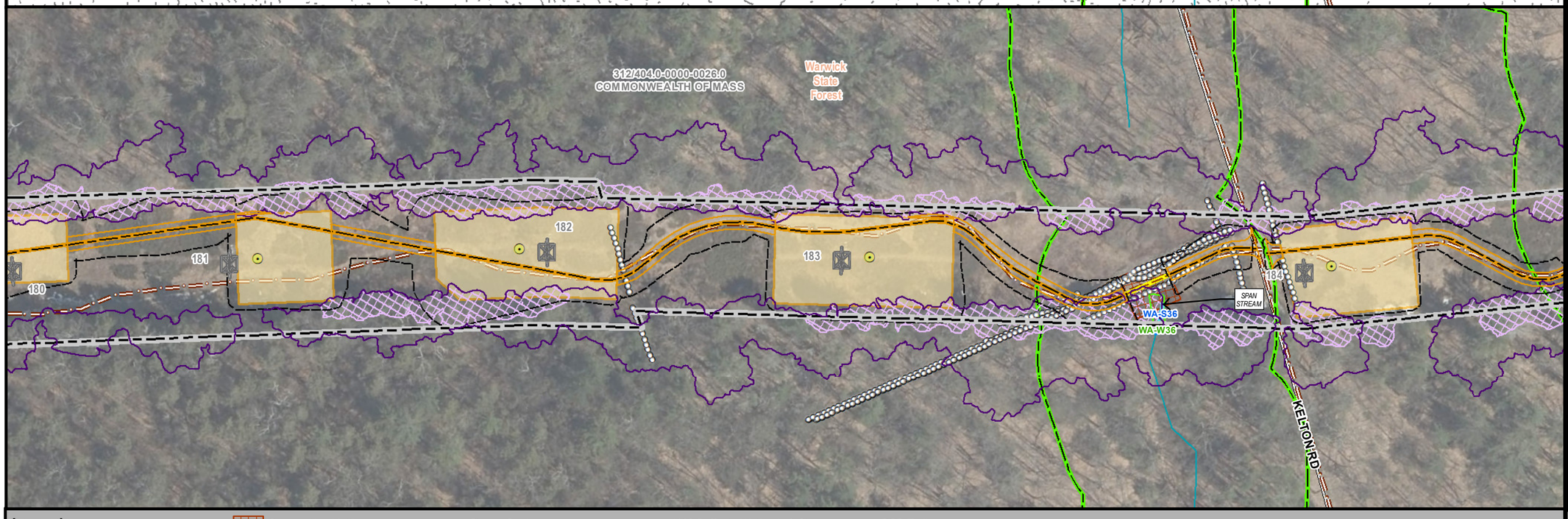
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
PAGE 25 OF 137

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0 50 100
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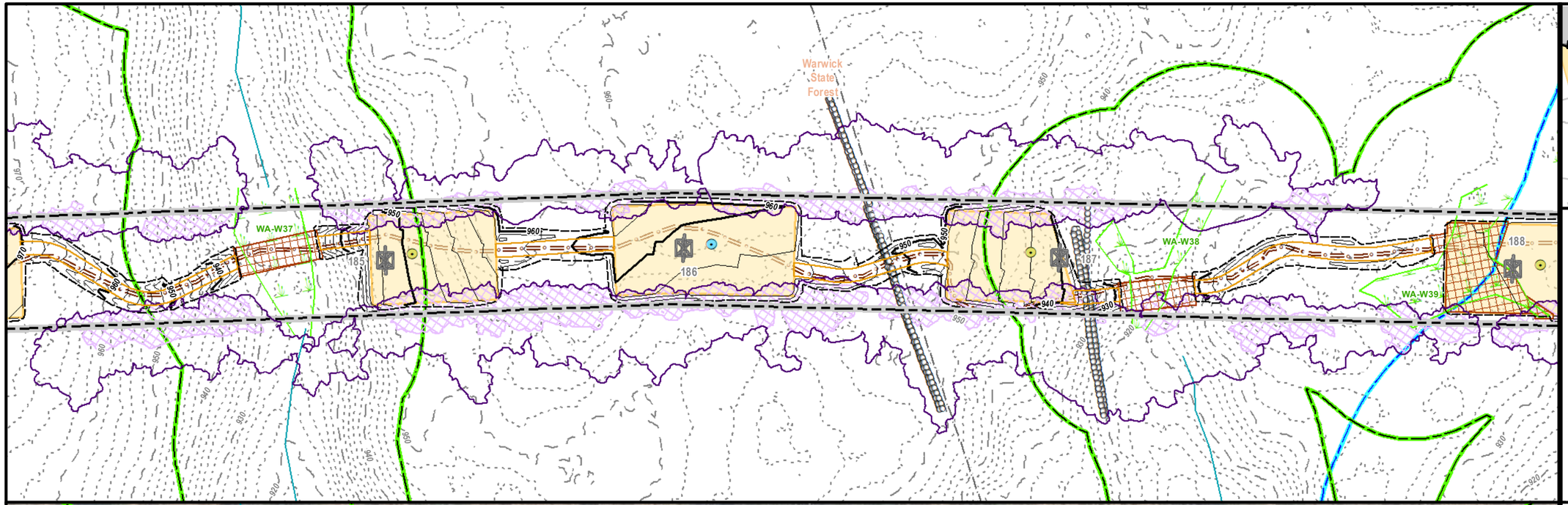
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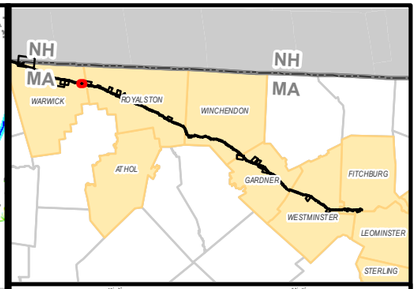
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

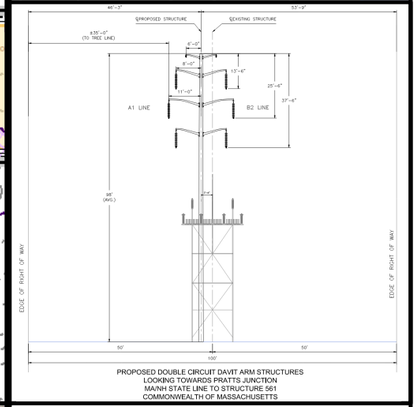
PREPARED BY:
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK MA
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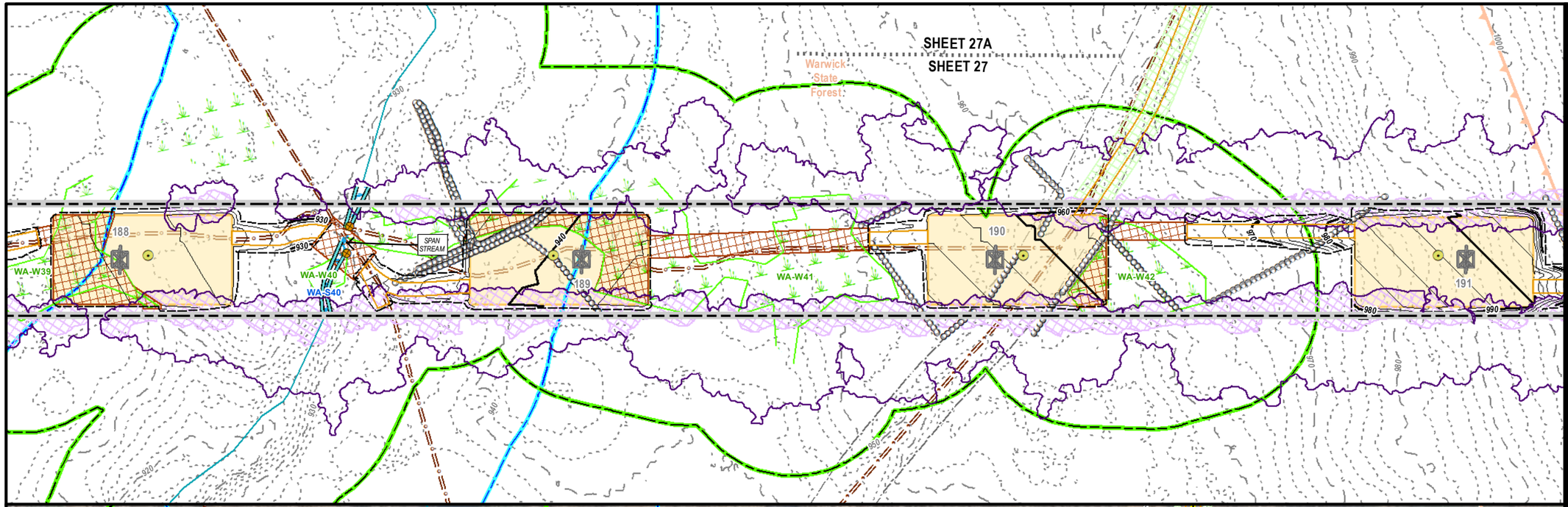
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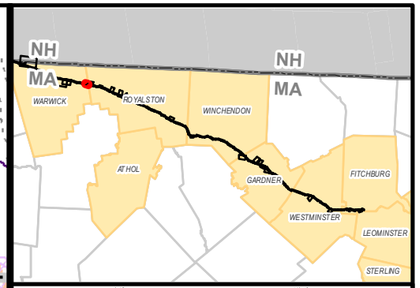
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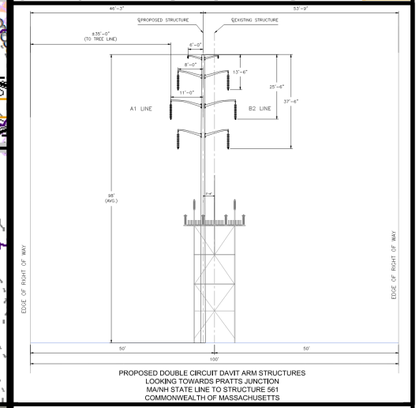
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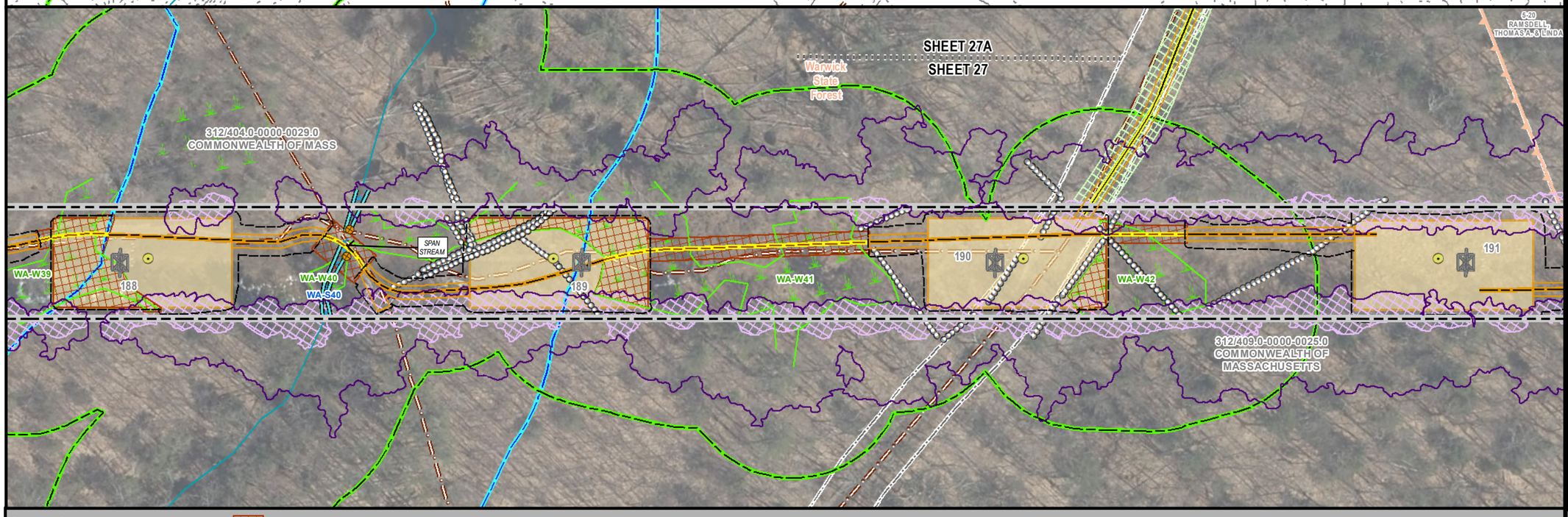
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK & ROYALSTON, MA
PAGE 27 OF 137

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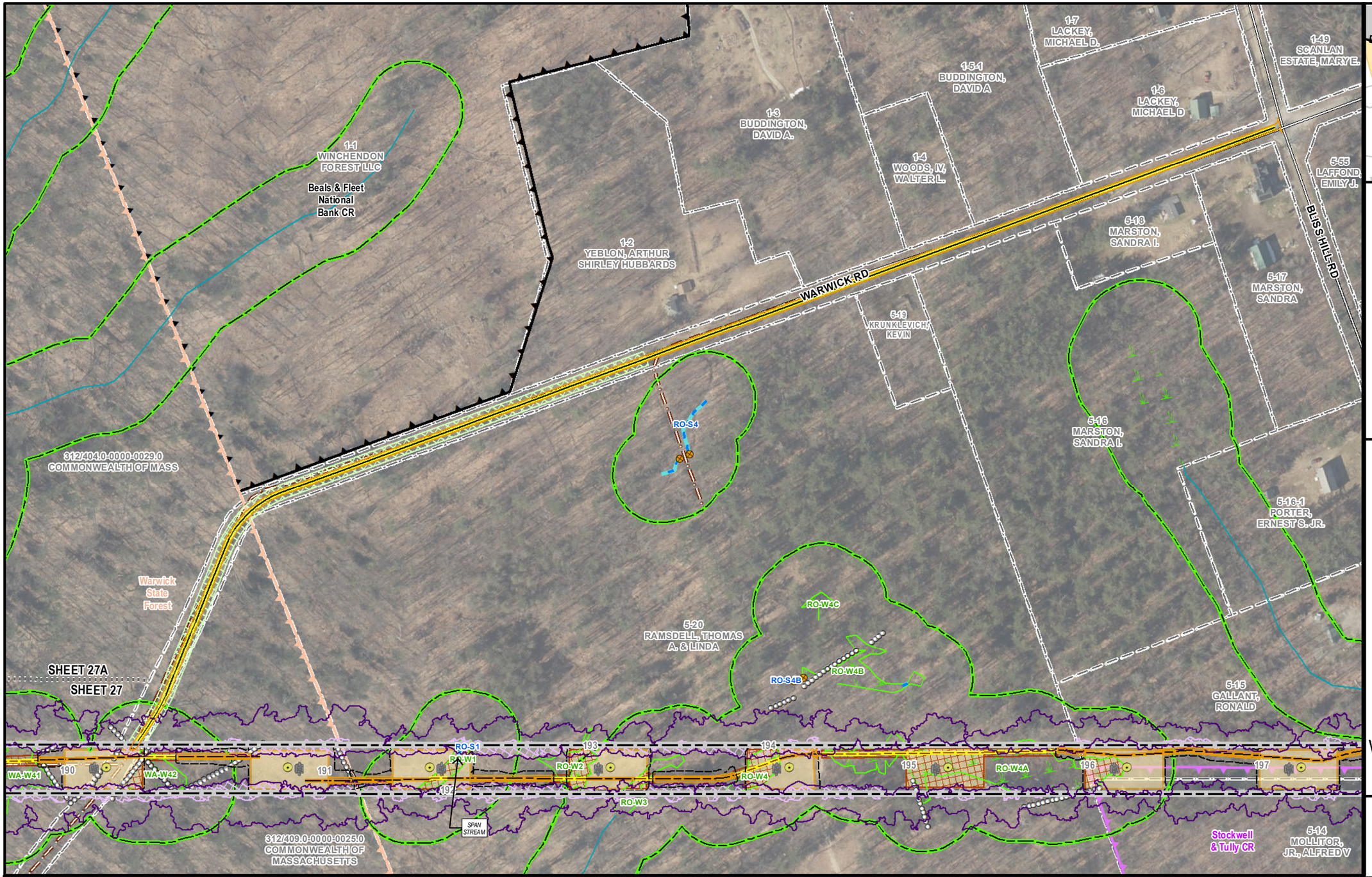
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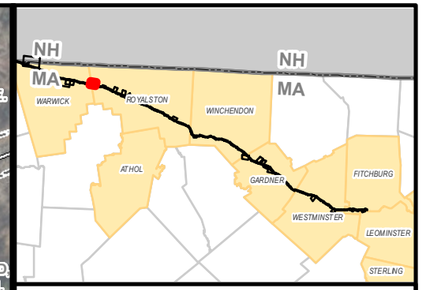
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170 DATA DRIVE
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK & ROYALSTON, MA
PAGE 27A OF 137

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- DCR-State Parks & Recreation
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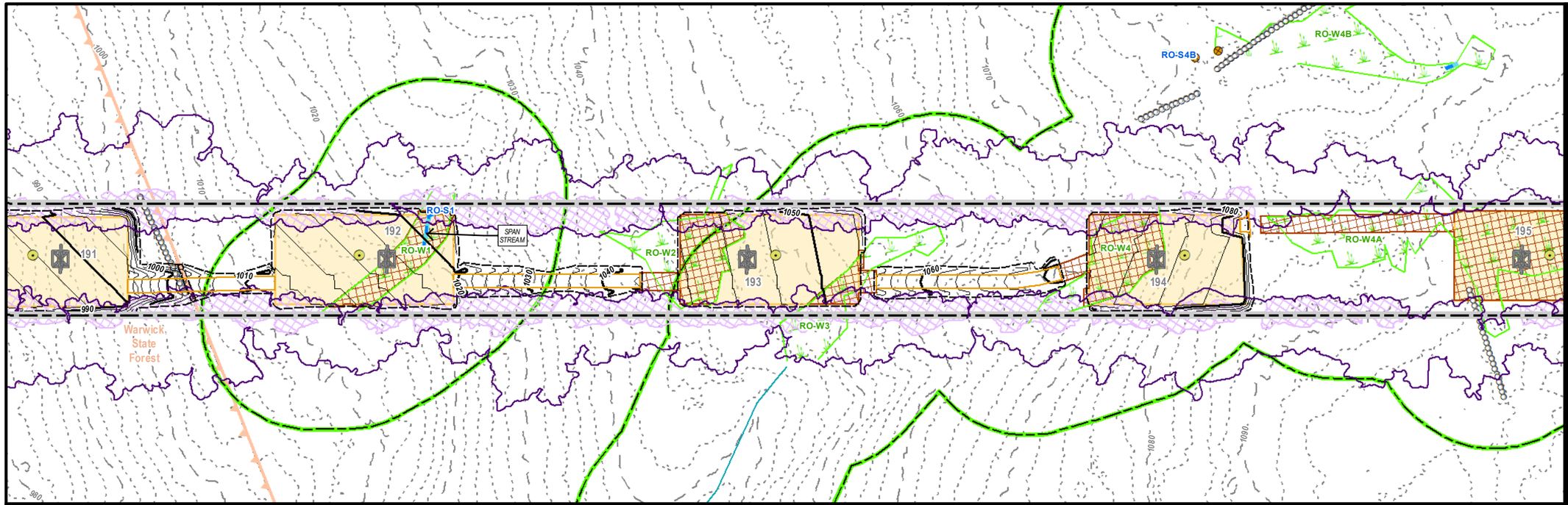
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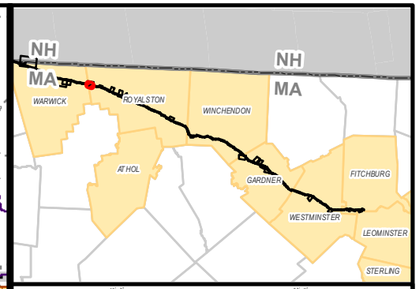
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170 DATA DRIVE
WALTHAM, MA 02451

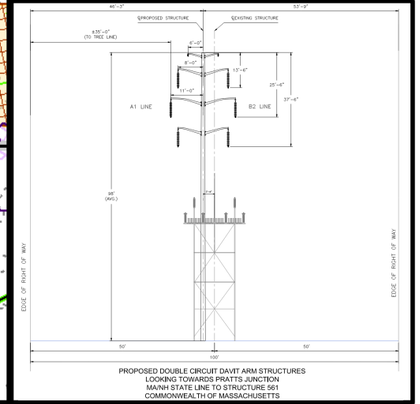
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WARWICK & ROYALSTON, MA
PAGE 28 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

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- Install Structure (Direct Embed)
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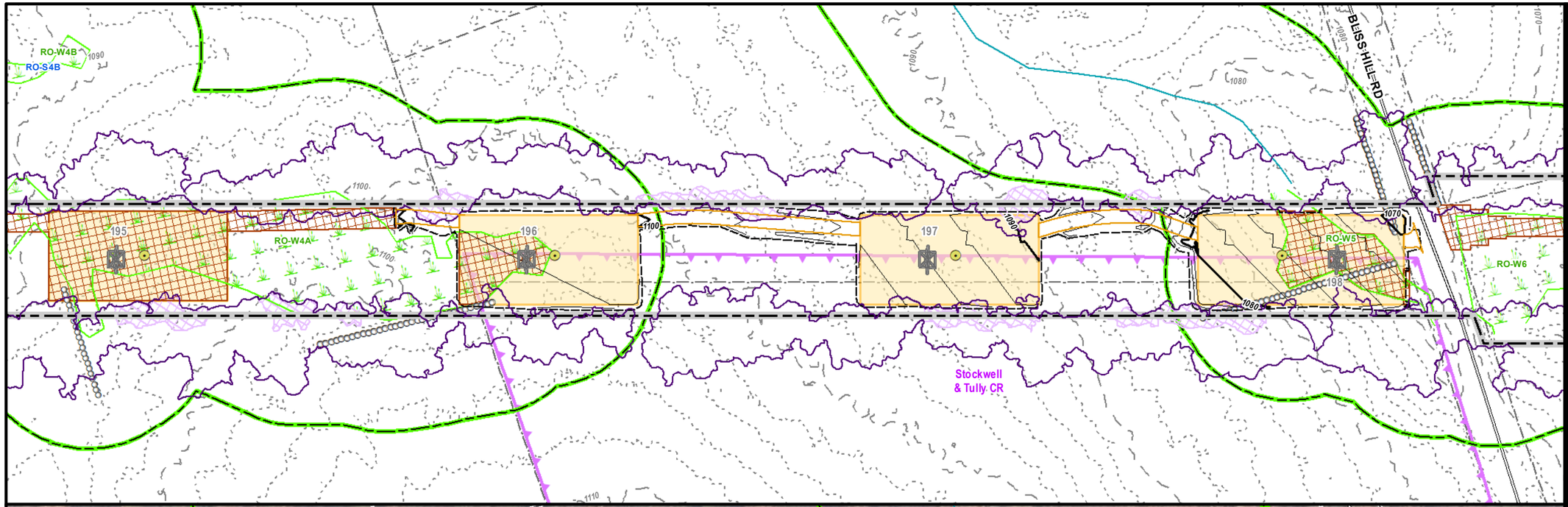
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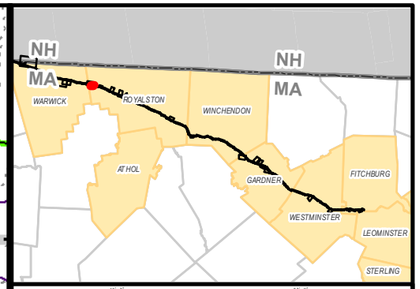
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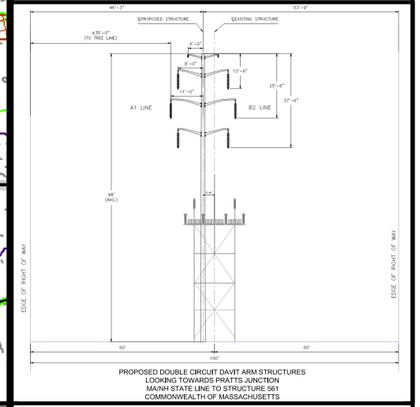
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1 MERCANTILE STREET SUITE 601
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

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ROYALSTON, MA
PAGE 29 OF 137

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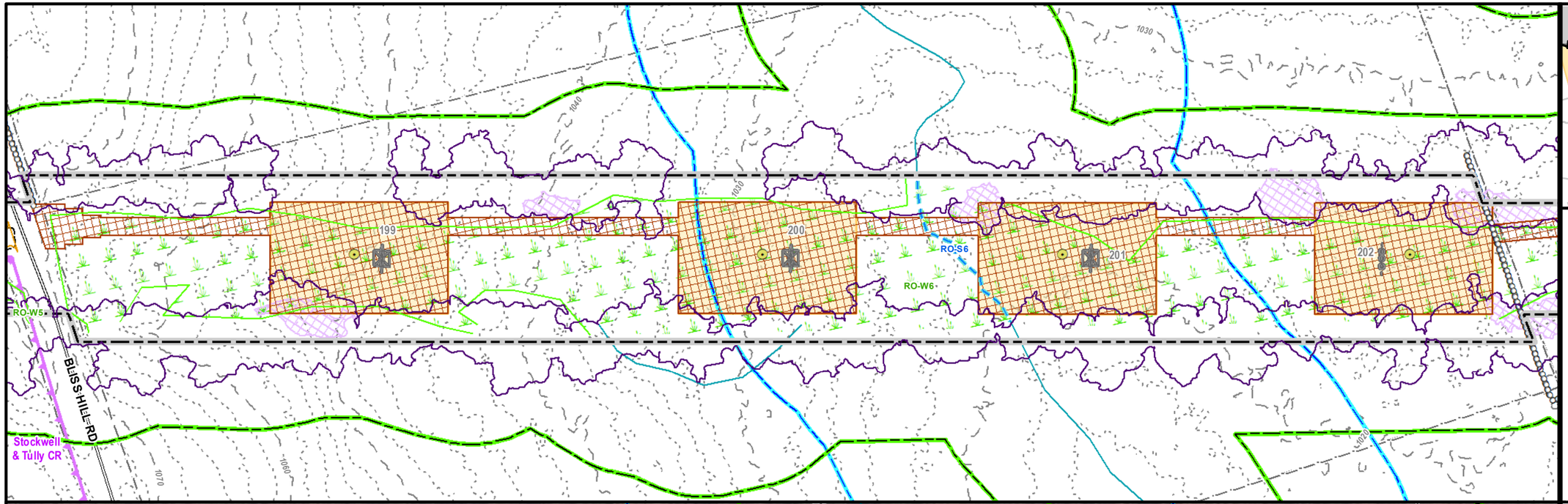
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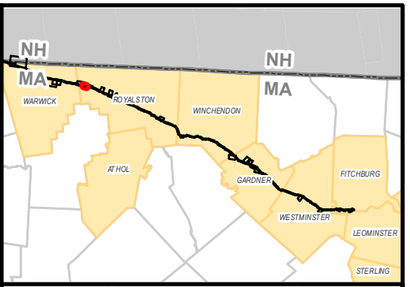
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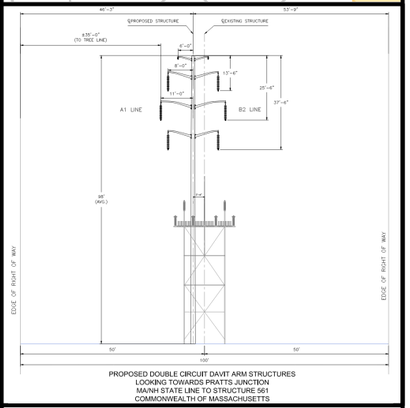
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1 MERCANTILE STREET SUITE 601
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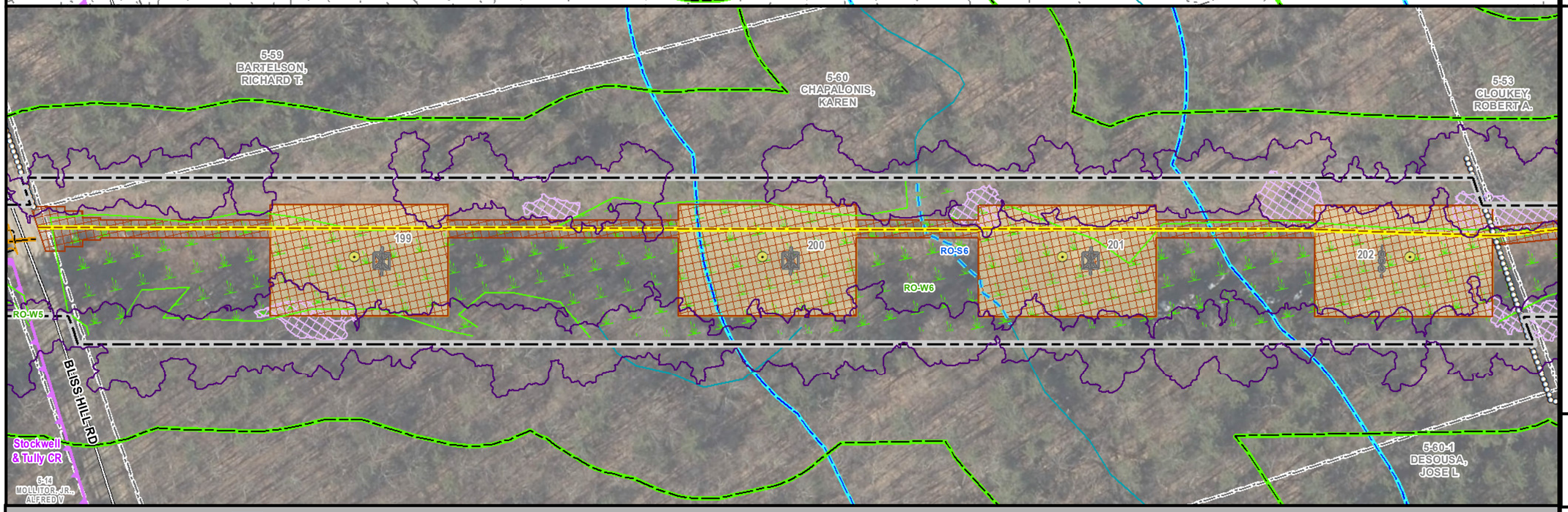
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 30 OF 137

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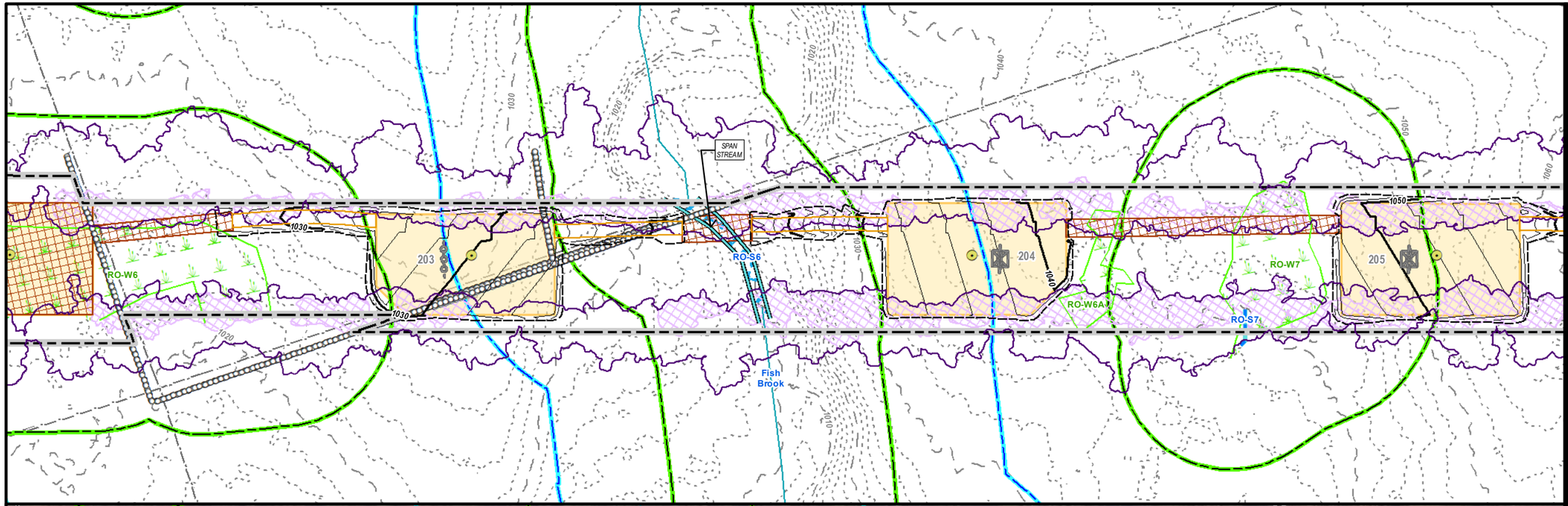
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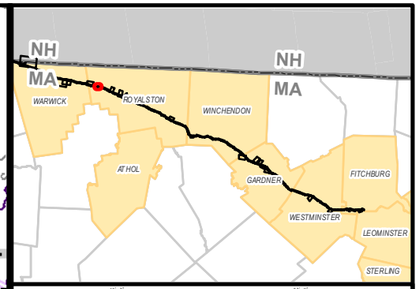
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

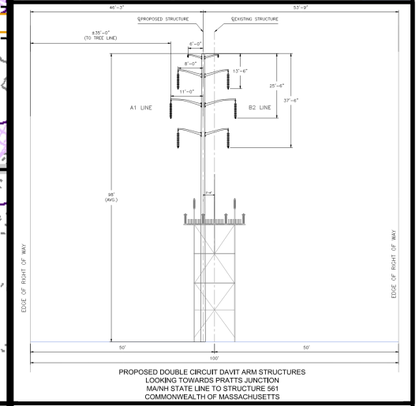
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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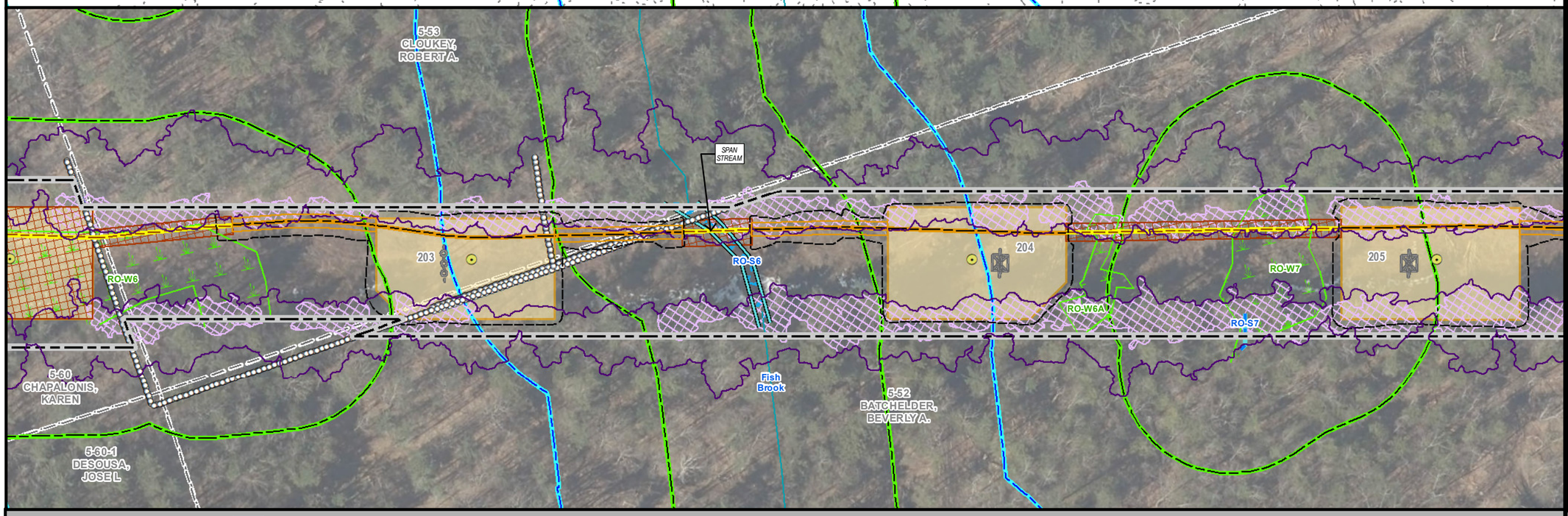
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 31 OF 137

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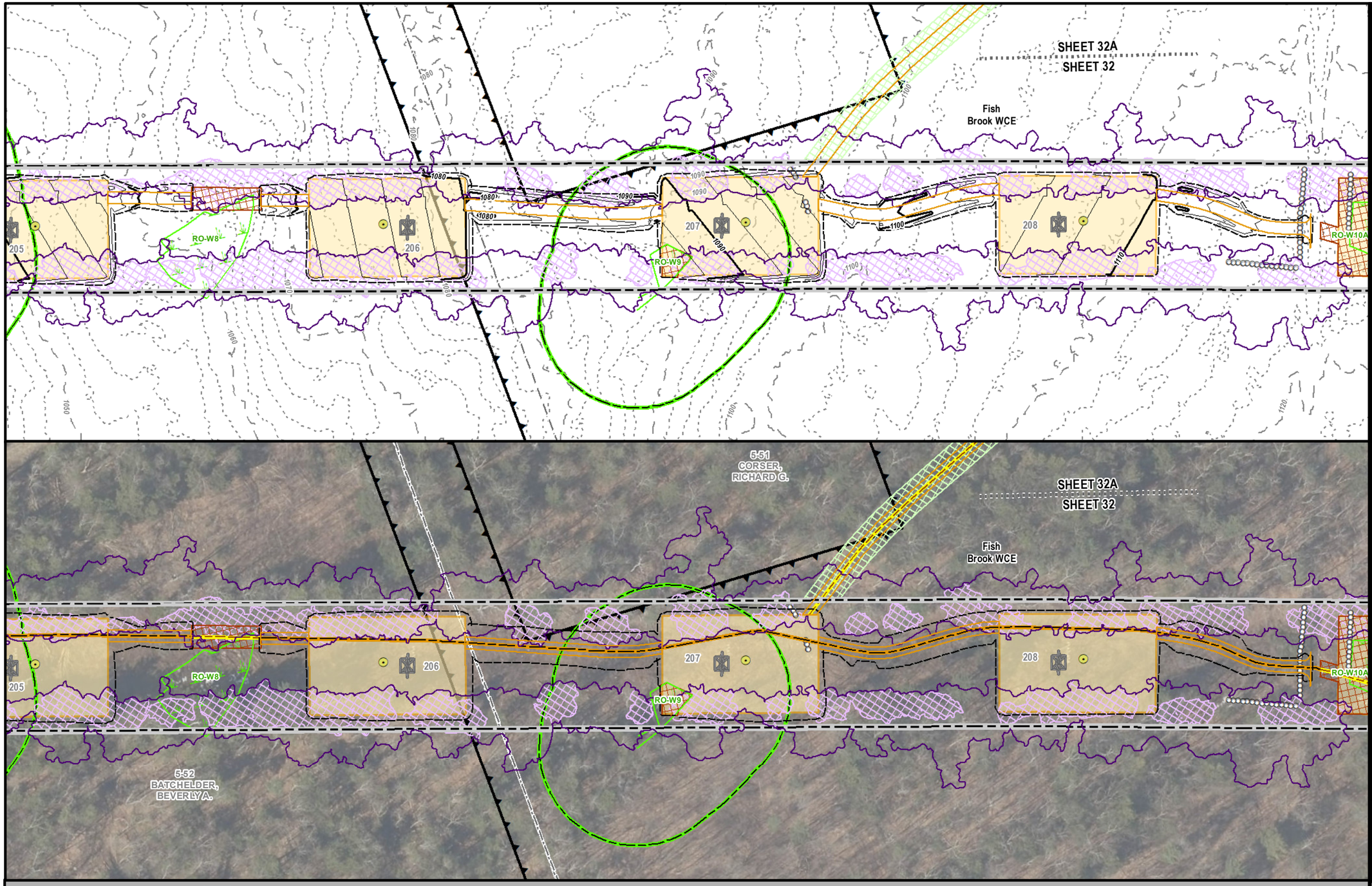
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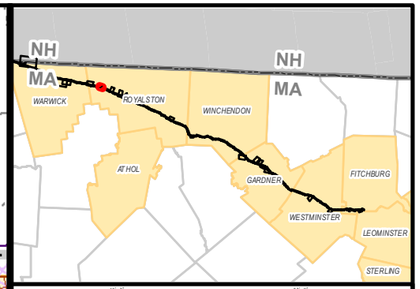
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nationalgrid
170 DATA DRIVE
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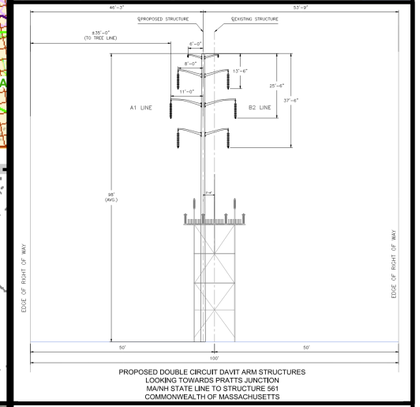
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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ROYALSTON, MA
PAGE 32 OF 137

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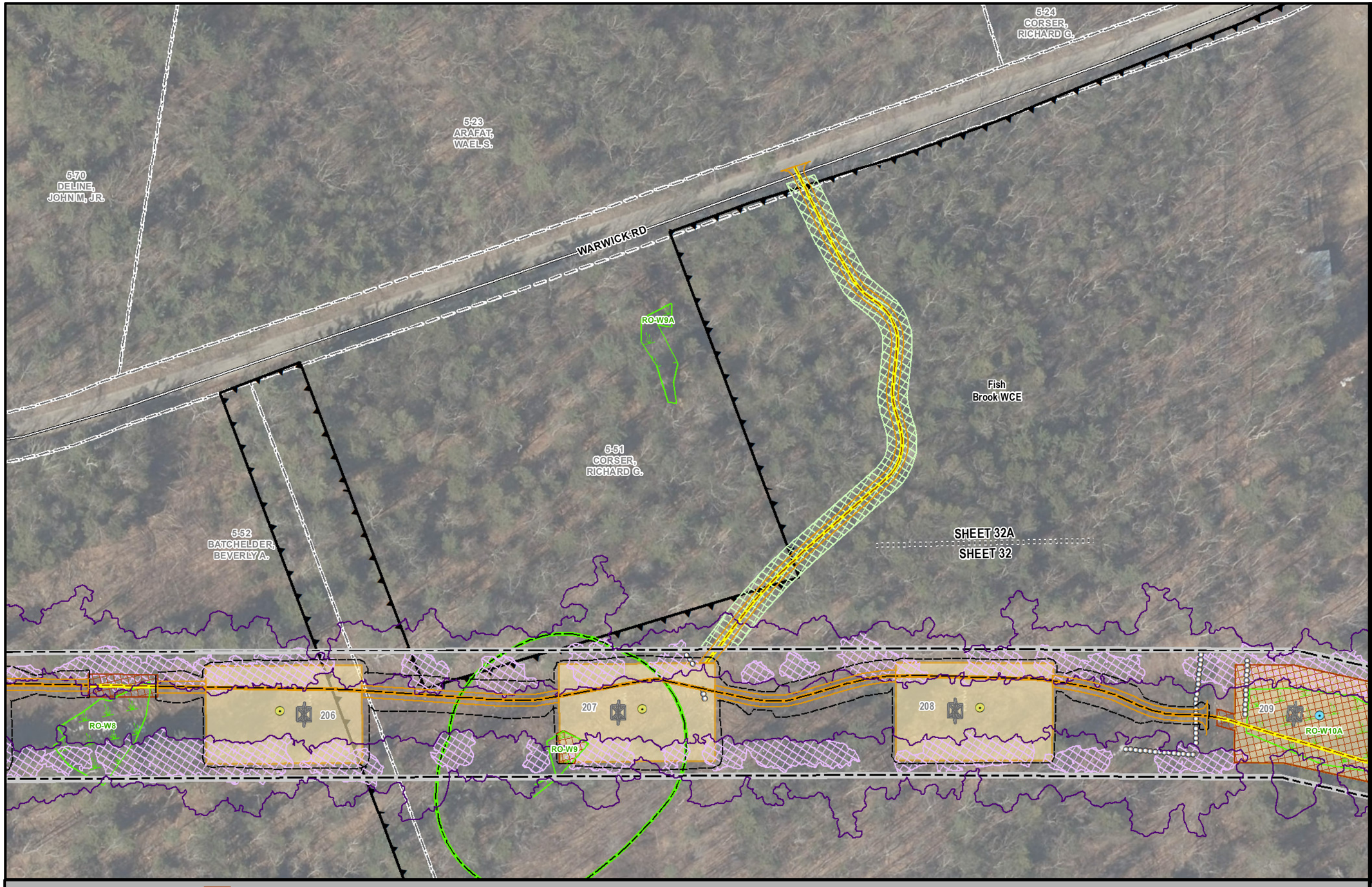
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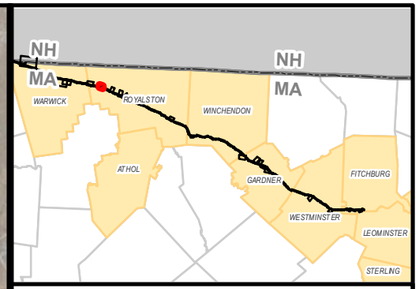
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WALTHAM, MA 02451

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MEPA General Purpose Plans

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ROYALSTON, MA
PAGE 32A OF 137

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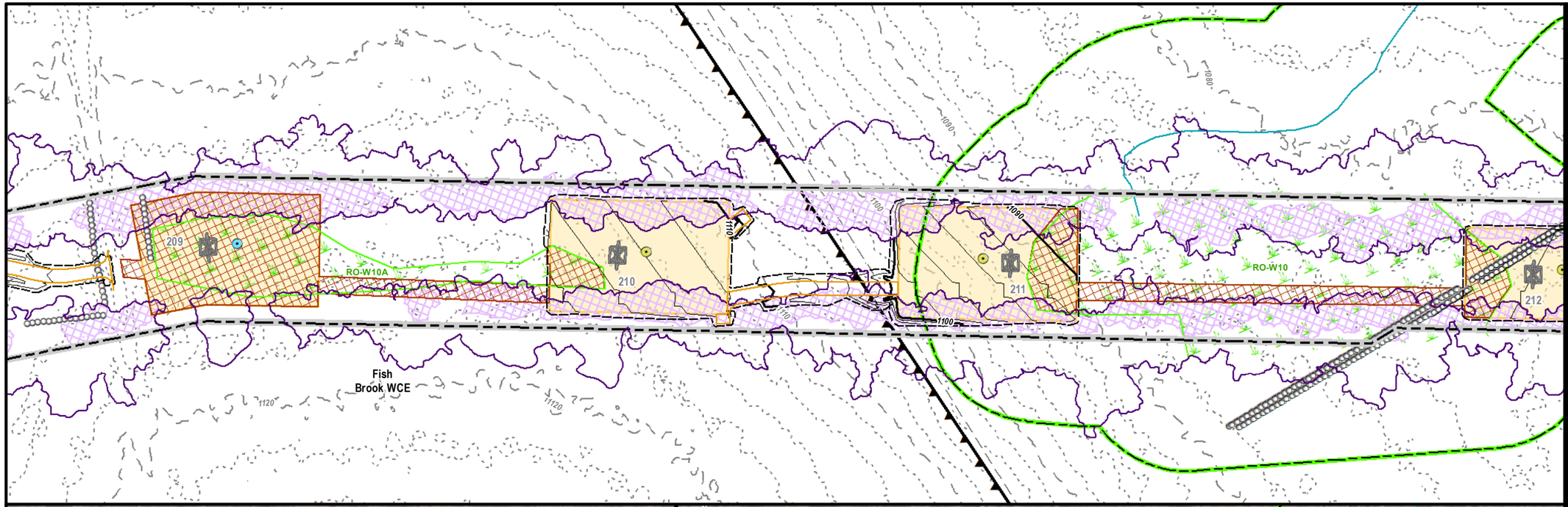
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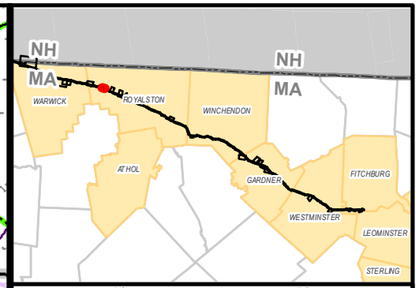
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

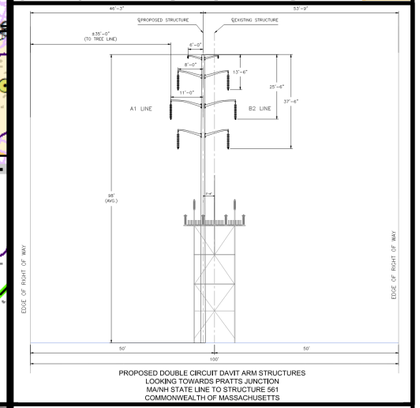
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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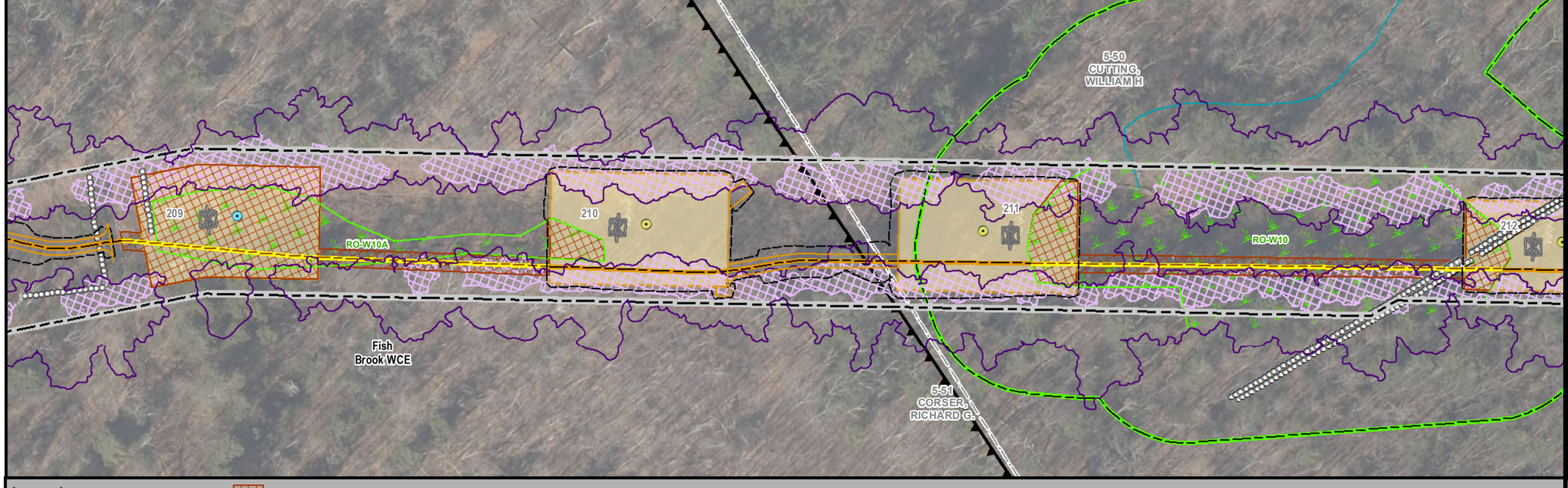
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 33 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
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- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
- Stream Centerline
- Ordinary High Water
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Article 97 Lands

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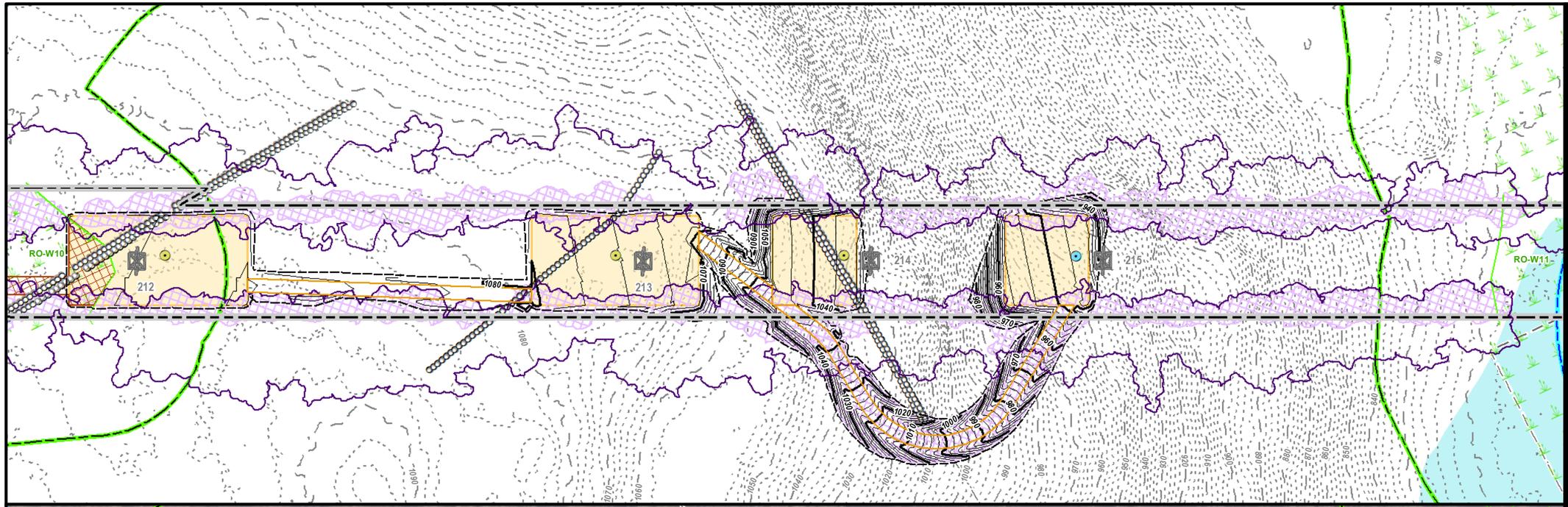
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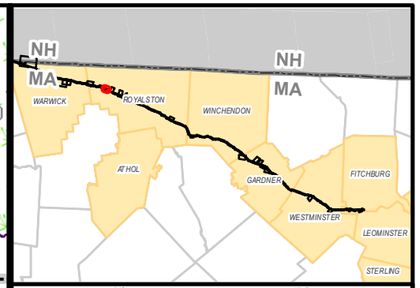
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170 DATA DRIVE
WALTHAM, MA 02451

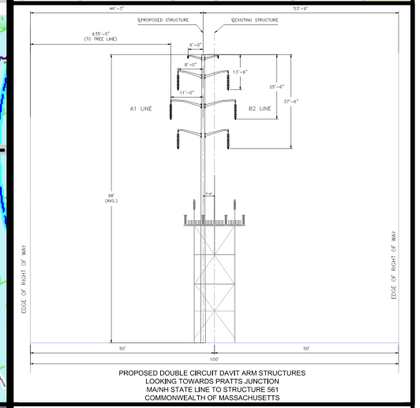
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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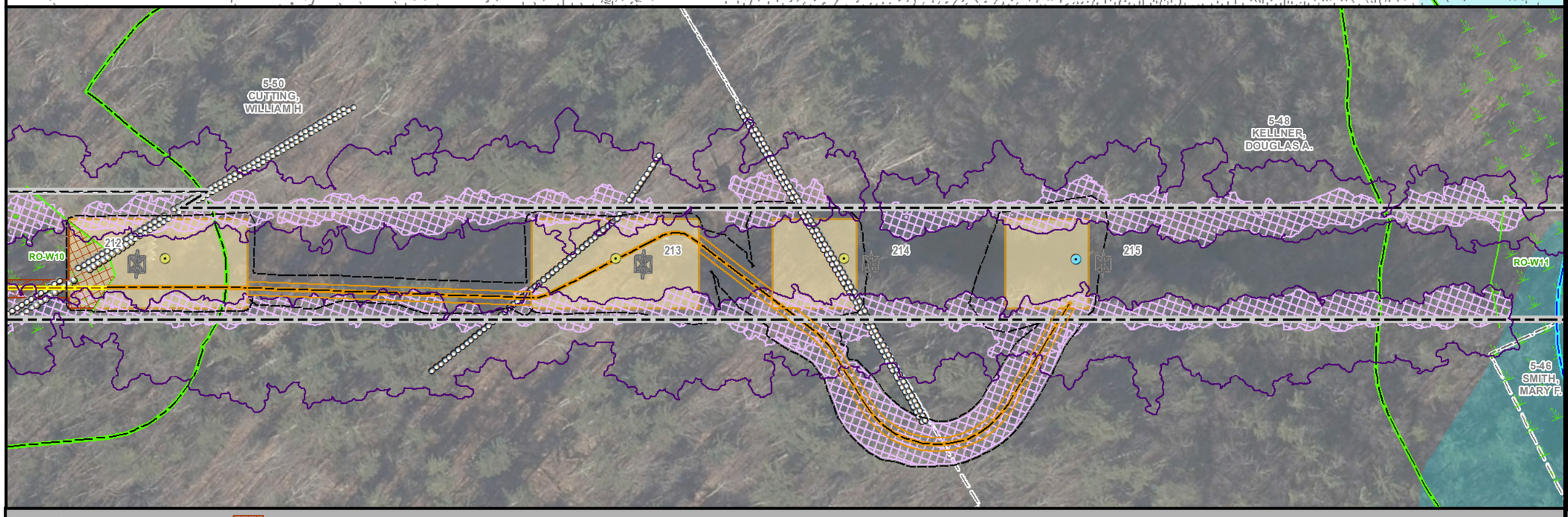
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 34 OF 137

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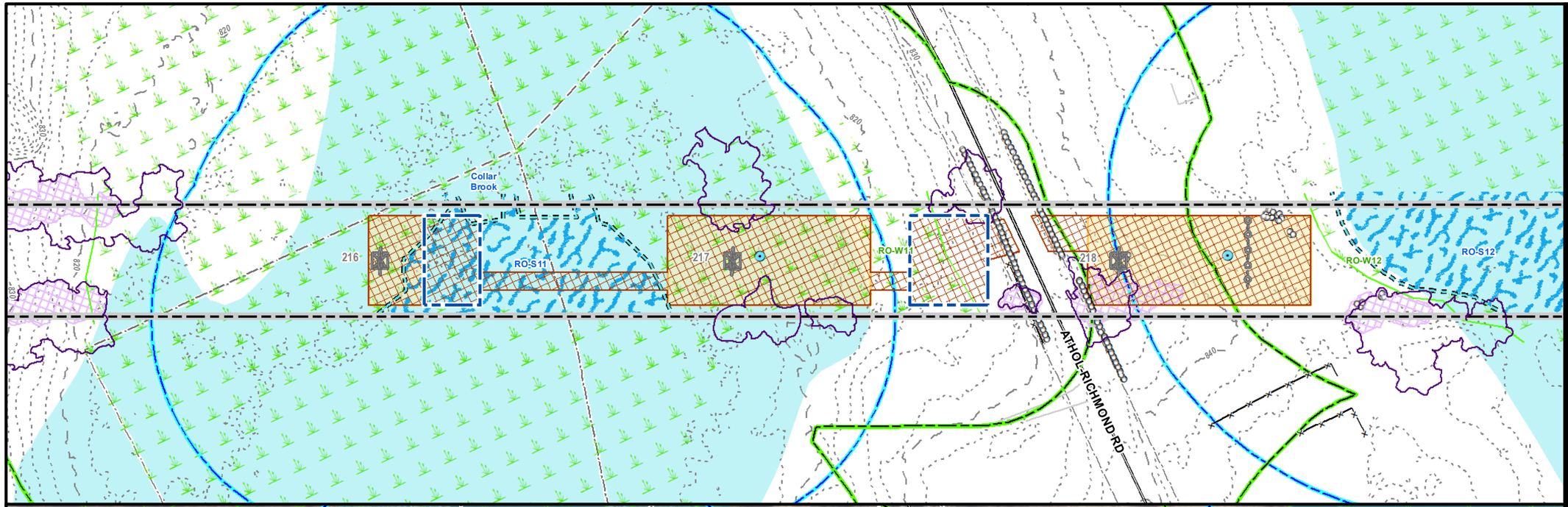
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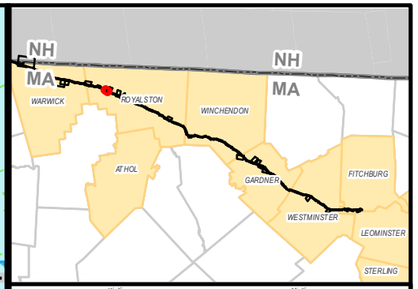
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

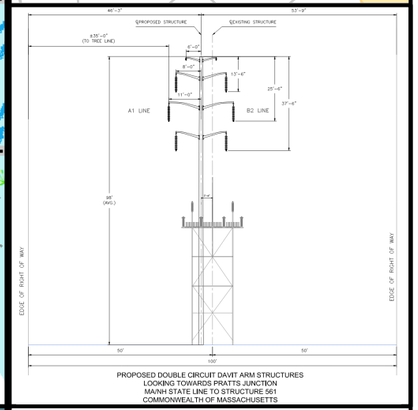
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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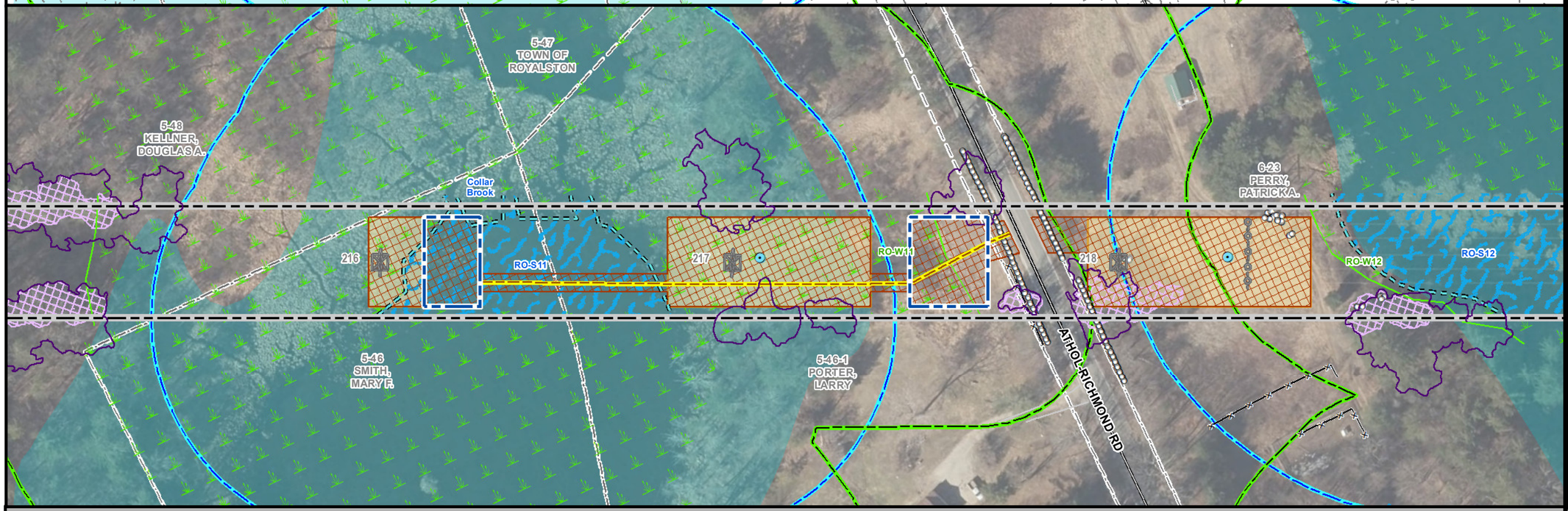
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 35 OF 137

1 inch = 100 feet
0 50 100
Feet

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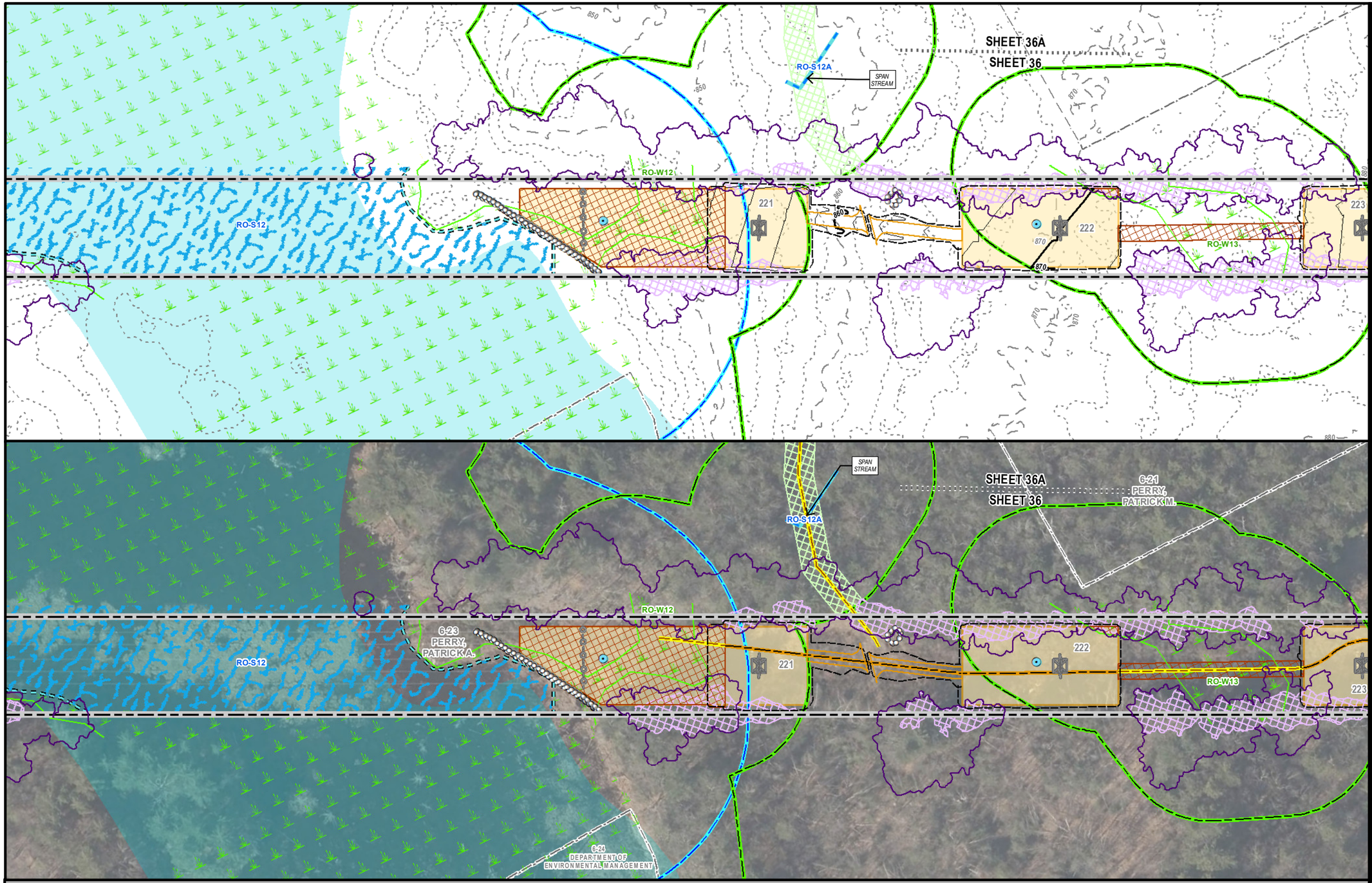
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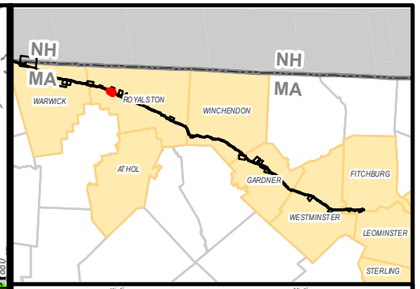
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

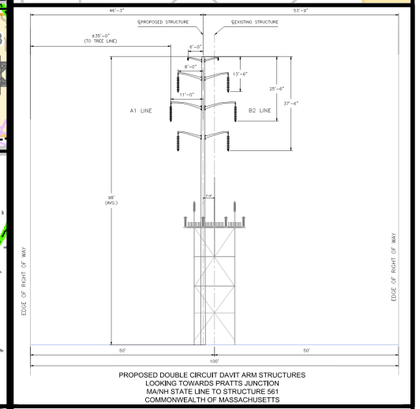
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 36 OF 137

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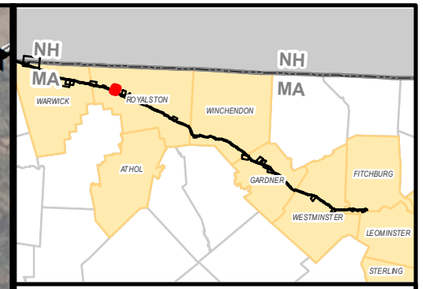
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 36A OF 137

1 inch = 150 feet
0 75 150
Feet

Legend

- Install Structure (Concrete Caisson)
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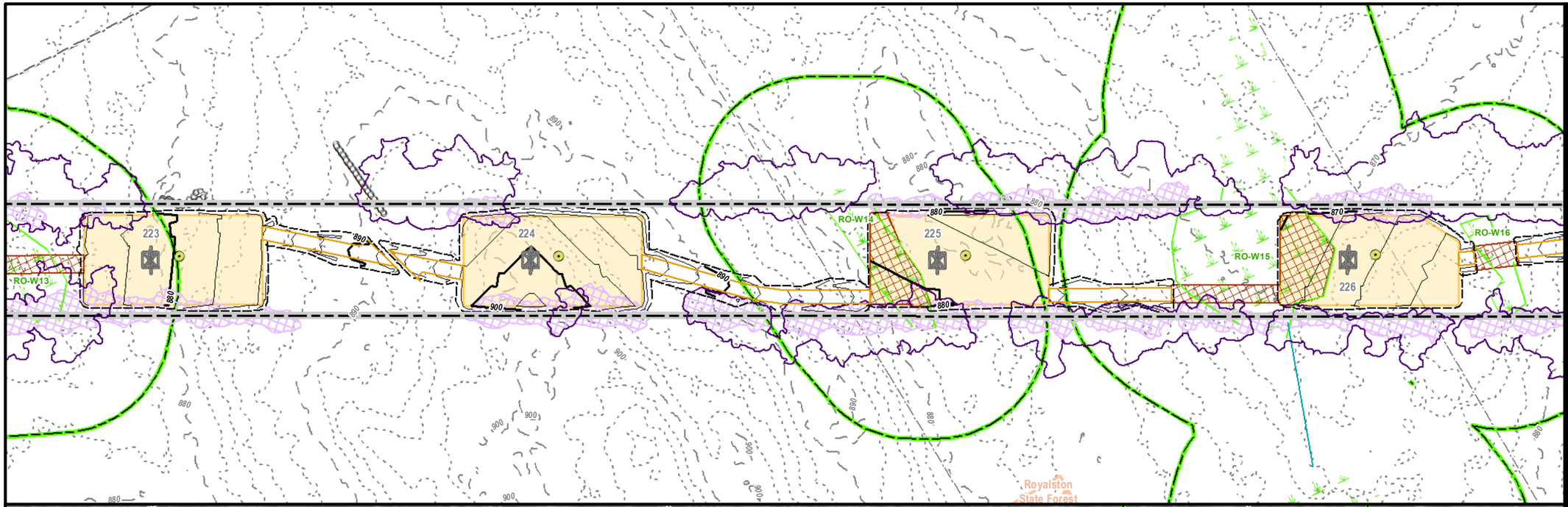
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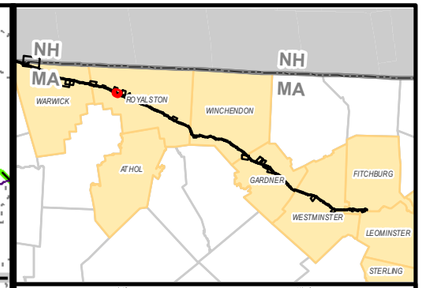
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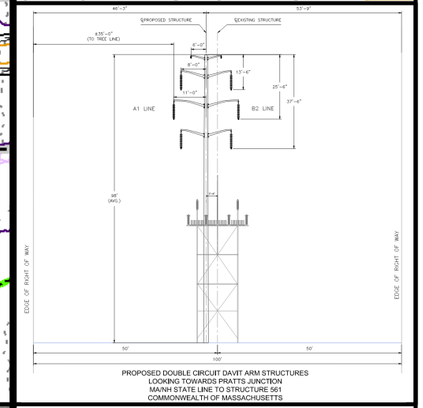
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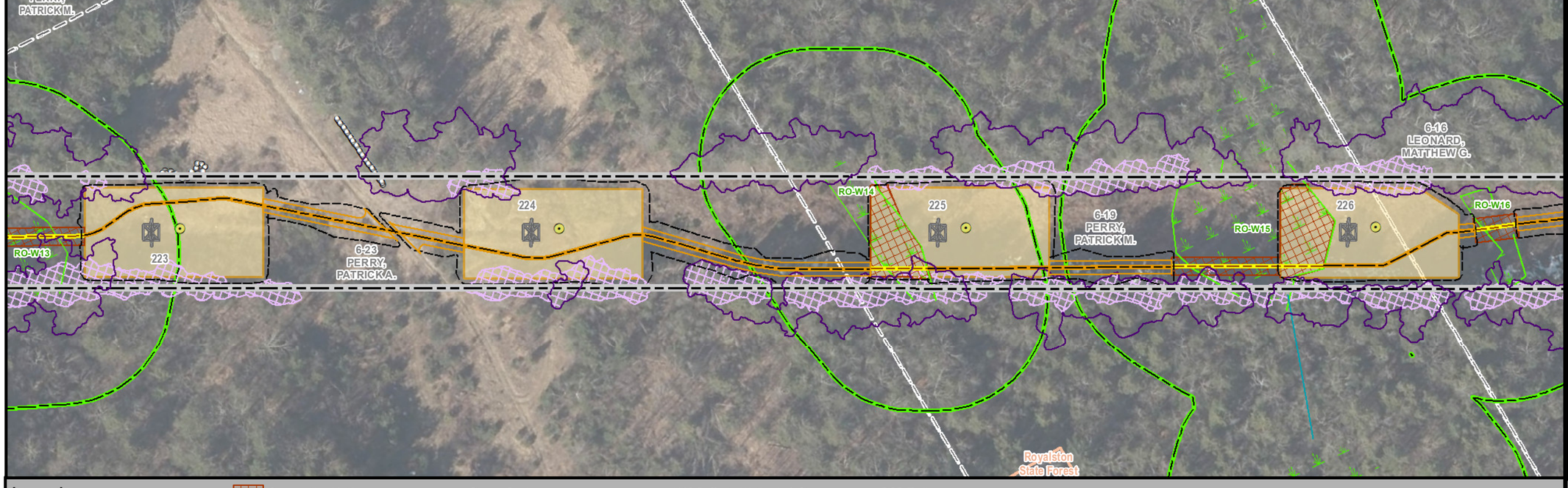
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
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Article 97 Lands

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- Department of Fish & Game
- Land Trust
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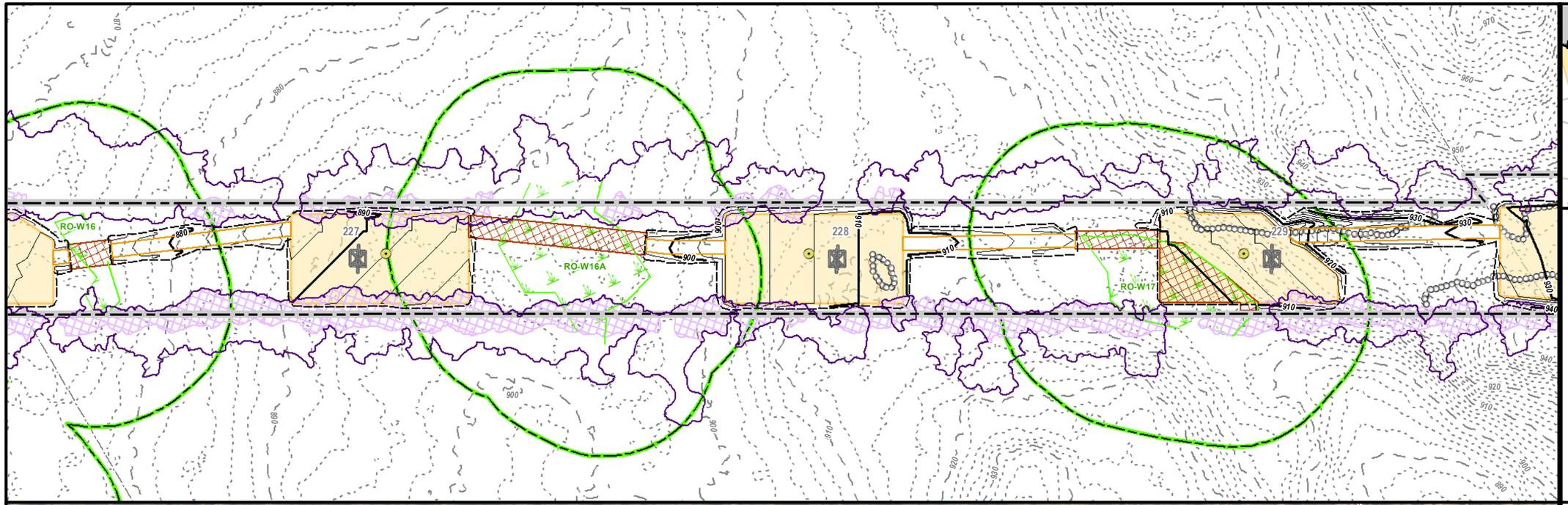
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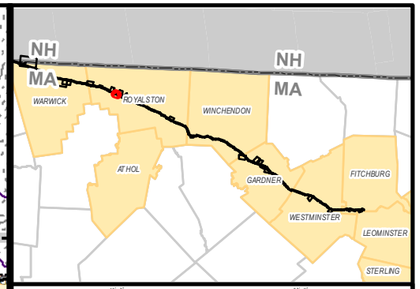
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

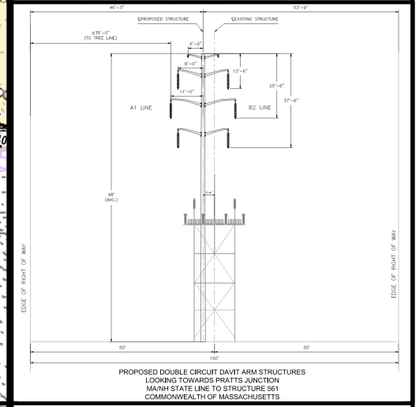
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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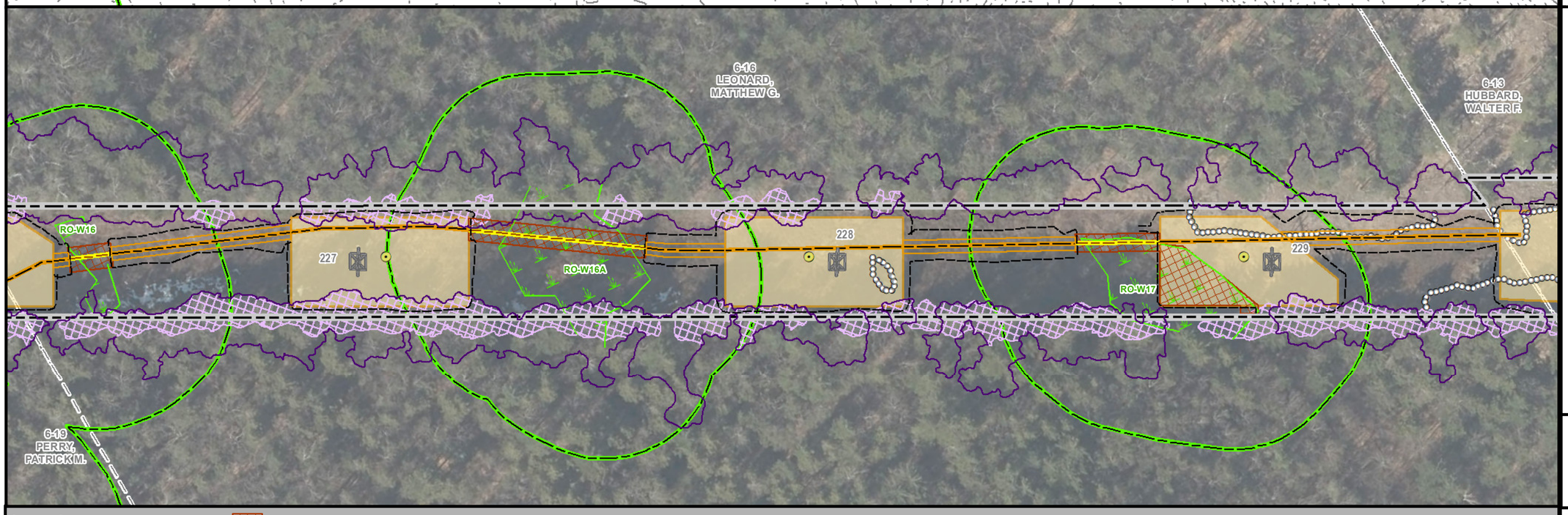
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 38 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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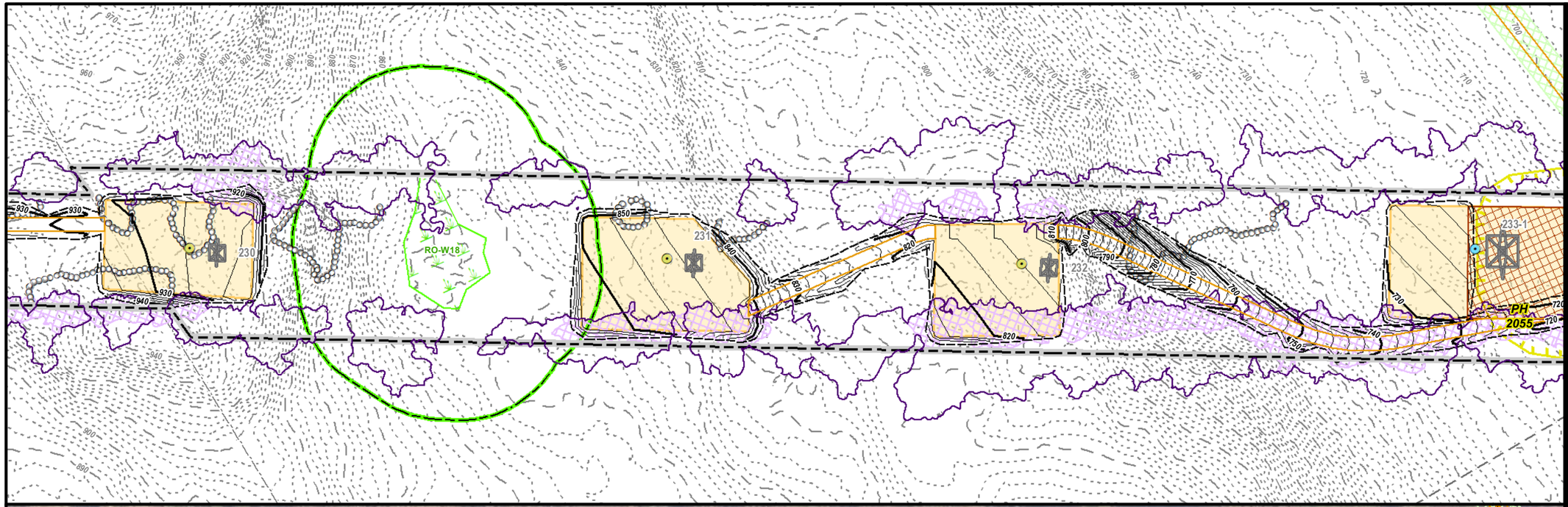
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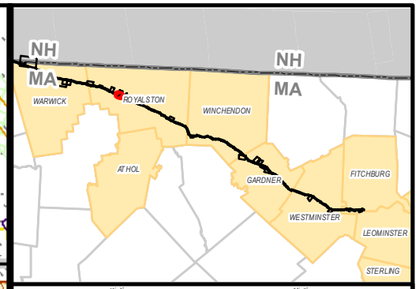
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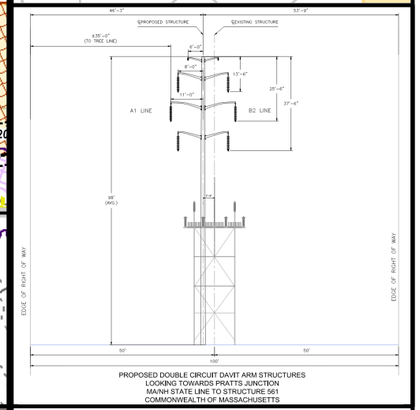
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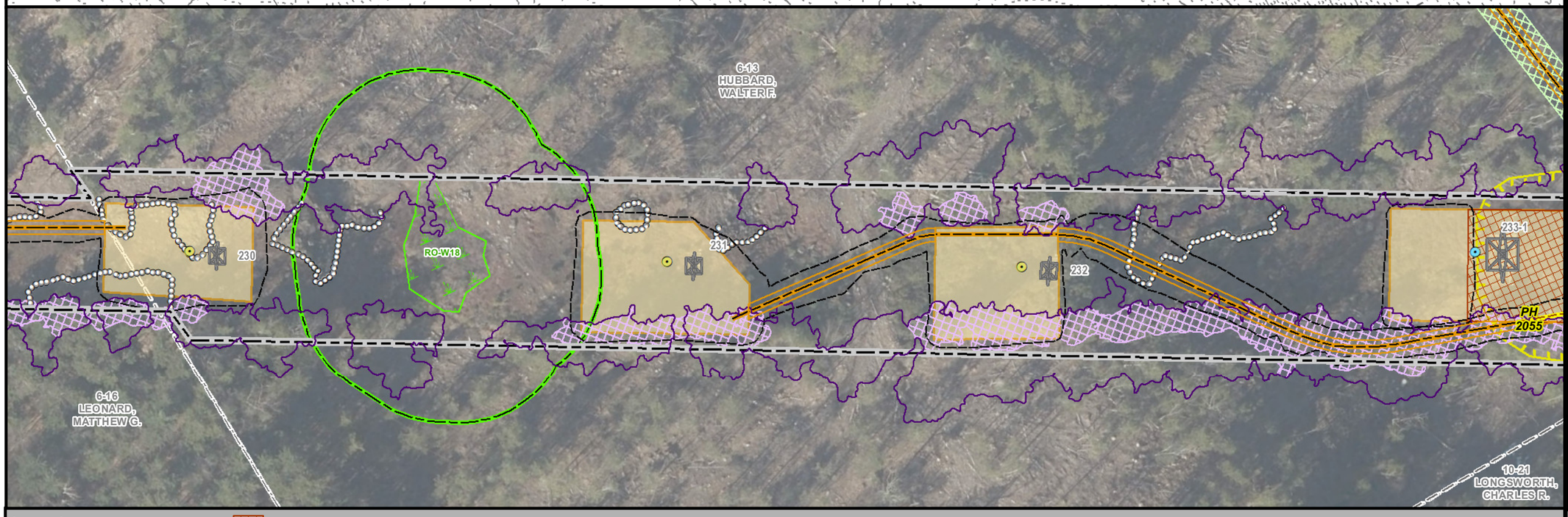
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 39 OF 137

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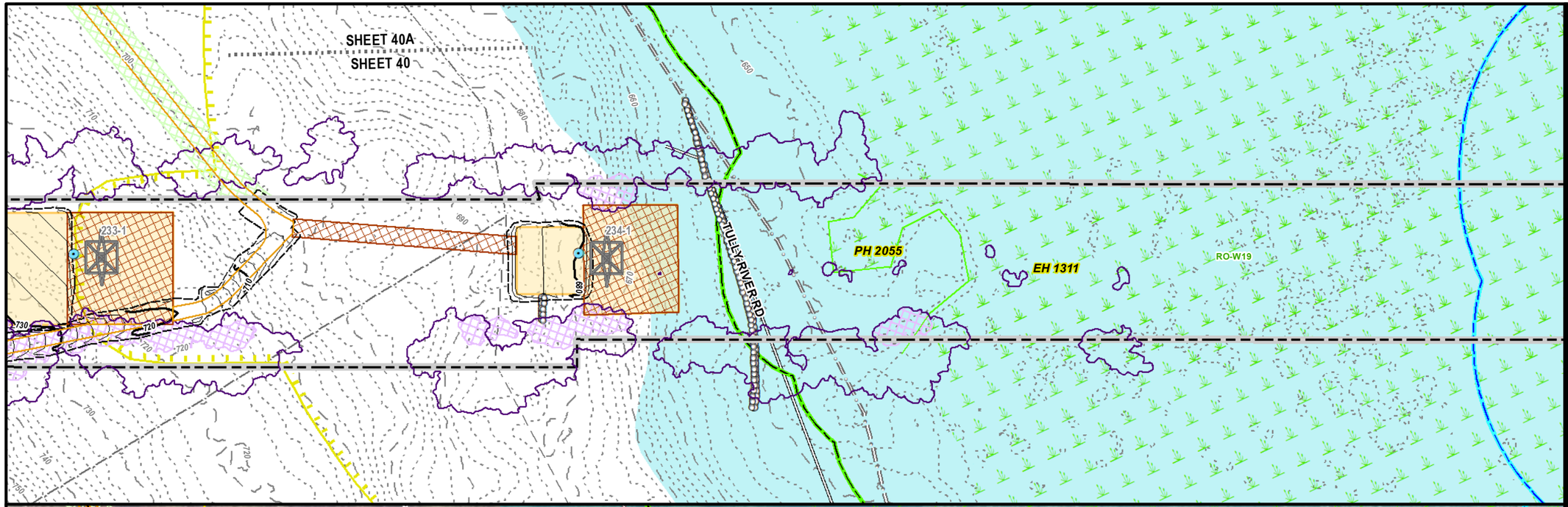
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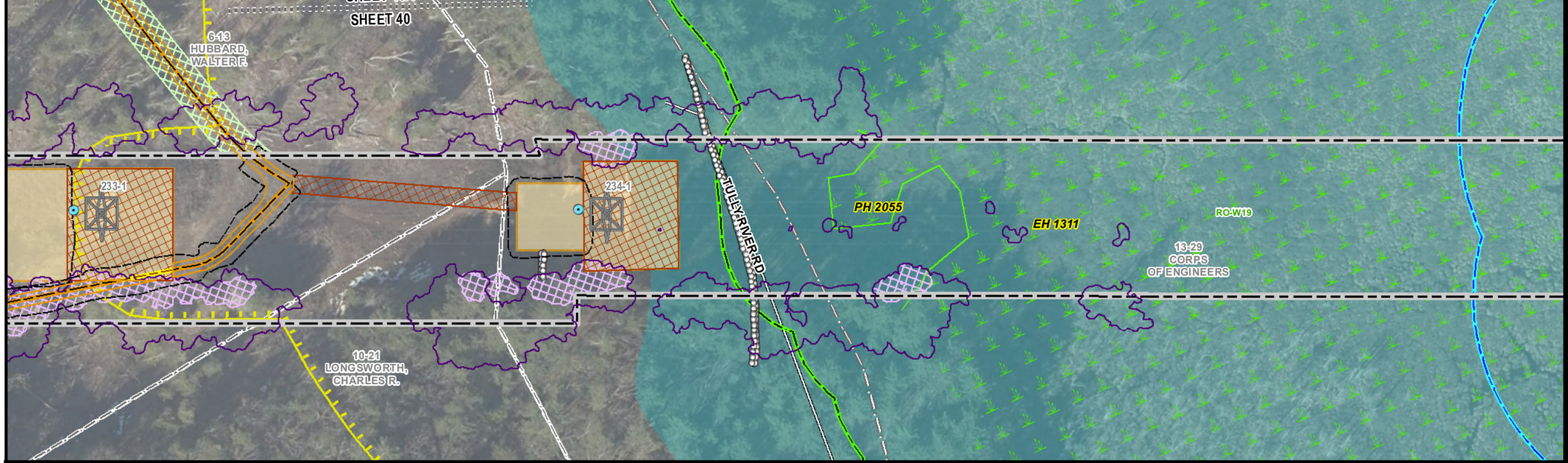
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

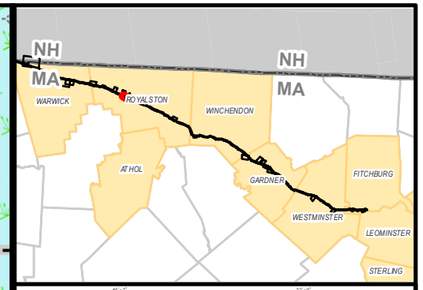
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WORCESTER, MA 01608

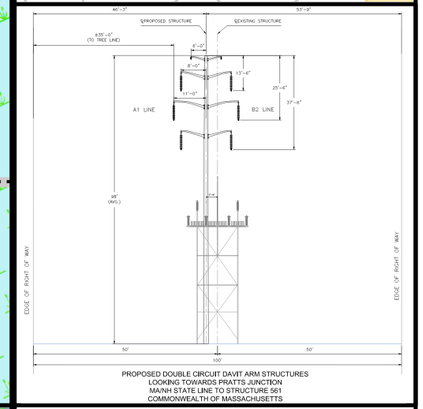
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MA/NH STATE LINE TO STRUCTURE 561
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 40 OF 137

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0 50 100
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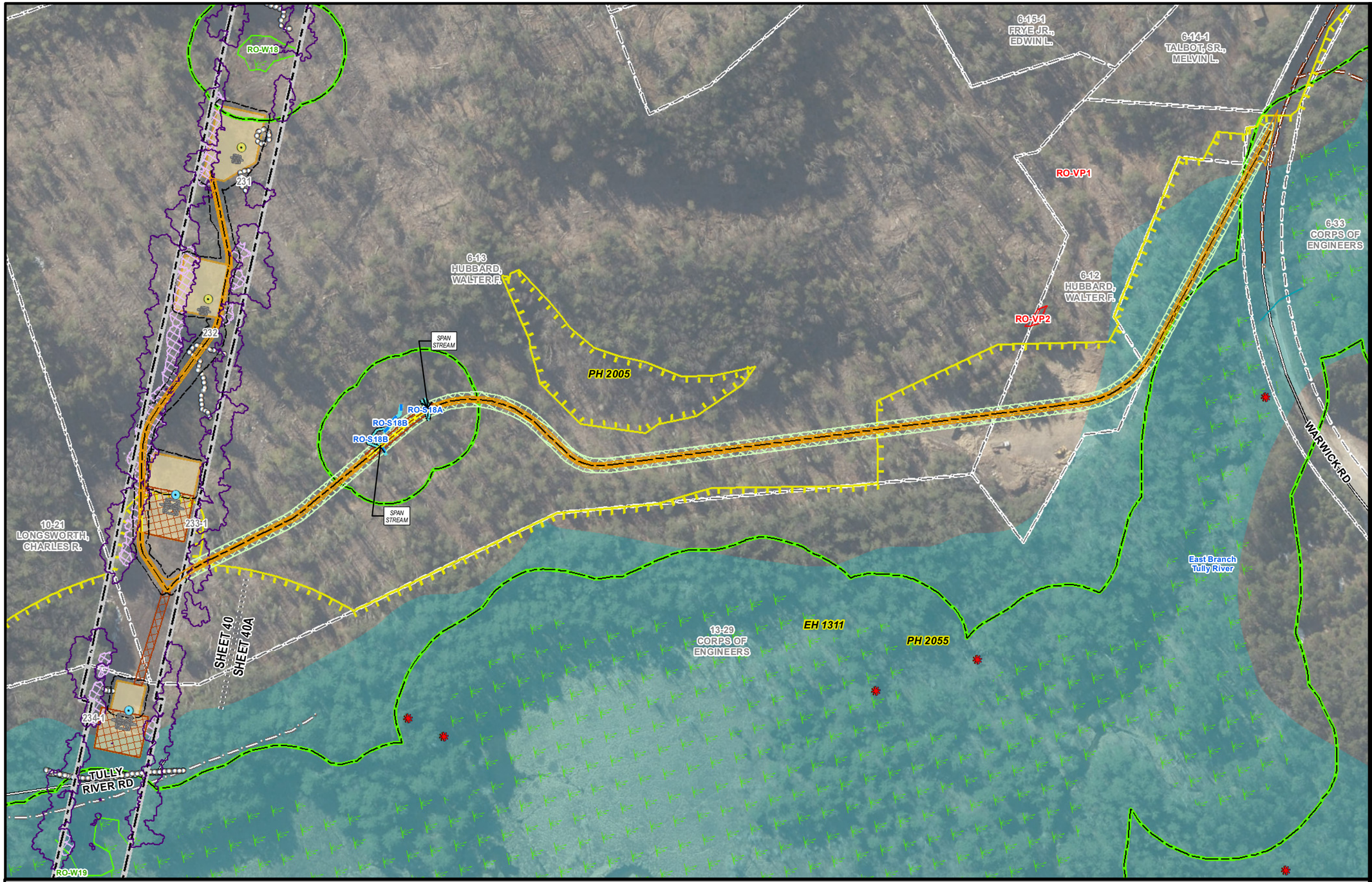
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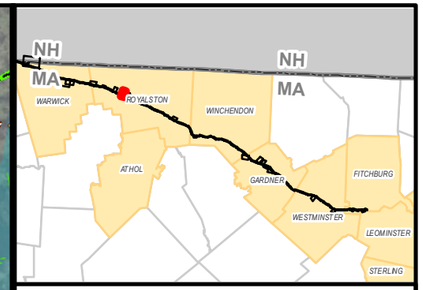
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 40A OF 137

1 inch = 200 feet
0 100 200
Feet

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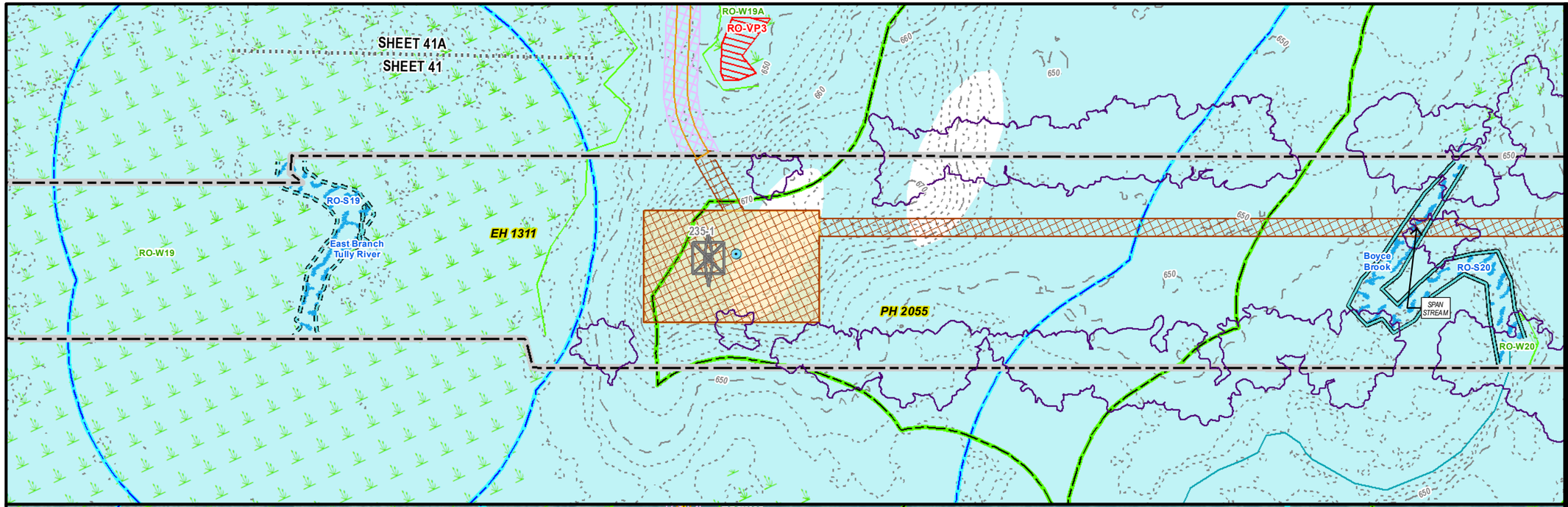
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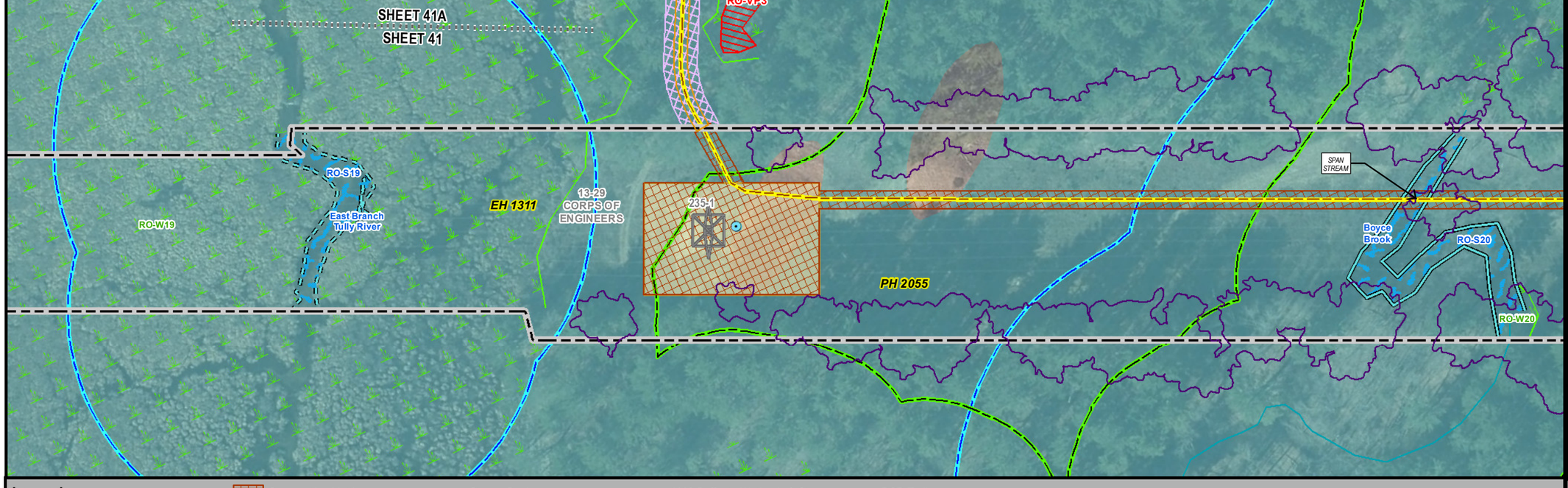
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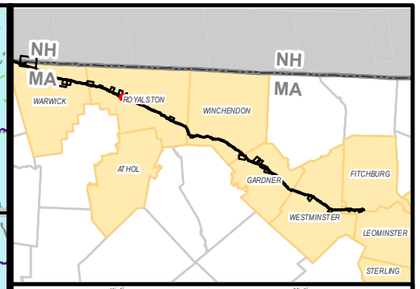
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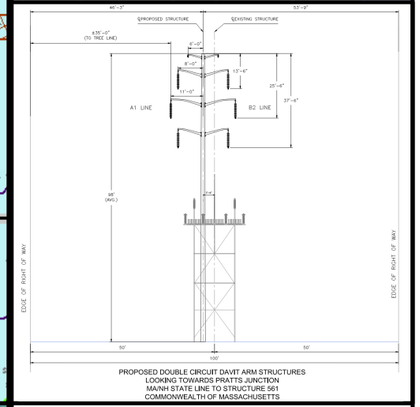
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 41 OF 137

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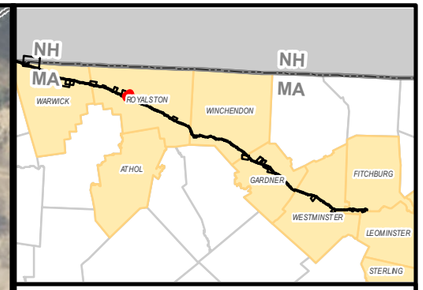
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MEPA General Purpose Plans

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ROYALSTON, MA
PAGE 41A OF 137

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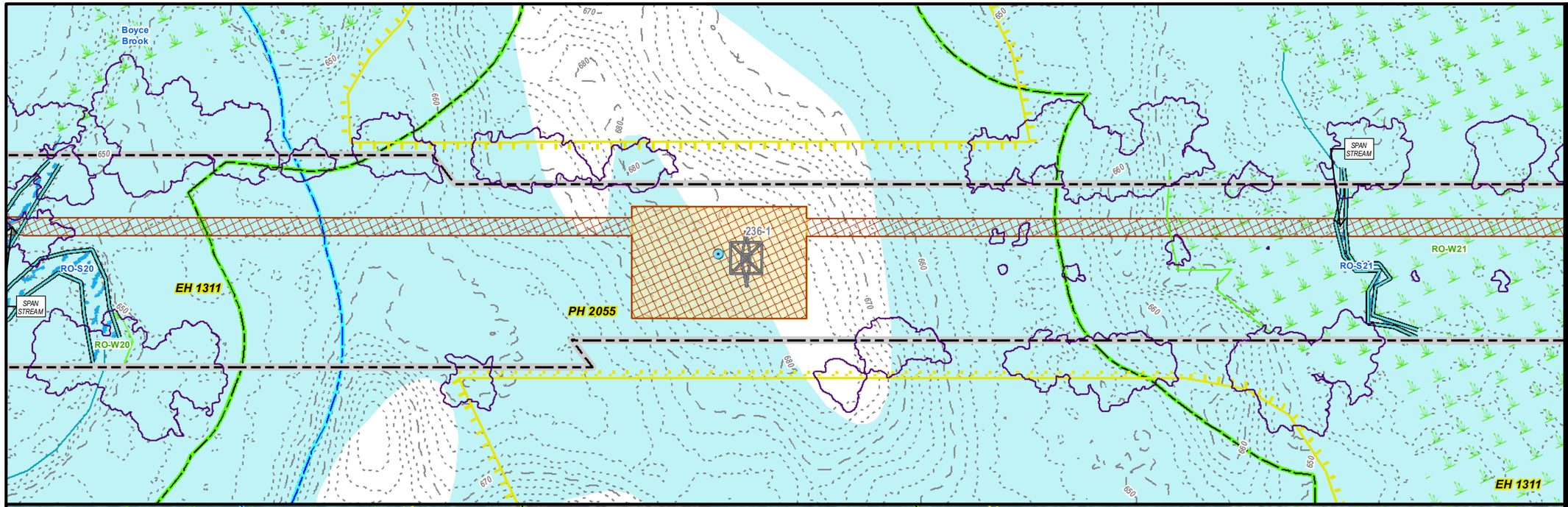
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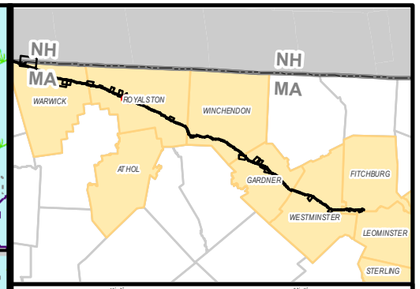
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nationalgrid
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WALTHAM, MA 02451

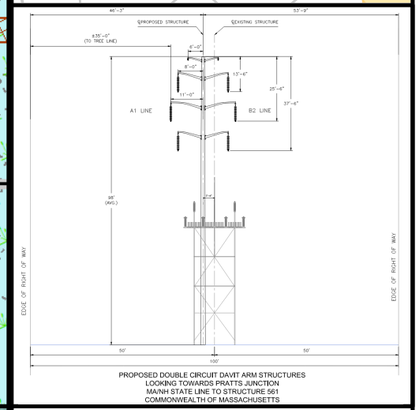
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 42 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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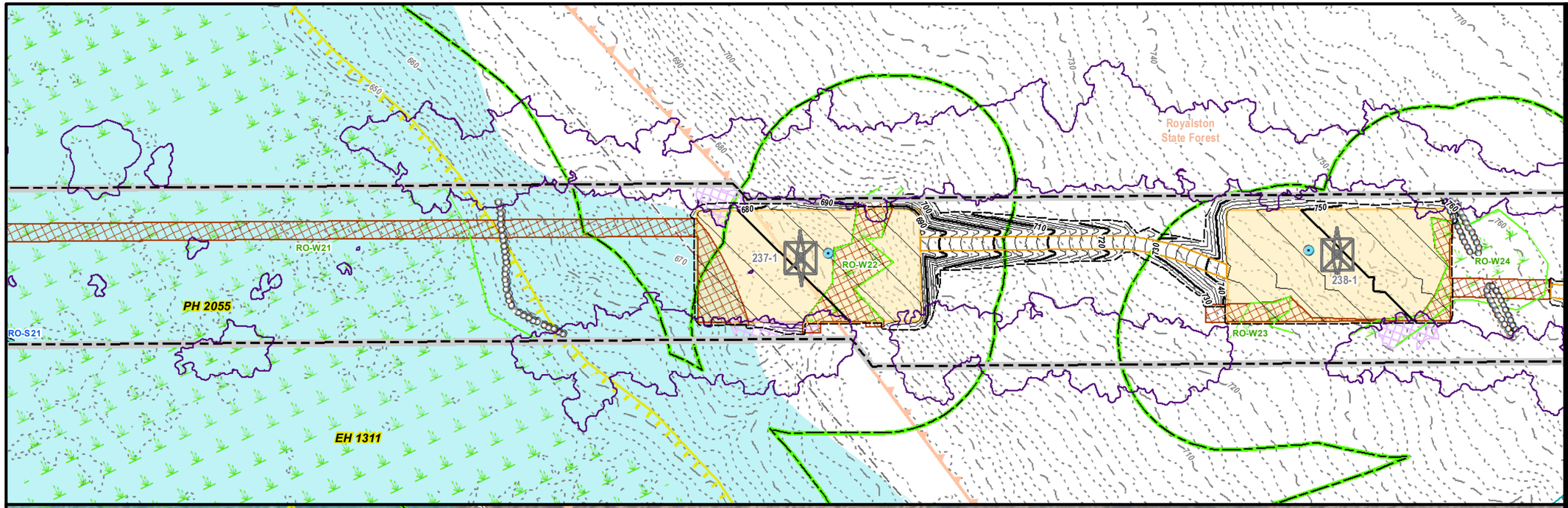
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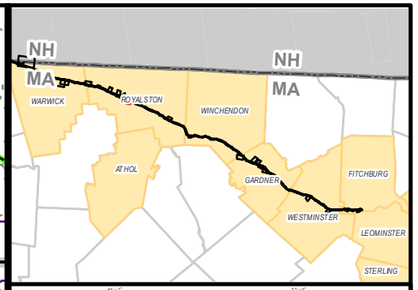
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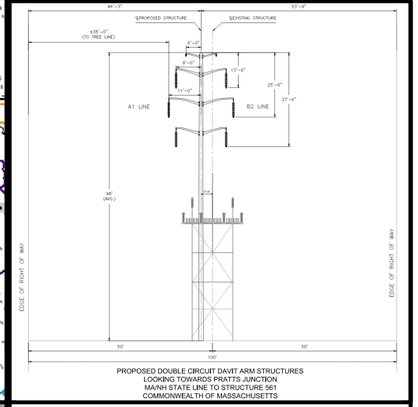
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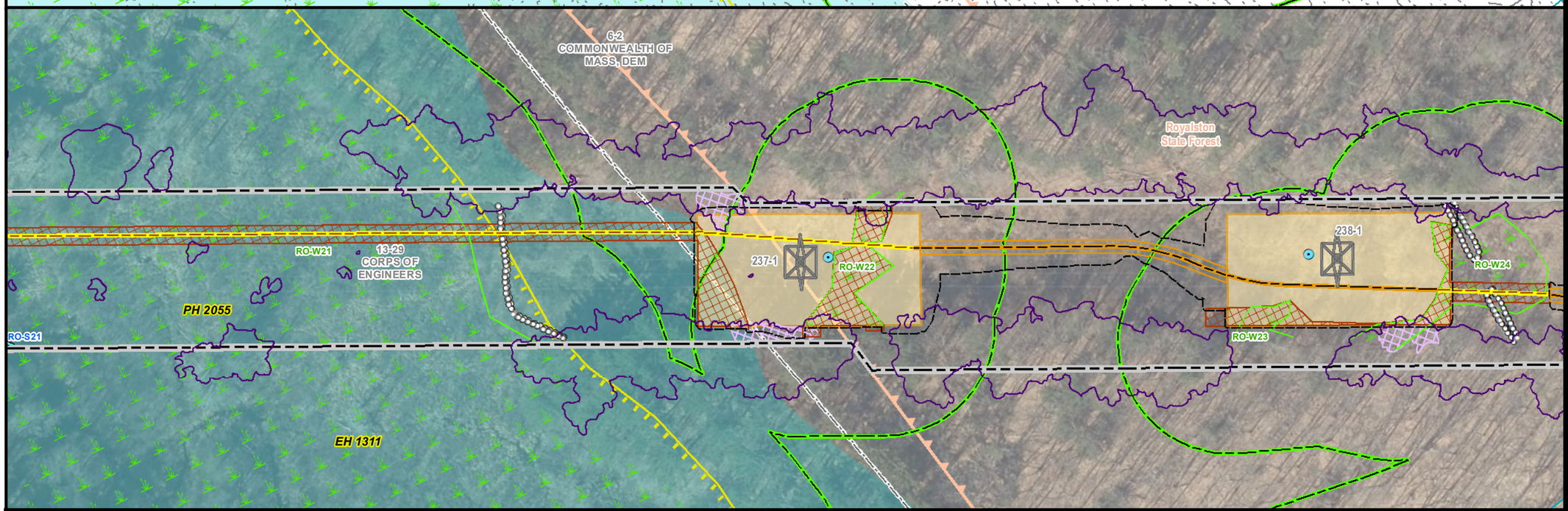
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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ROYALSTON, MA
PAGE 43 OF 137

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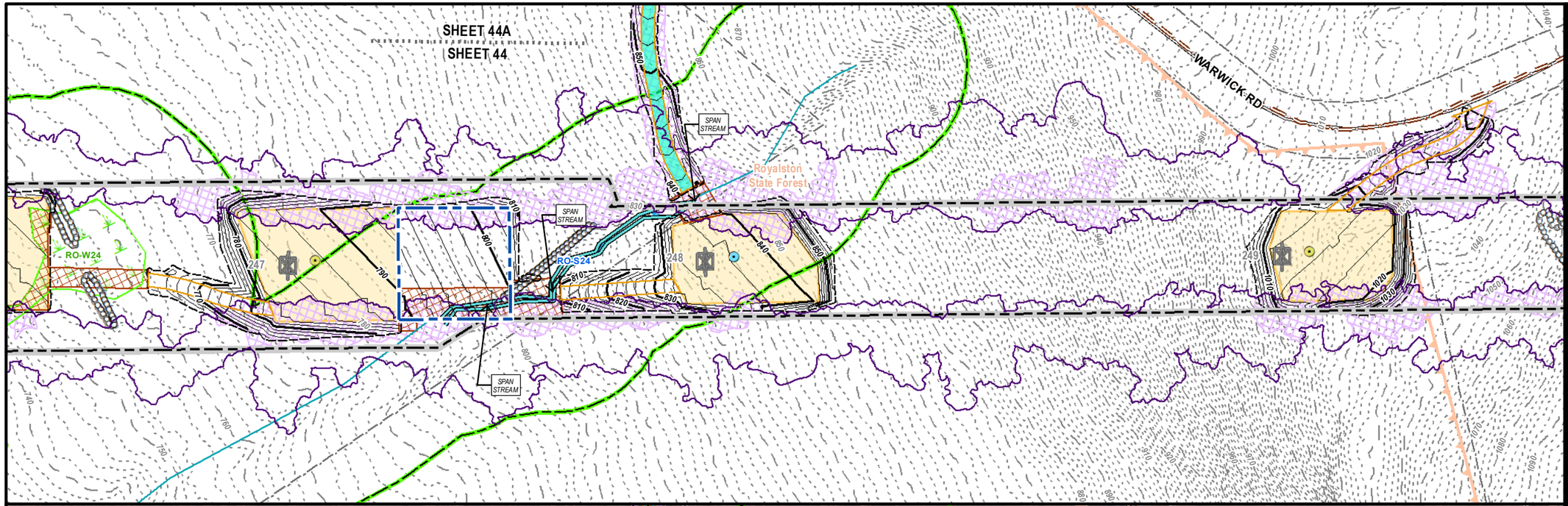
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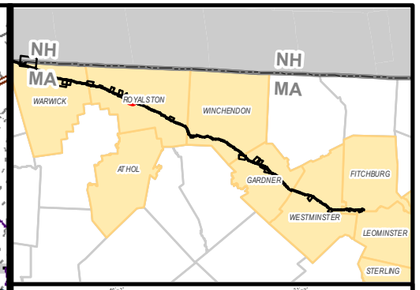
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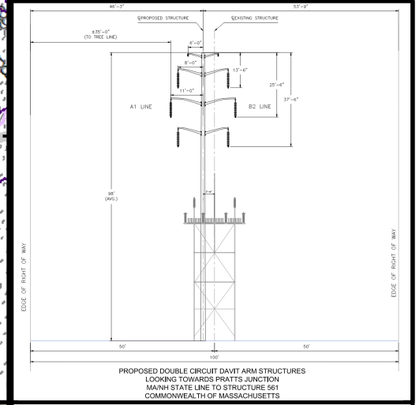
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BSC GROUP
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WORCESTER, MA 01608

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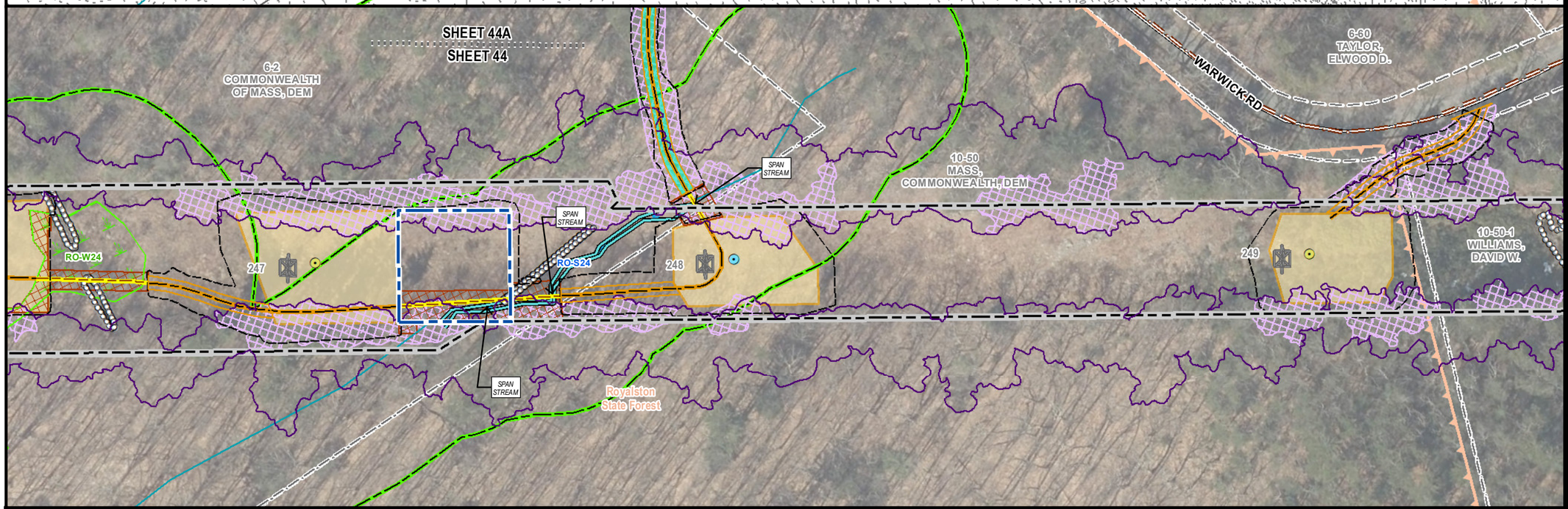
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 44 OF 137

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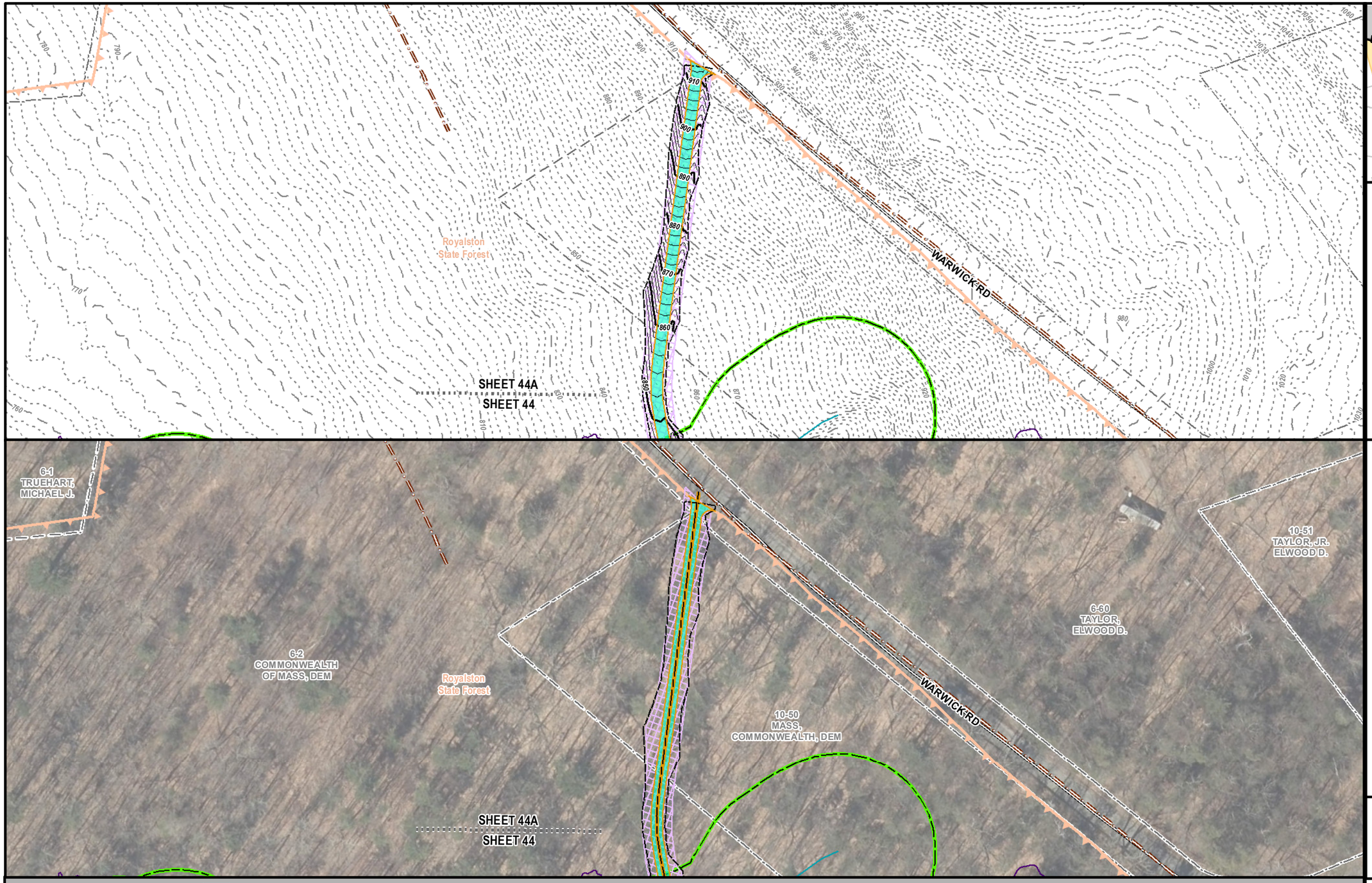
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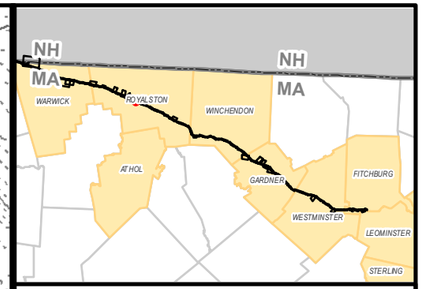
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

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MEPA General Purpose Plans

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ROYALSTON, MA
PAGE 44A OF 137

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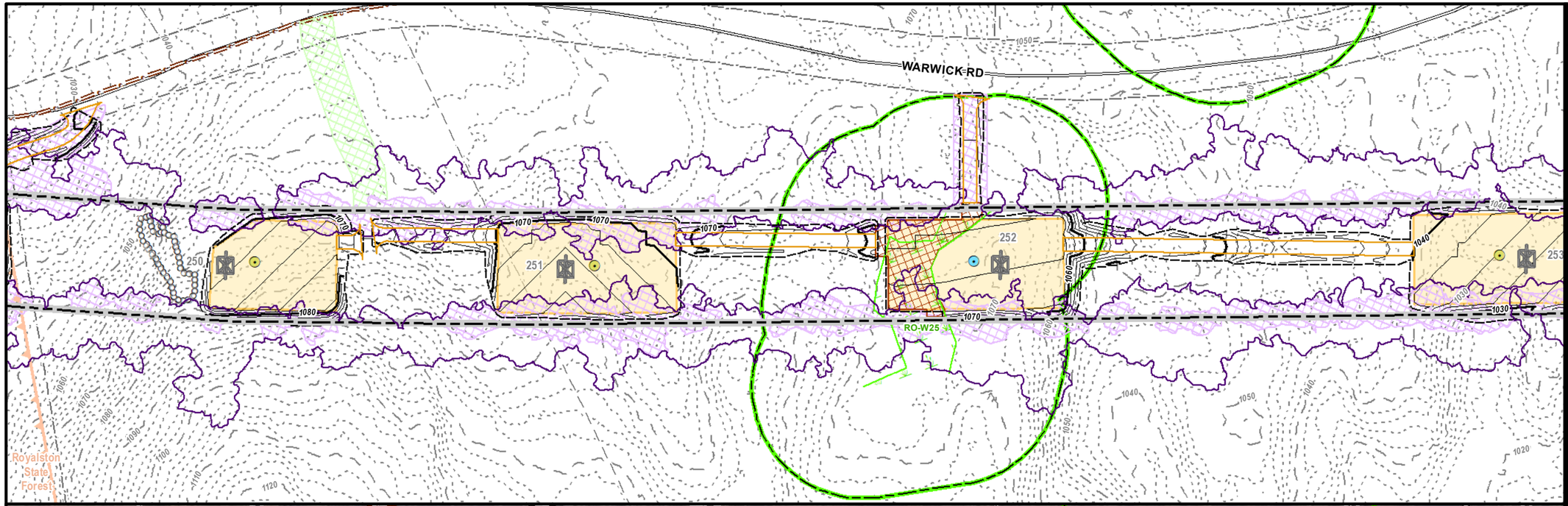
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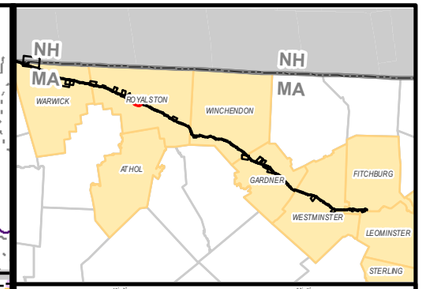
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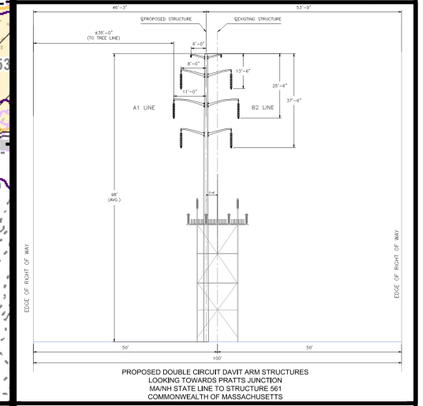
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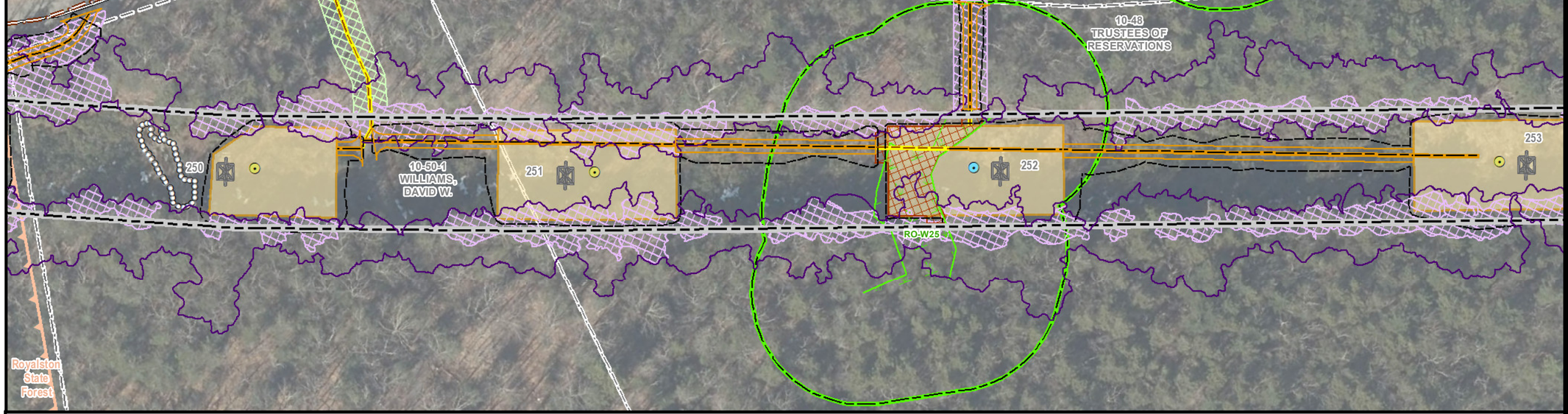
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 45 OF 137

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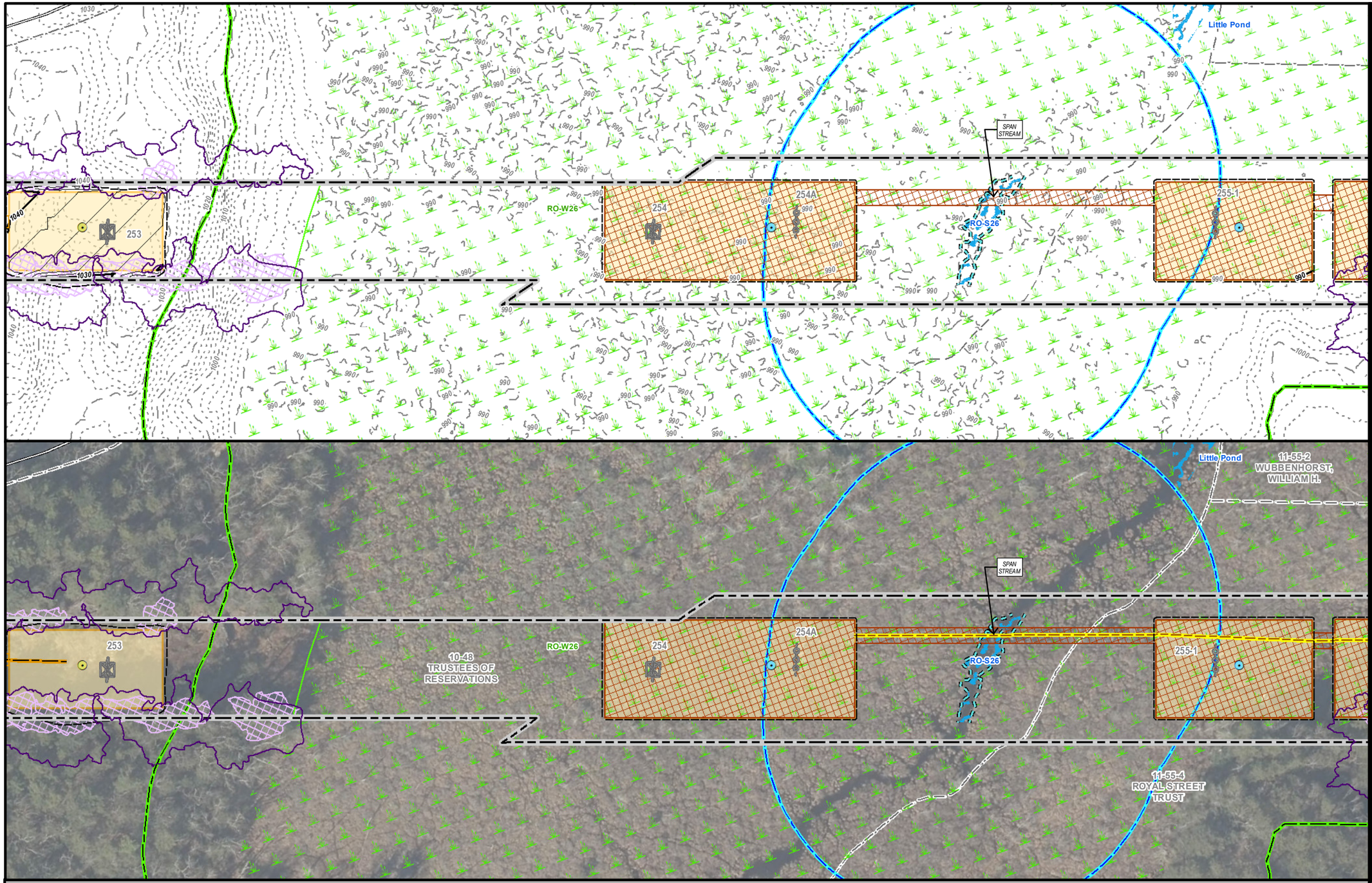
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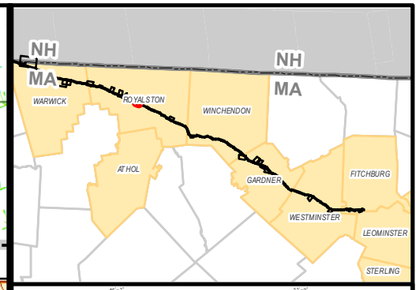
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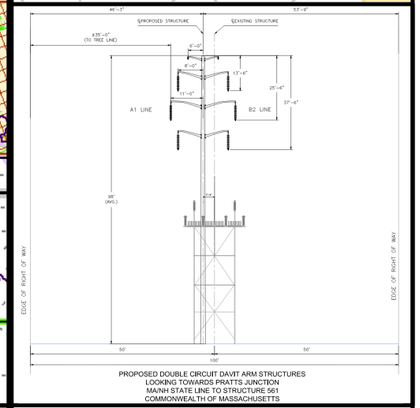
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- Land Trust
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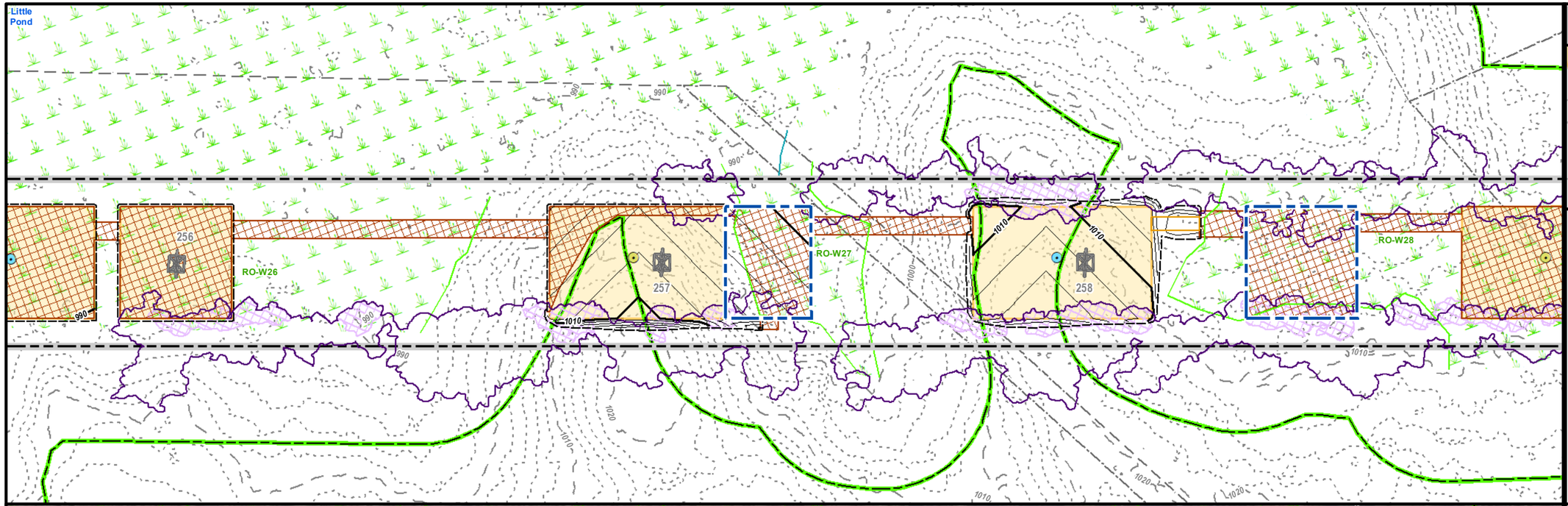
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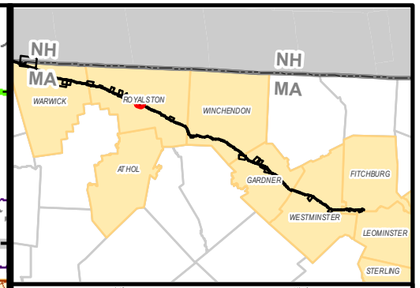
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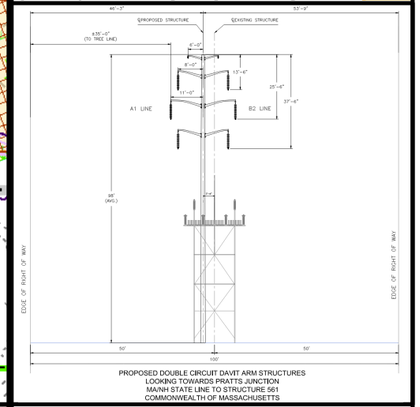
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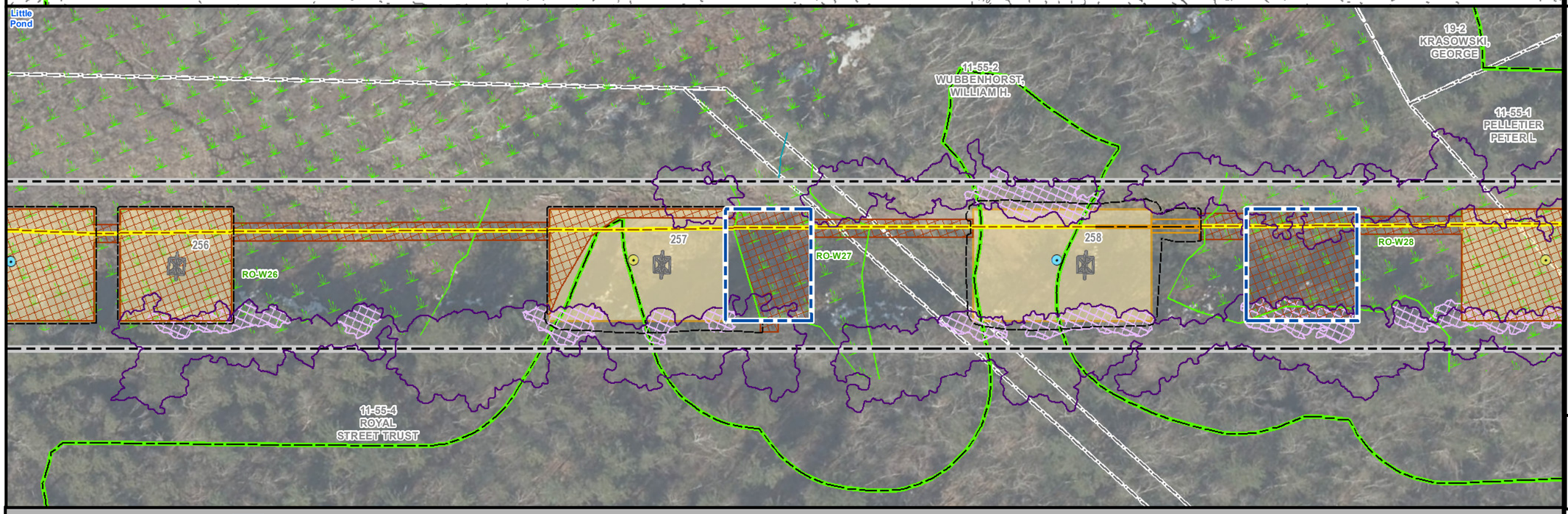
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 47 OF 137

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0 50 100
Feet

Legend

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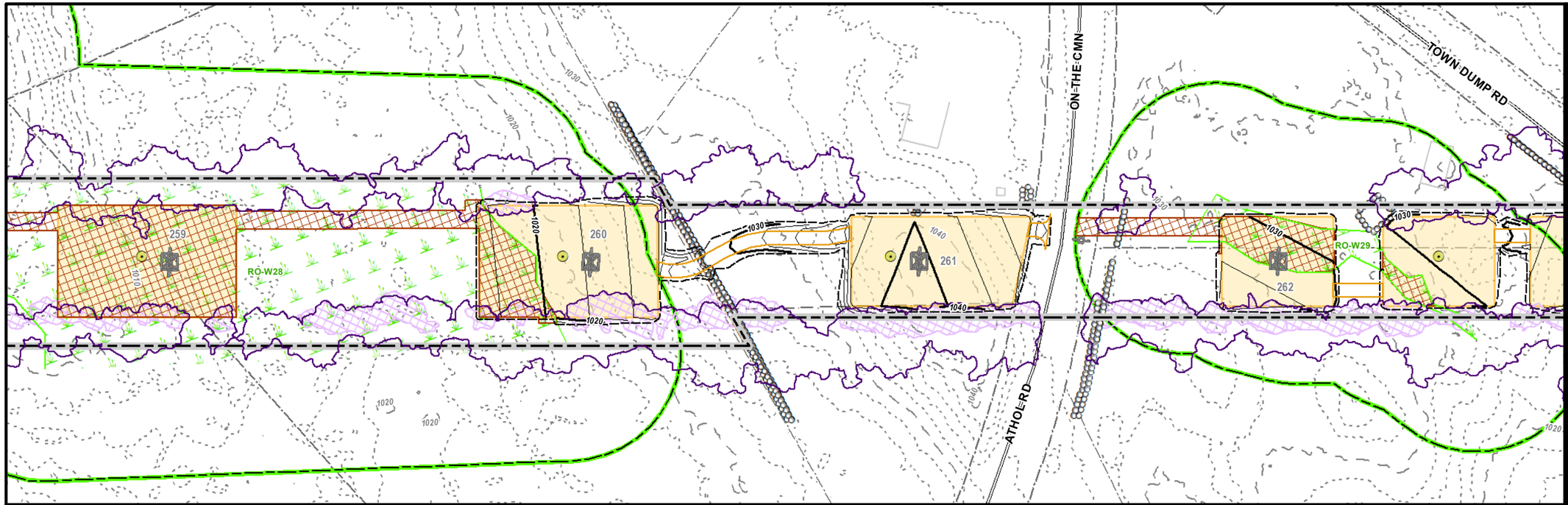
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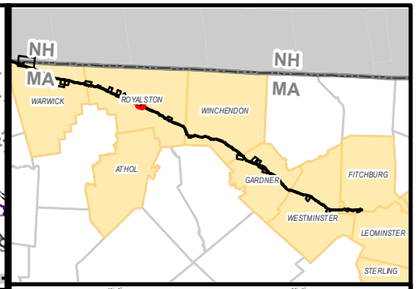
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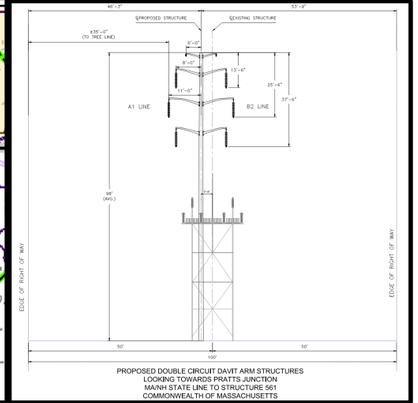
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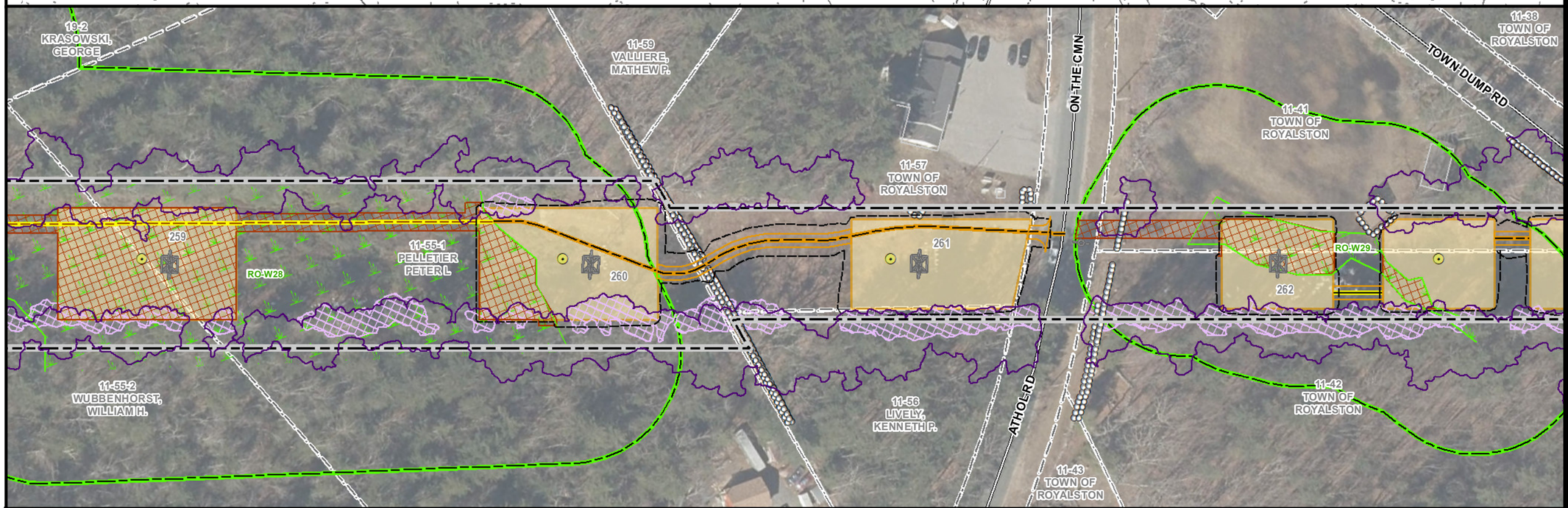
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 48 OF 137

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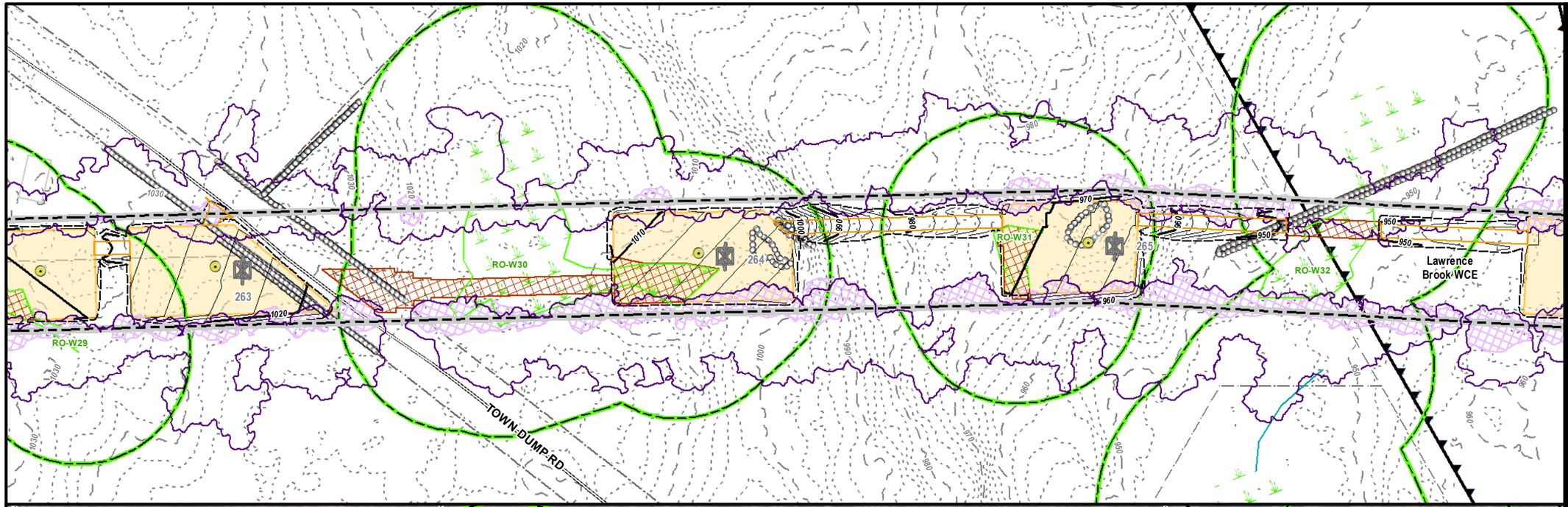
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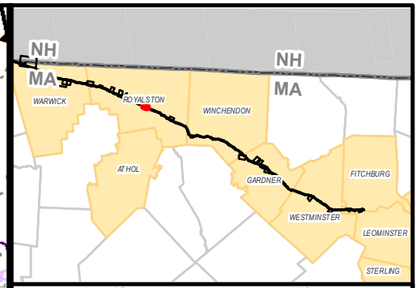
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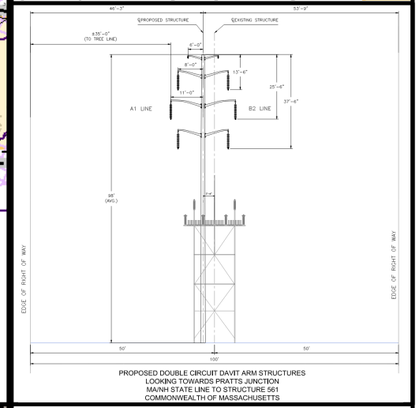
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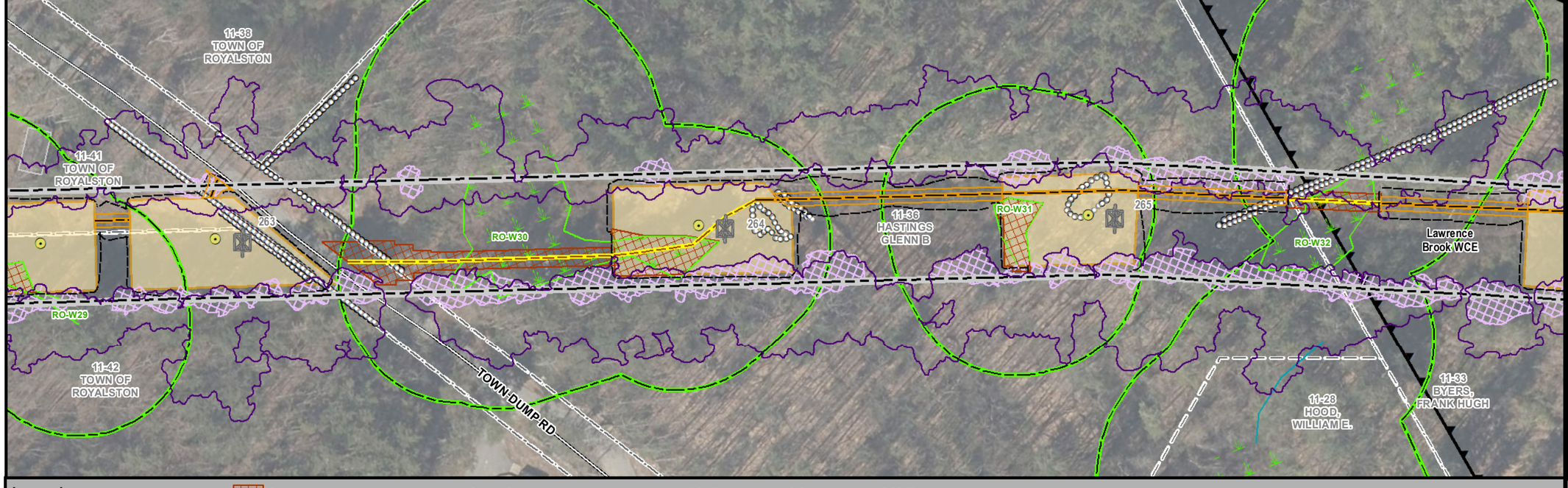
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MEPA General Purpose Plans

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ROYALSTON, MA
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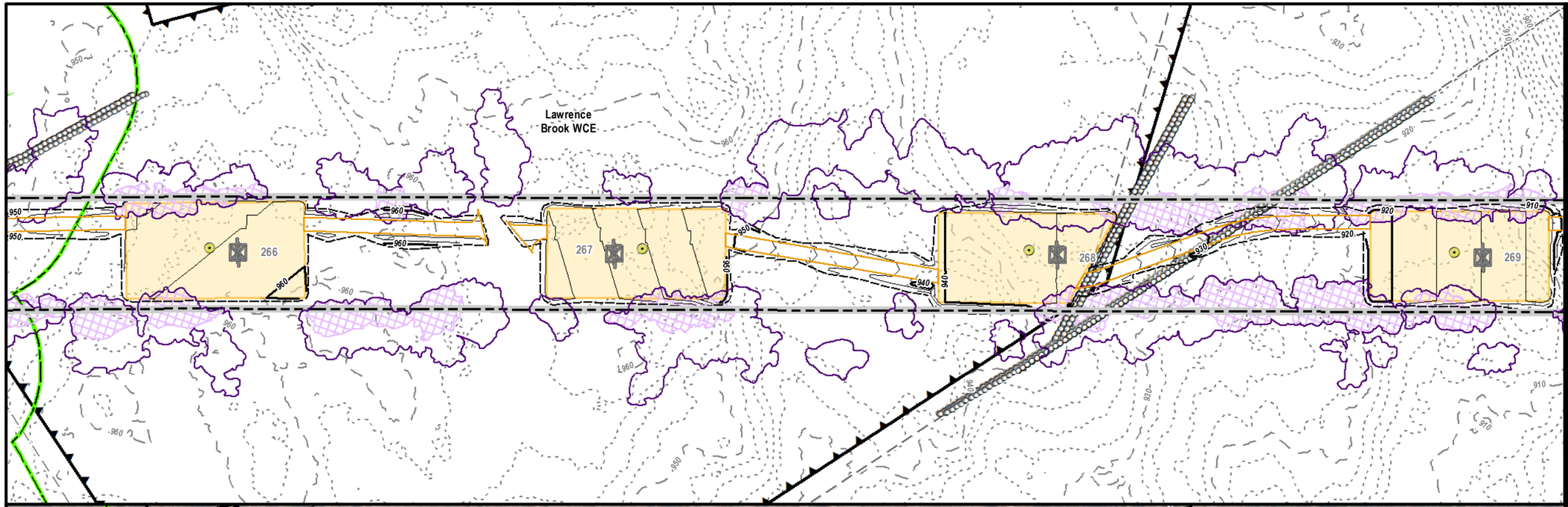
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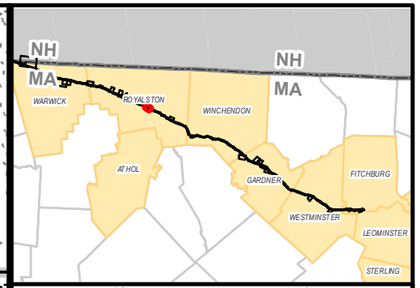
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WALTHAM, MA 02451

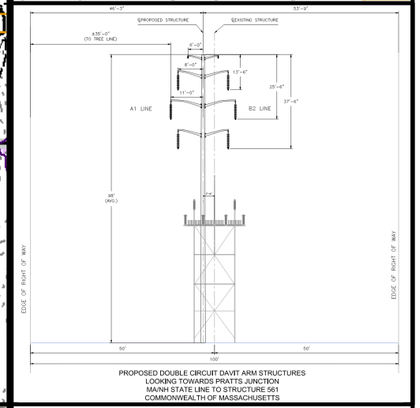
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WORCESTER, MA 01608

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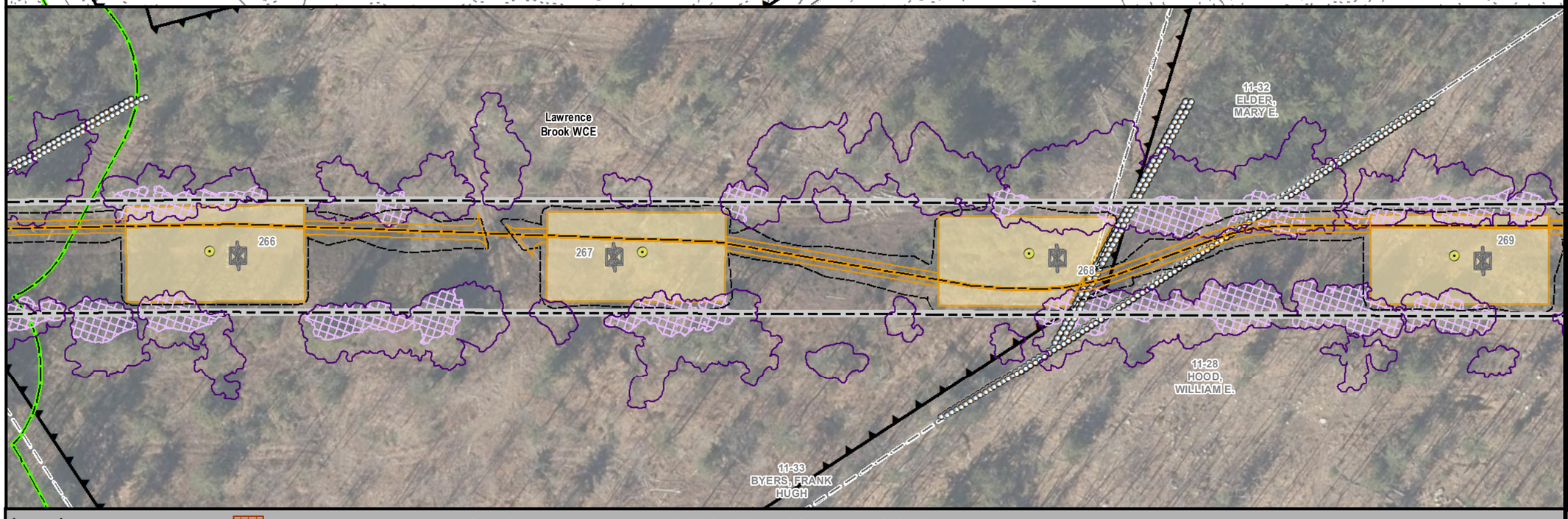
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MEPA General Purpose Plans

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ROYALSTON, MA
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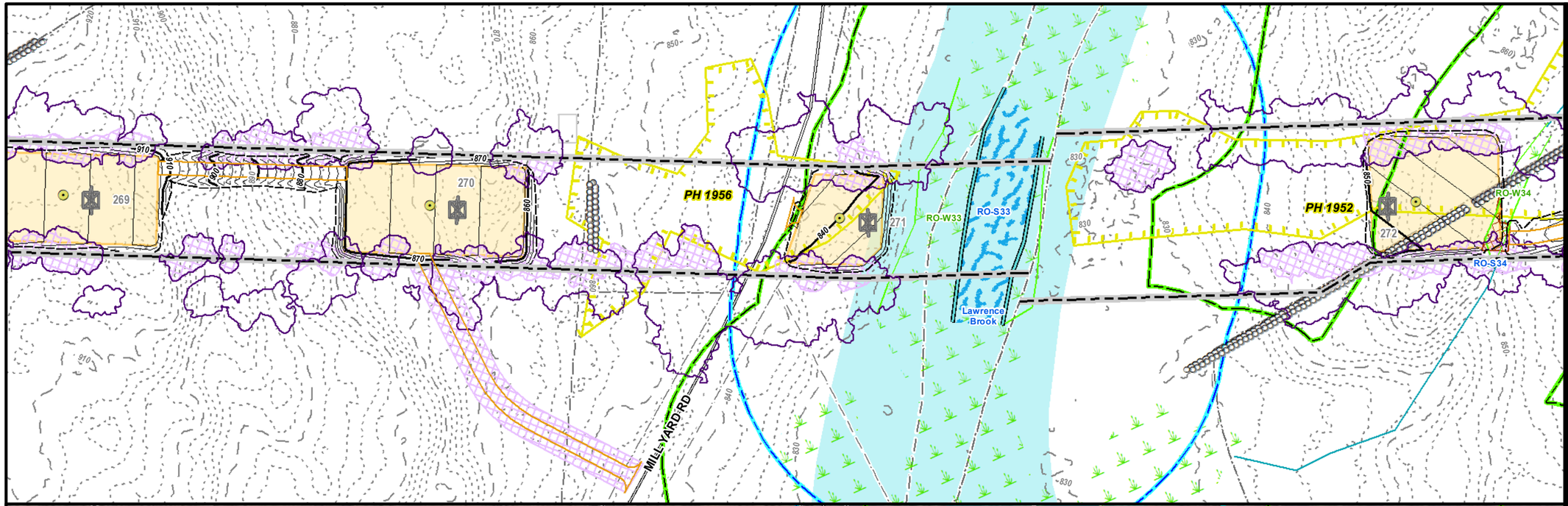
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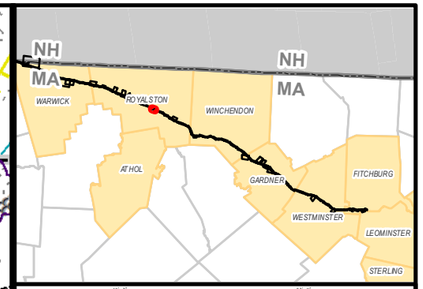
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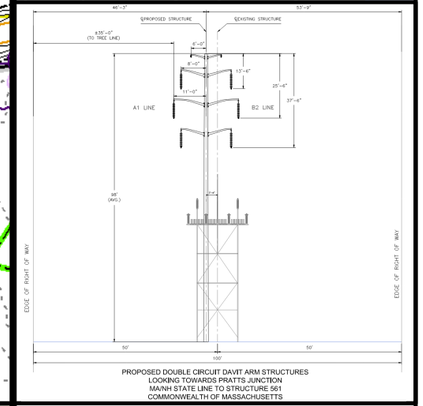
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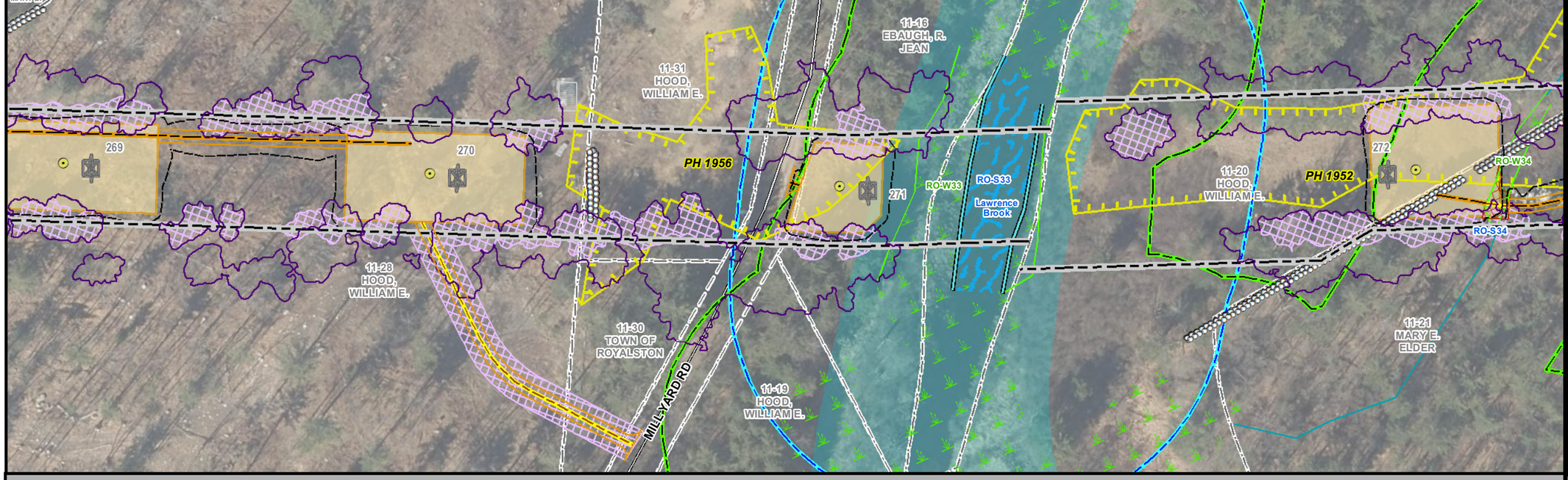
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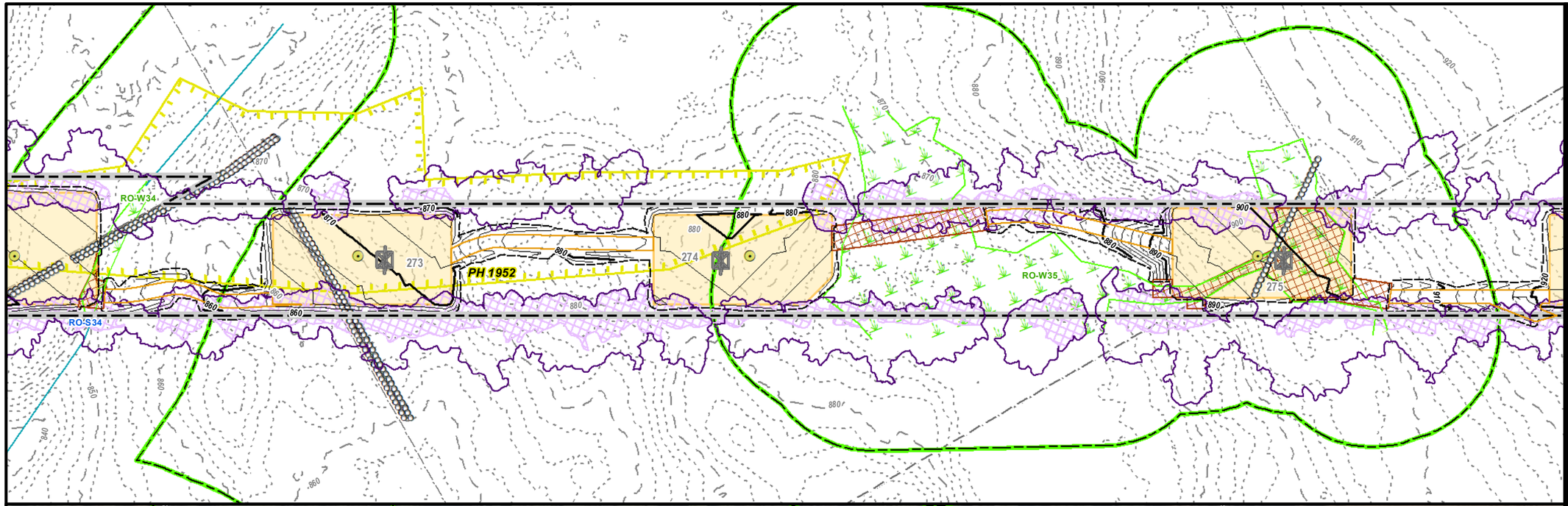
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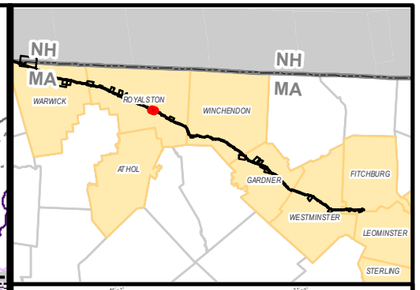
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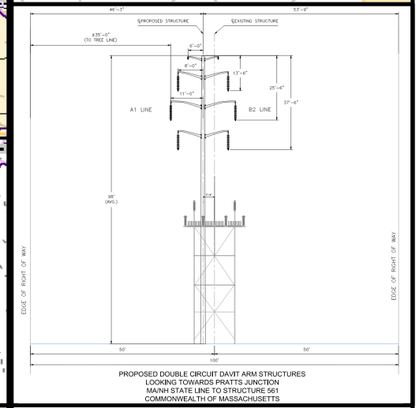
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 52 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
- Stream Centerline
- Ordinary High Water
- Approximate Stream Bank
- Approximate Centerline
- Approximate Ordinary High Water
- Approximate Swale
- State Stream
- Open Water
- 100ft Buffer to Wetlands & Streams
- 200ft Riverfront Area
- FEMA 100yr Floodplain*
- Certified Vernal Pools
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- NHESP Priority & Estimated Habitat
- Outstanding Resource Water
- MADEP (21E) Site
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- DCR Trails
- Hiking Trails
- Long Distance Trails
- Railroad
- Streets
- Town Boundary
- State Boundary
- National Grid Property
- Parcel Boundary
- Existing Tree Line
- Tree Removal
- Selective Tree Removal
- Pruning
- Gate
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- Stonewall
- Guardrail
- Existing Minor Contour
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Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

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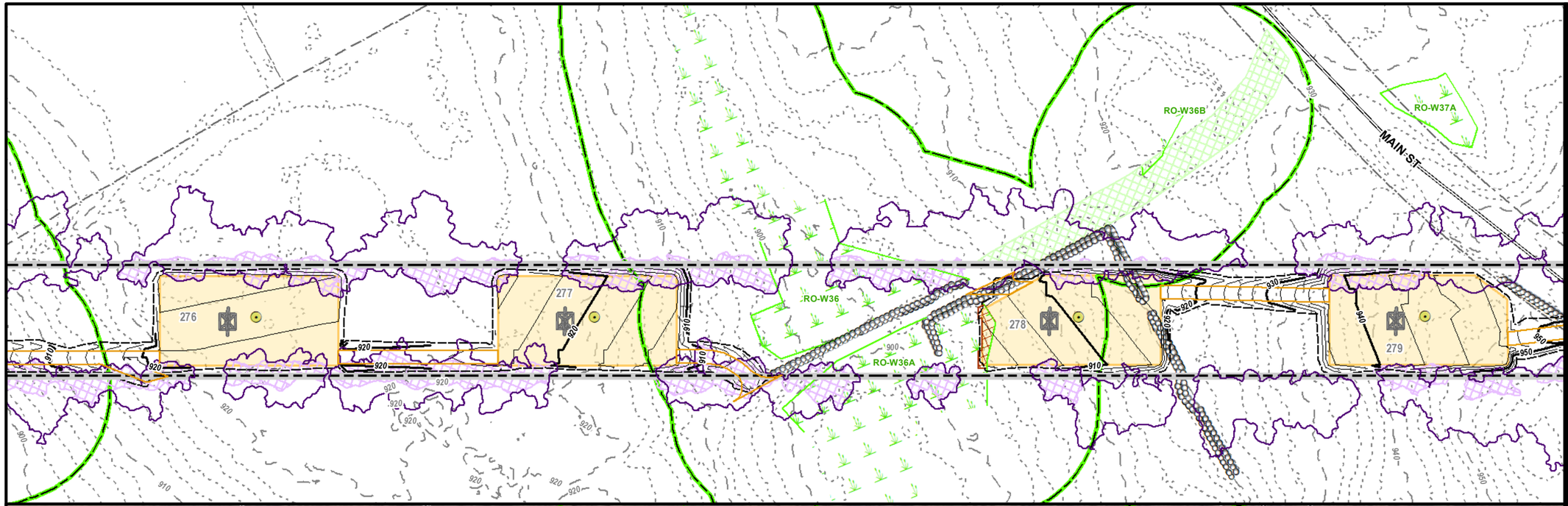
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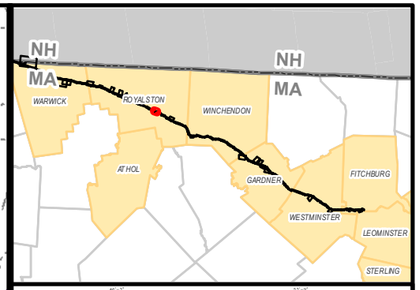
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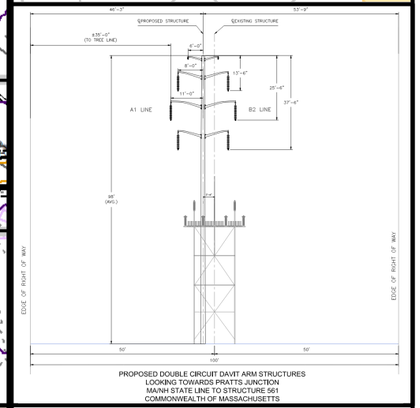
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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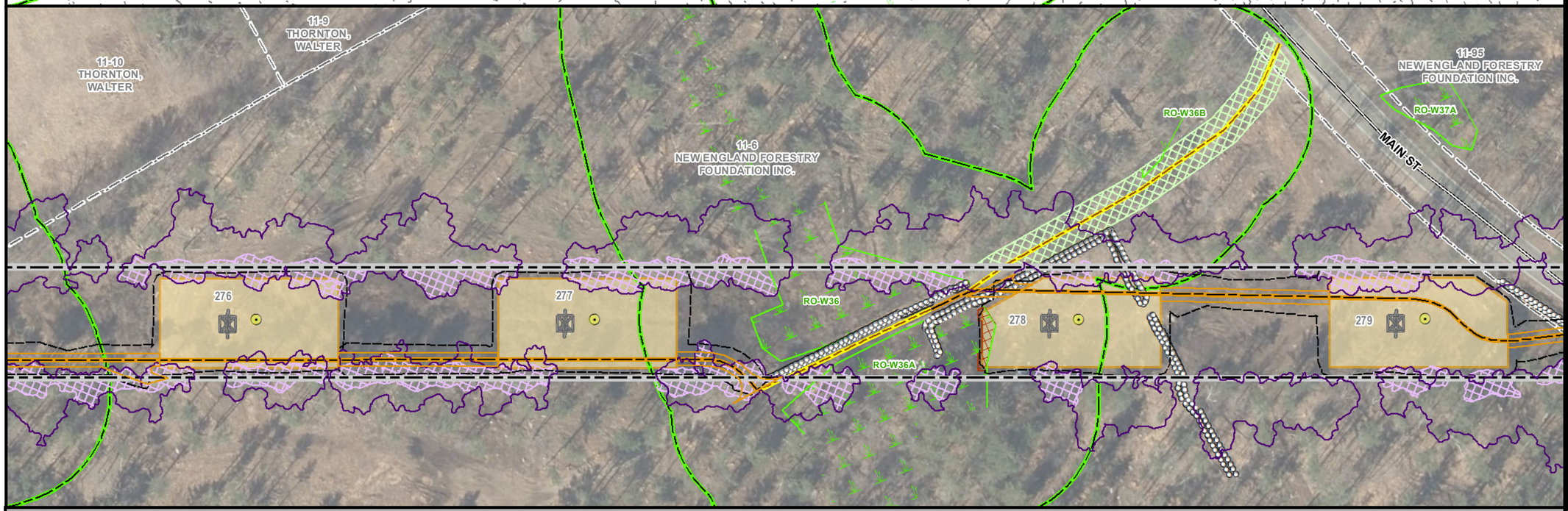
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 53 OF 137

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0 50 100
Feet

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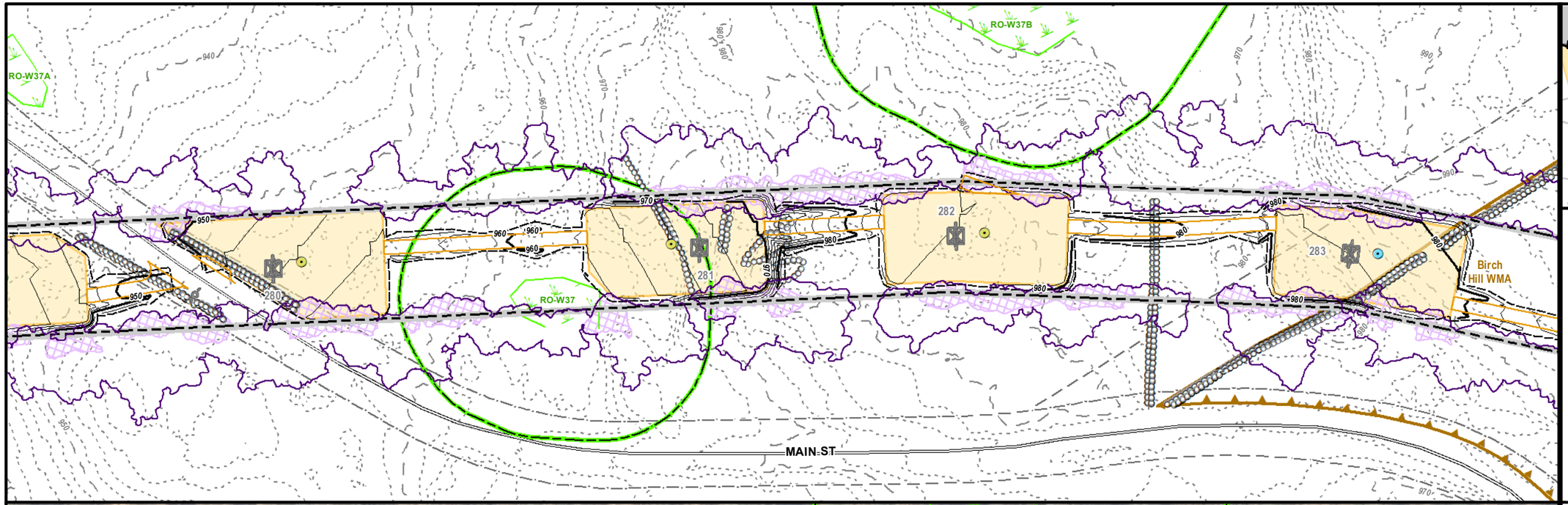
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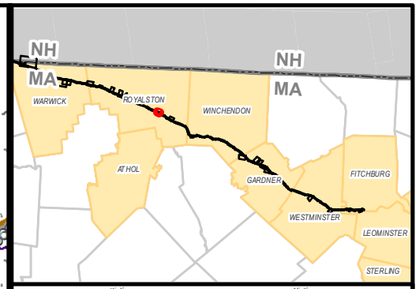
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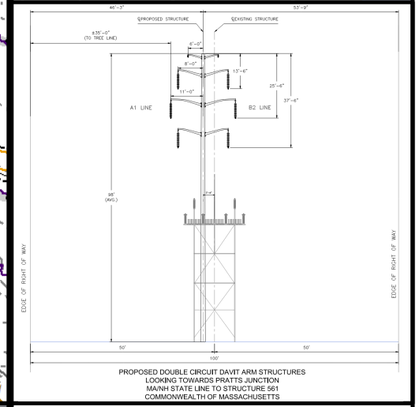
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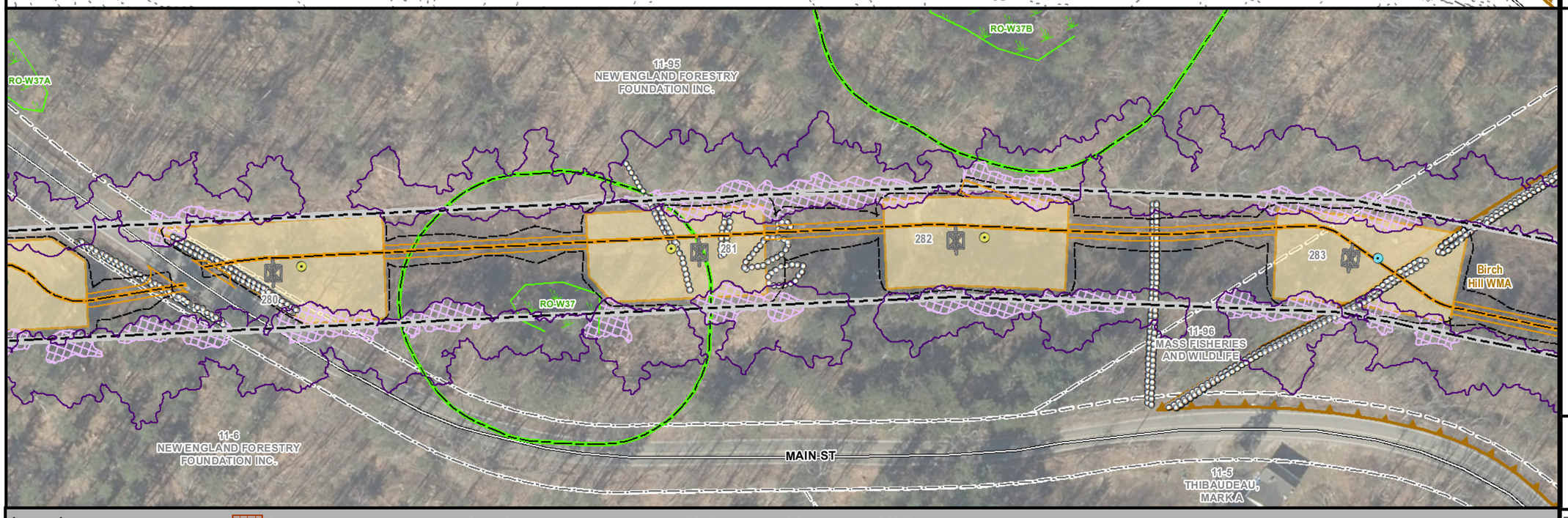
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 54 OF 137

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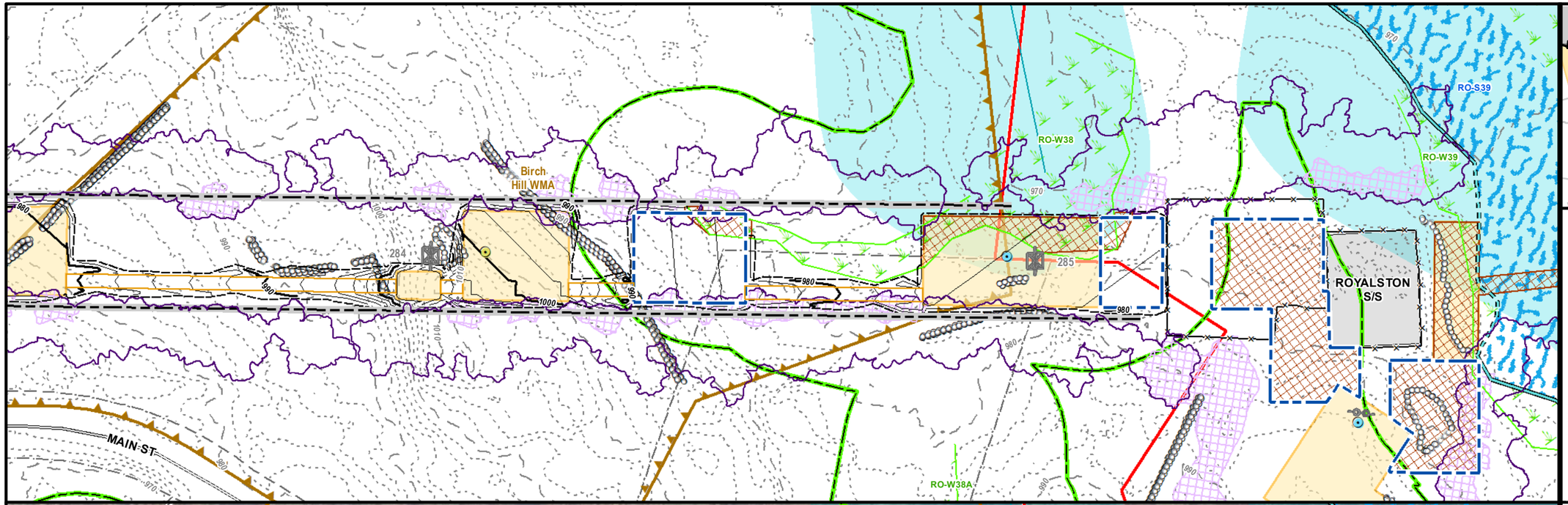
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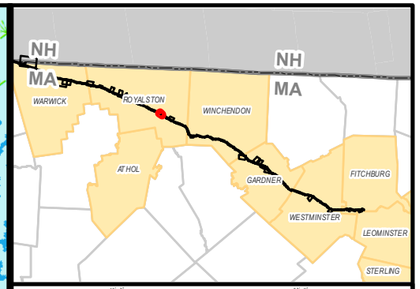
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WALTHAM, MA 02451

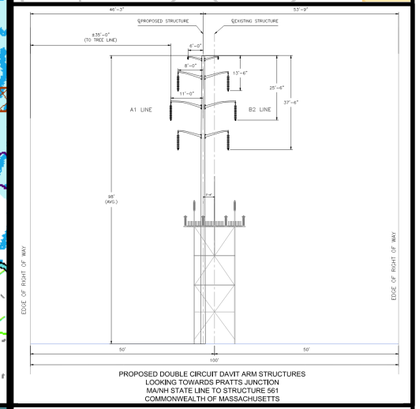
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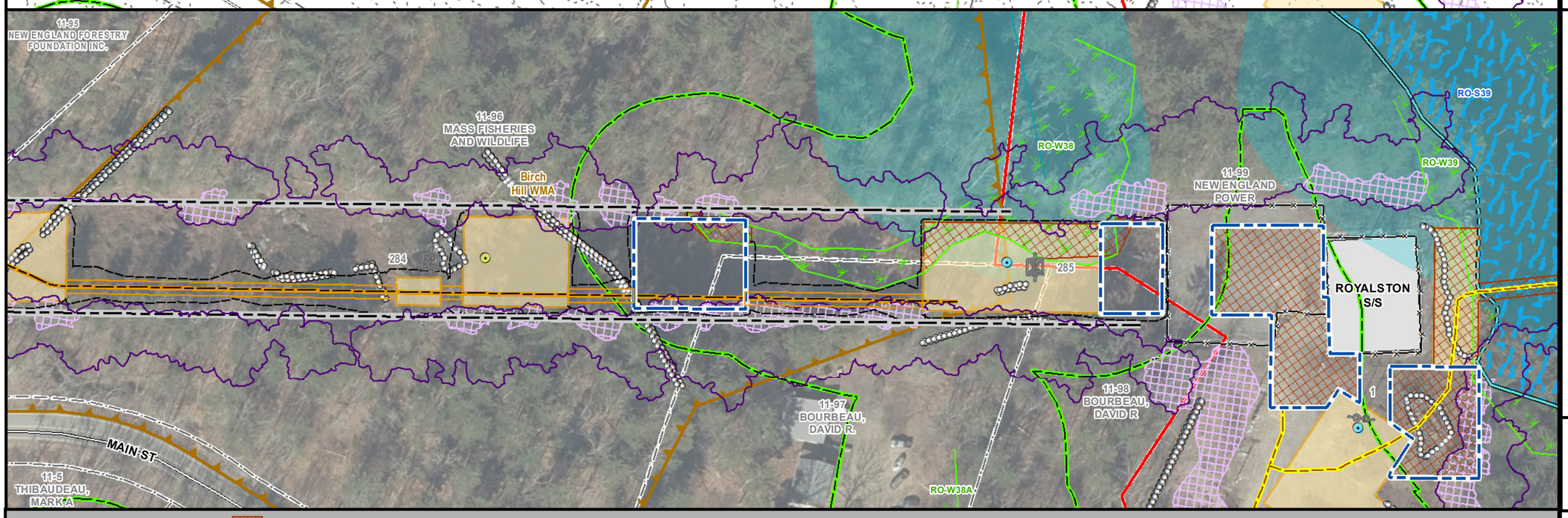
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 55 OF 137

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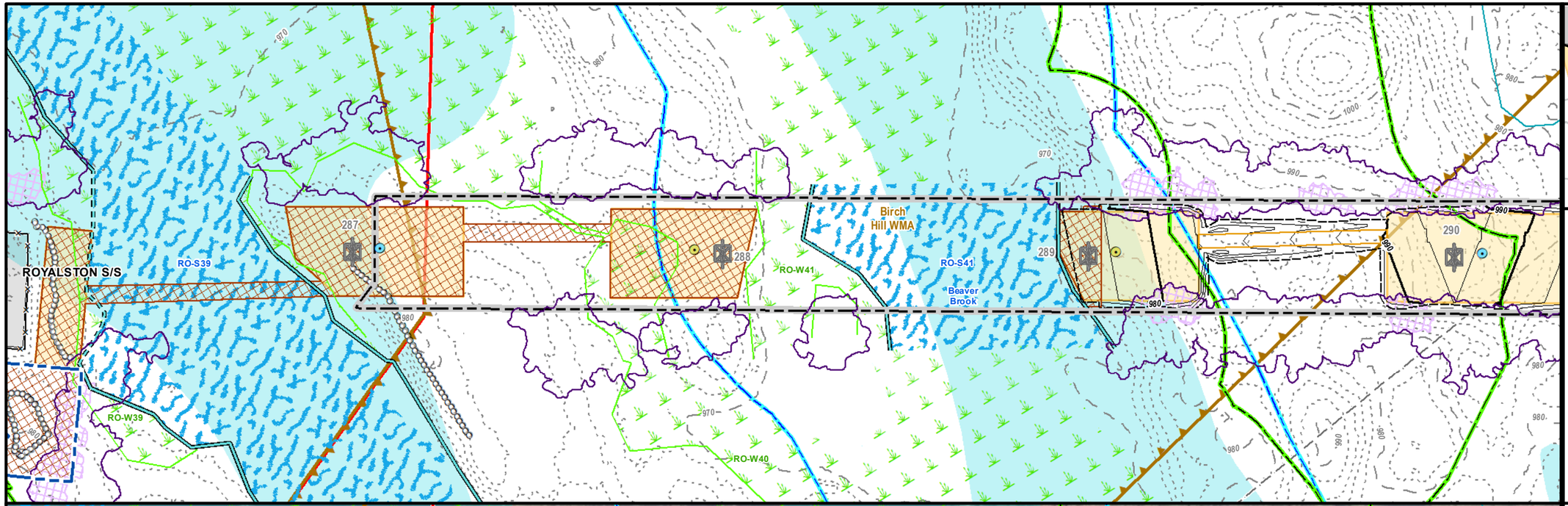
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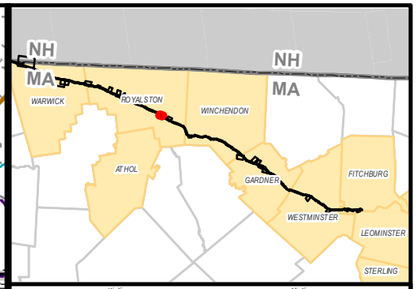
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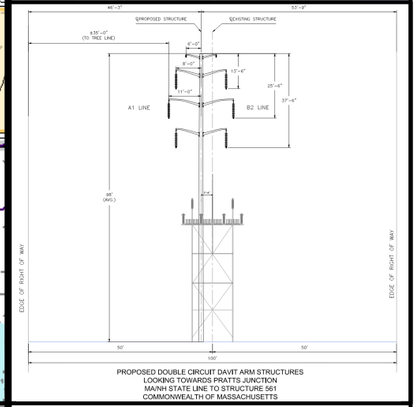
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
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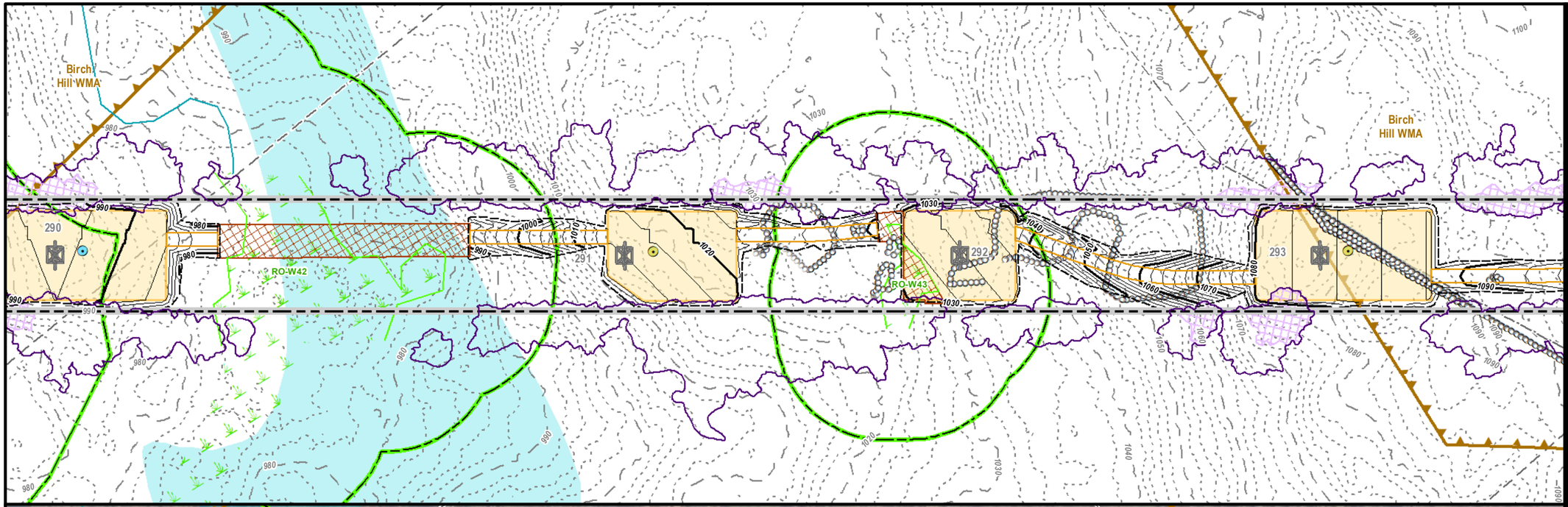
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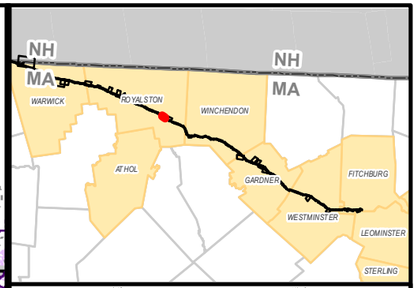
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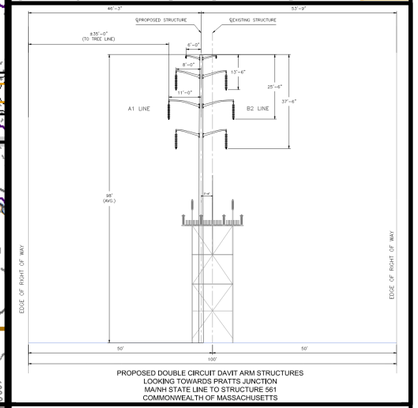
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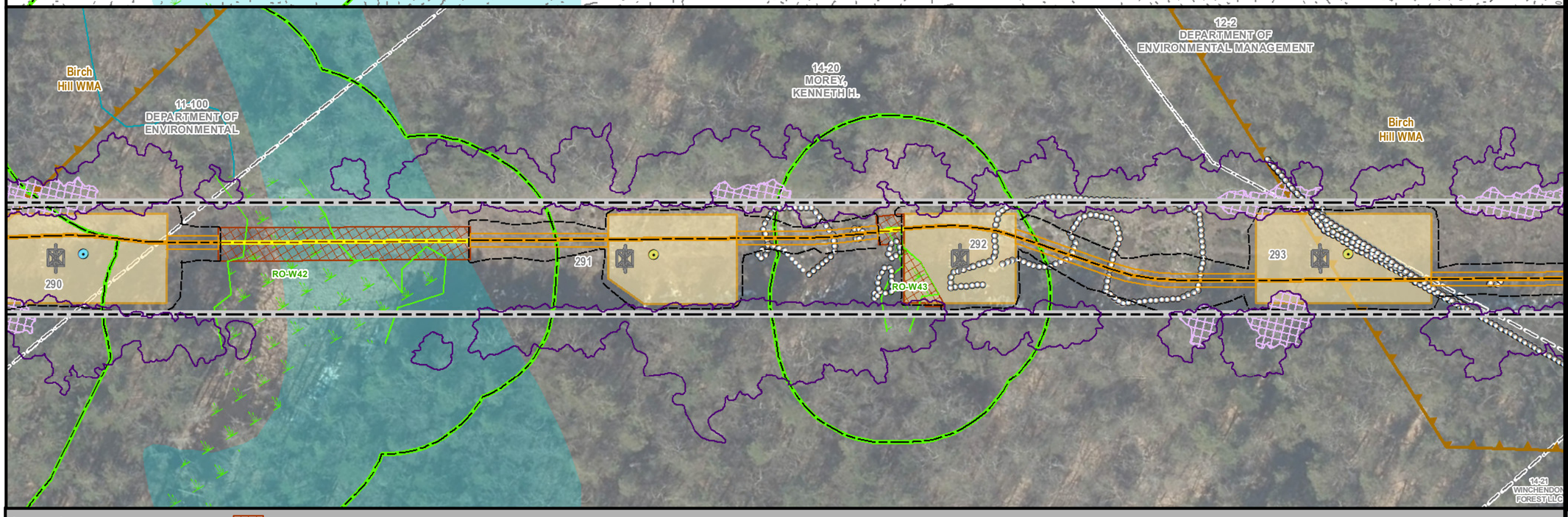
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ROYALSTON, MA
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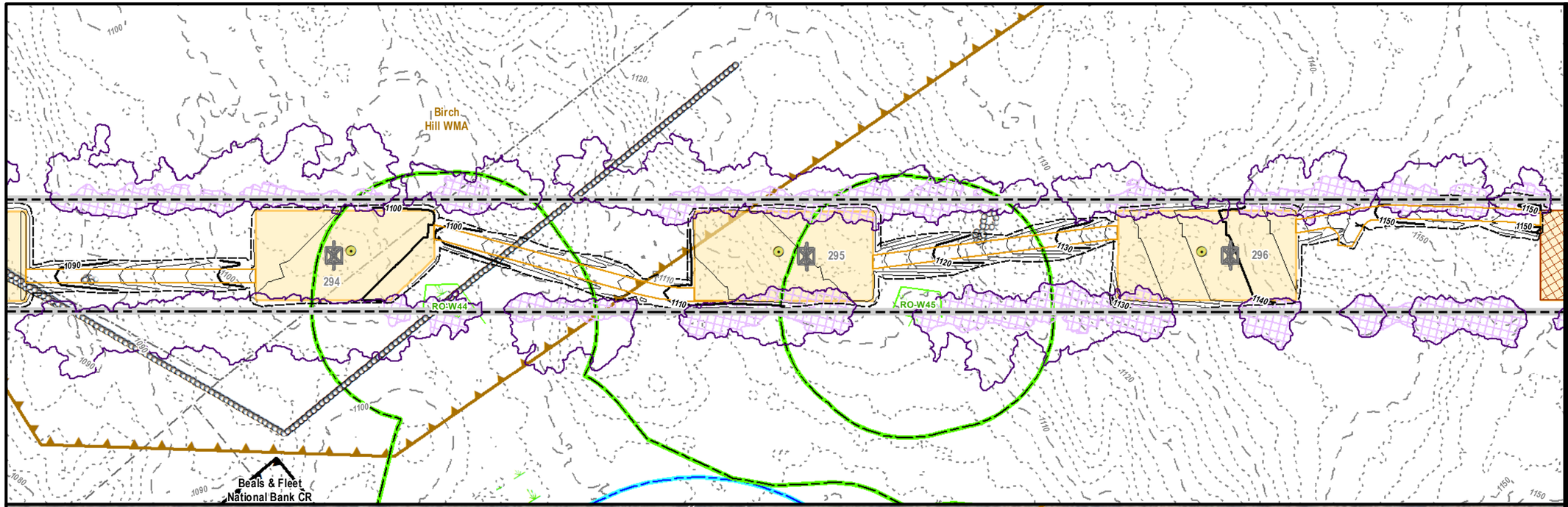
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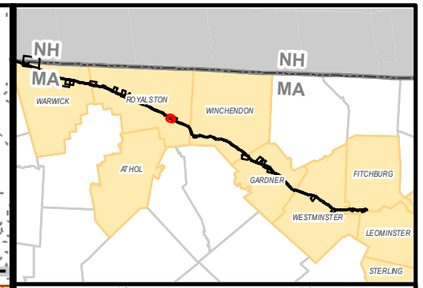
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170 DATA DRIVE
WALTHAM, MA 02451

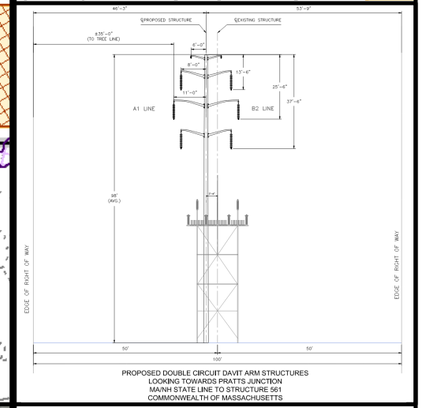
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; Certified Vernal Pools; Potential Vernal Pools; NHESP Priority Habitats; NHESP Estimated Habitats; NHESP Restricted Data; Hydrography; MADEP Hydrologic Connections; MADEP Wetlands; FEMA 100yr Floodplain; Public Water Supply; Zone II Wellhead Protection Area; Interim Wellhead Protection Area; Surface Water Protection Zone; Outstanding Resource Water; Areas of Critical Environmental Concern; Watershed Protection Act Zones; Ch. 91 Tidelands Jurisdiction; Article 97 Land; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed)

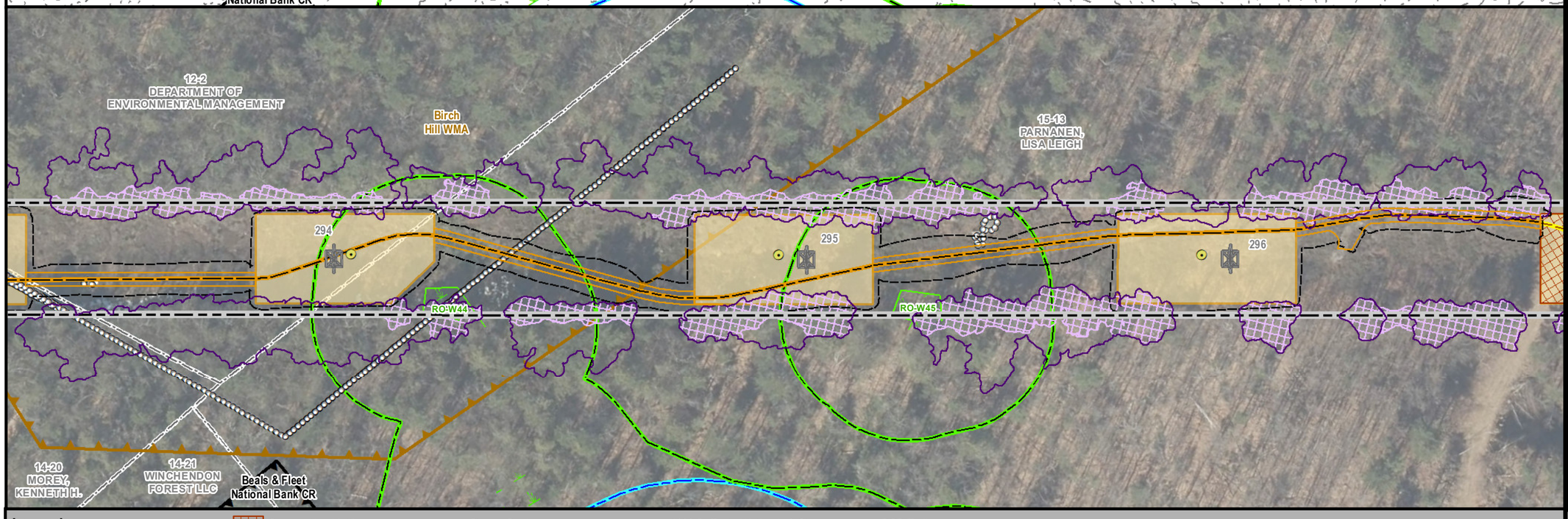
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 58 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
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- Construction Matting
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- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
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- Wetland Edge
- Wetland Area*
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Article 97 Lands

- DCR-State Parks & Recreation
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**Indicates Layers Set to Transparency*

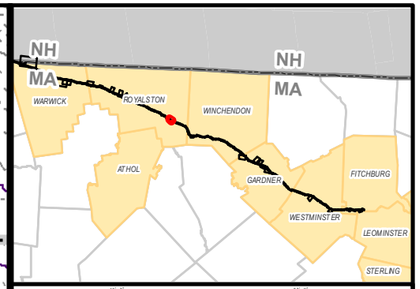
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

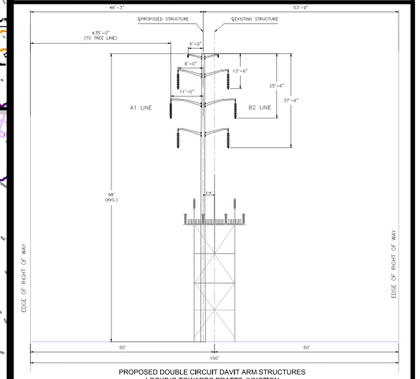
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MA/NH STATE LINE TO STRUCTURE 561
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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ROYALSTON, MA
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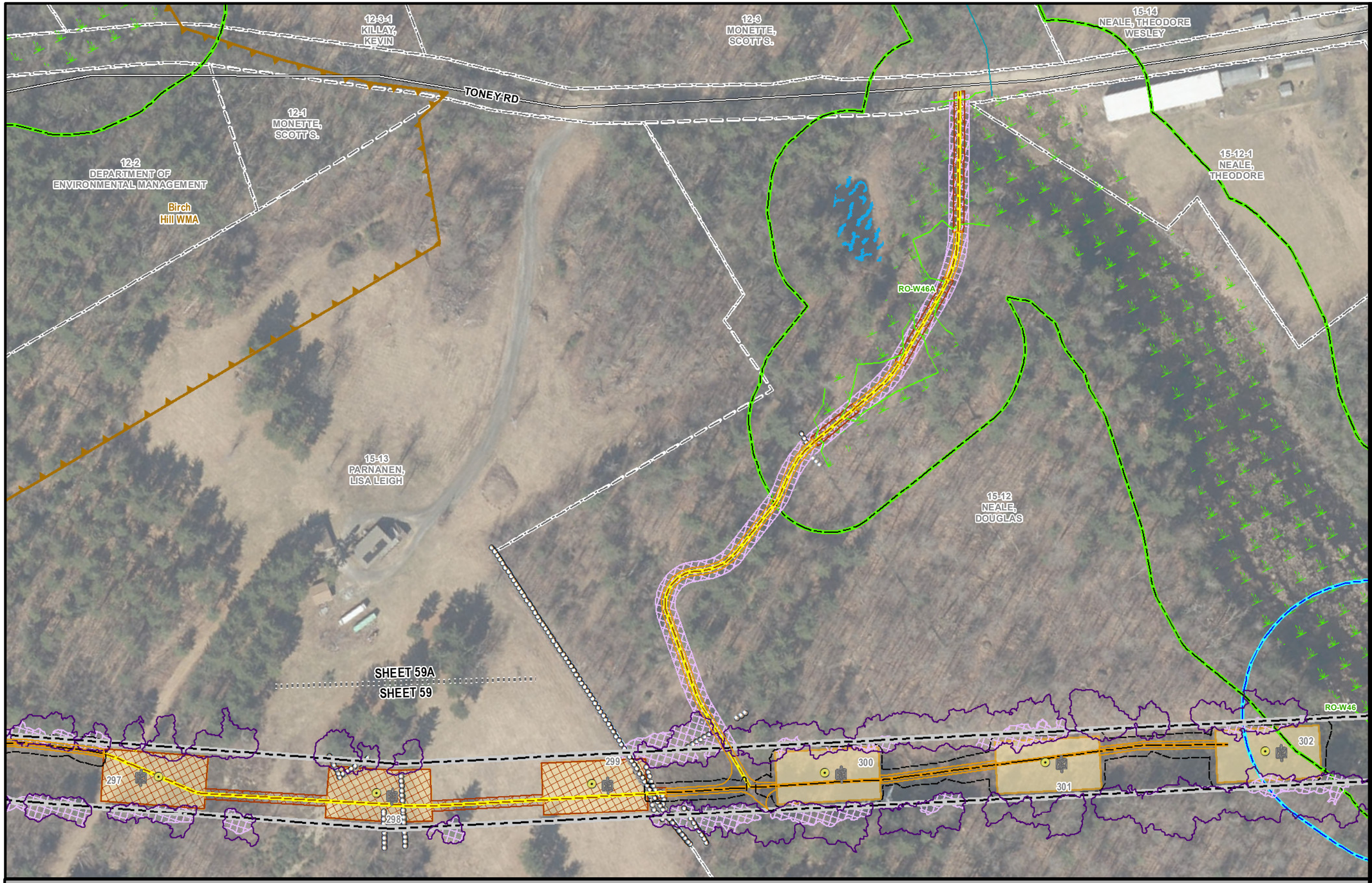
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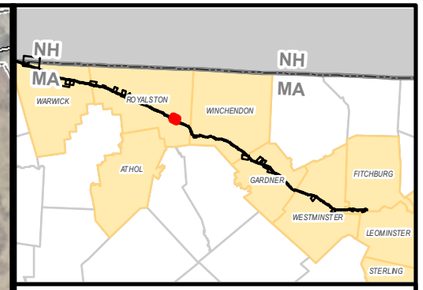
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 59A OF 137

1 inch = 150 feet
0 75 150
Feet

Legend

- Install Structure (Concrete Caisson)
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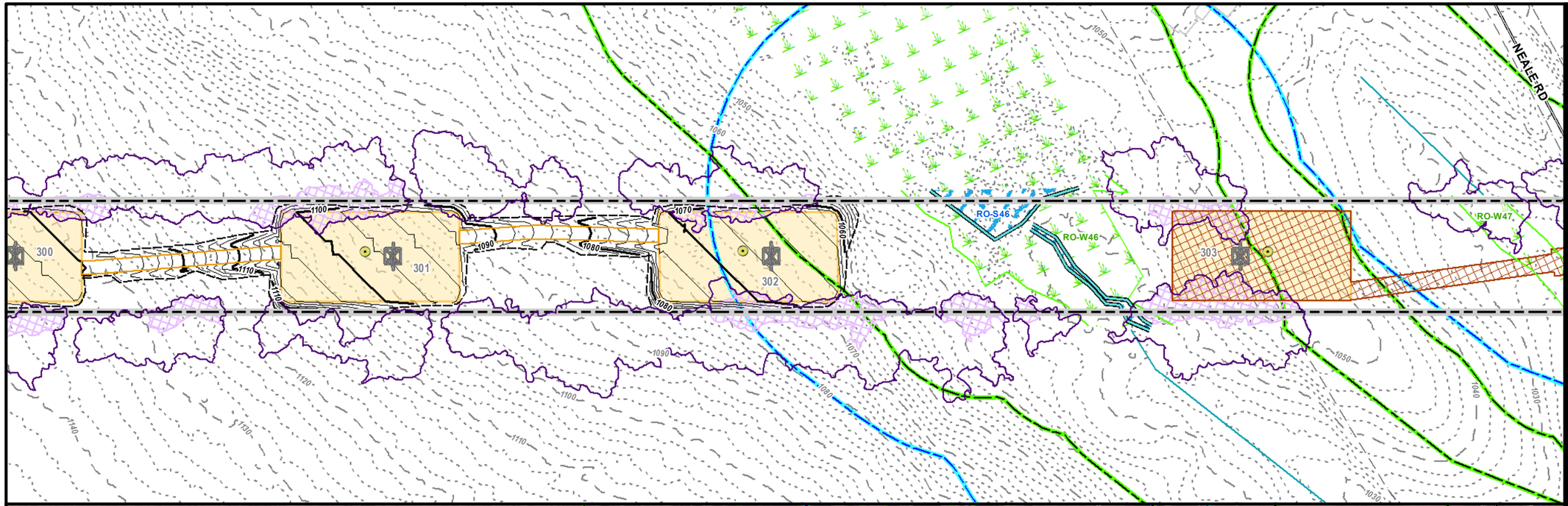
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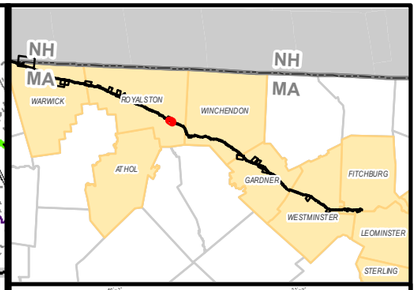
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

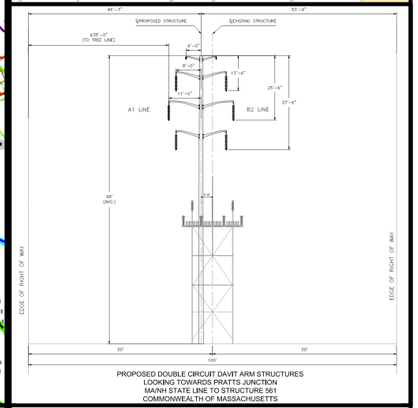
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 60 OF 137

1 inch = 100 feet
0 50 100
Feet

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Article 97 Lands

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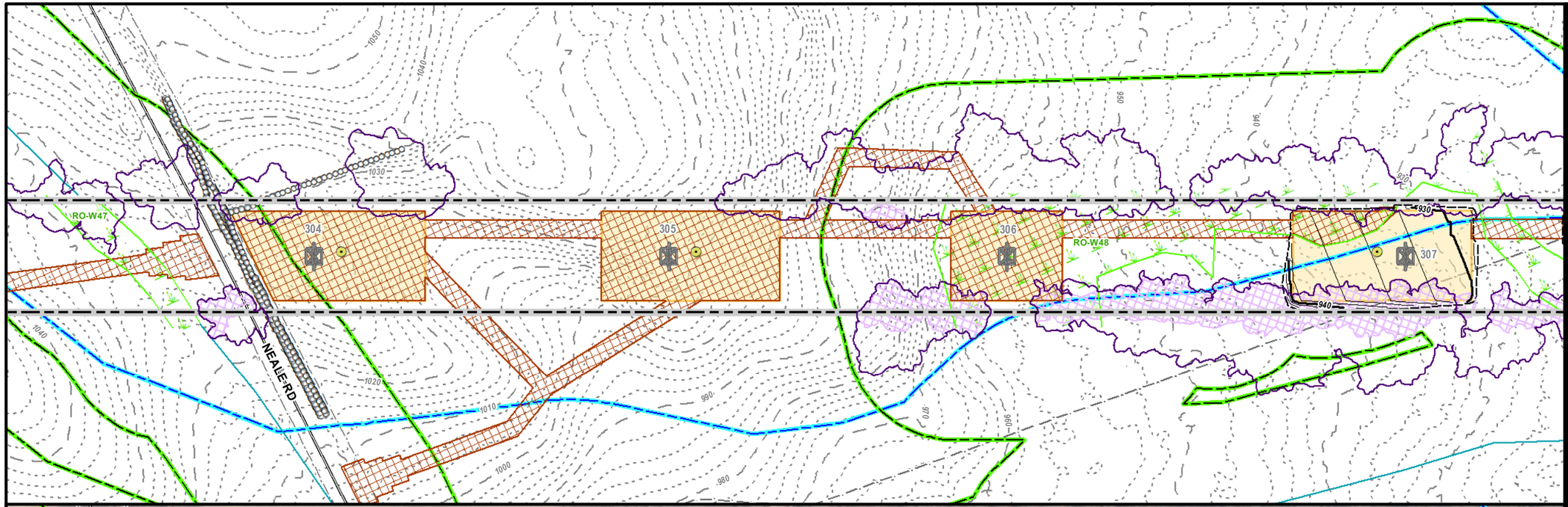
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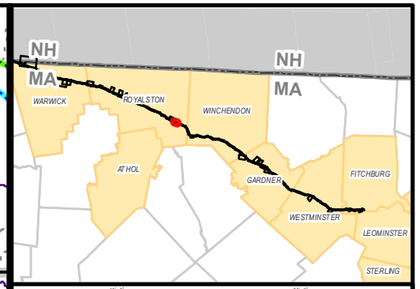
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

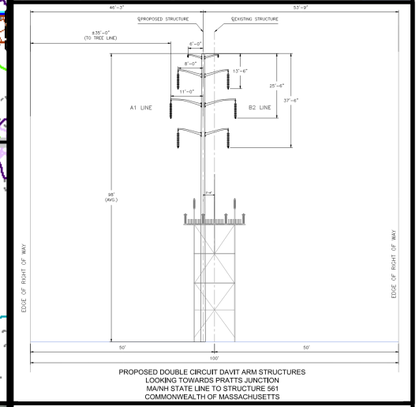
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 61 OF 137

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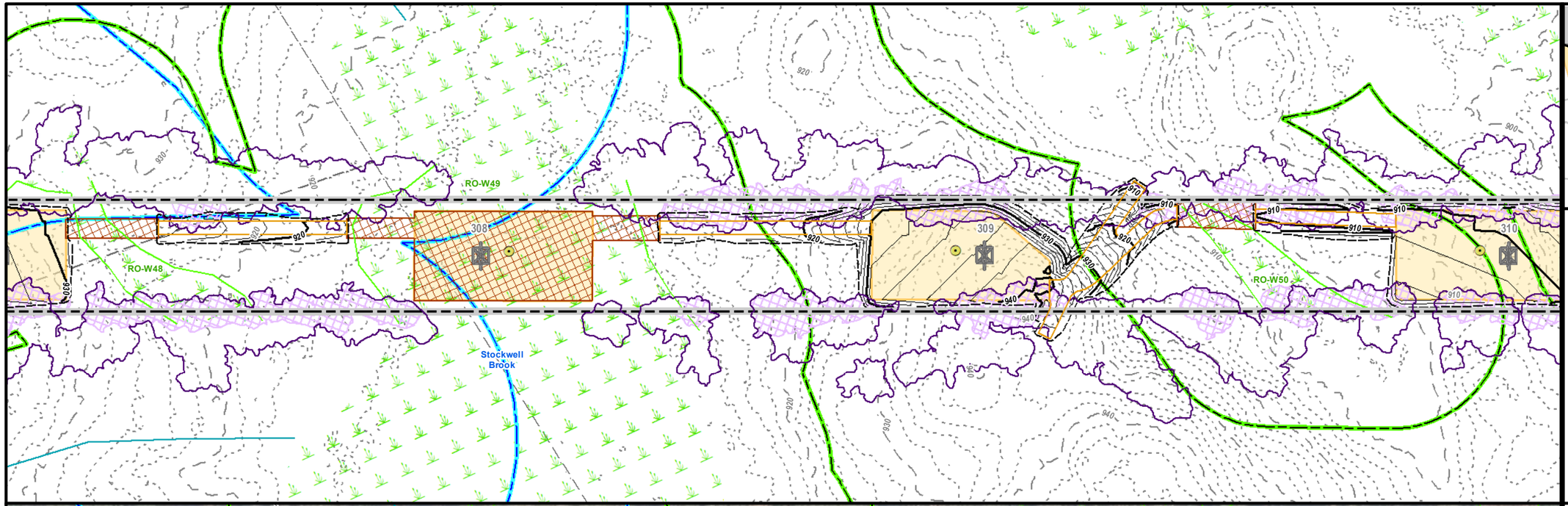
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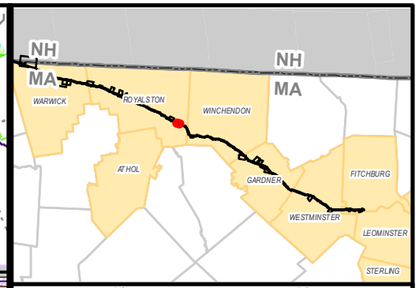
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nationalgrid
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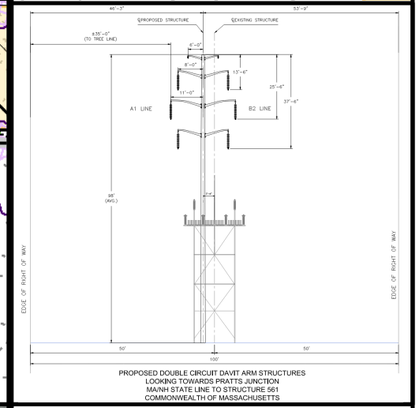
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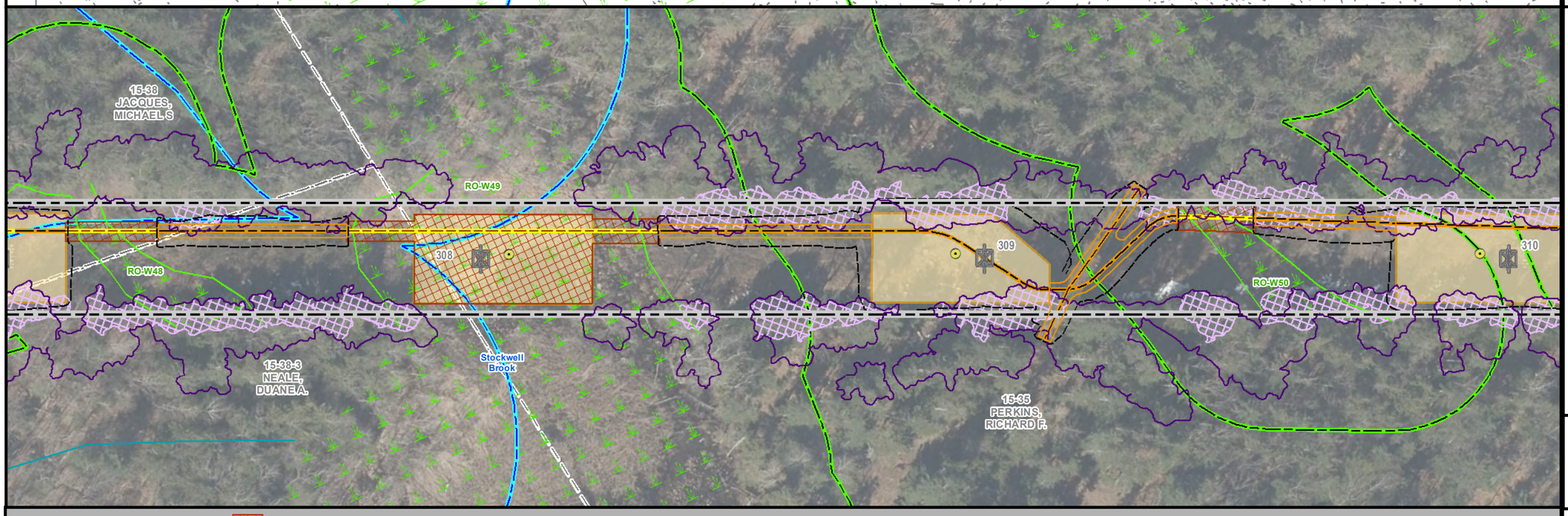
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MEPA General Purpose Plans

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ROYALSTON, MA
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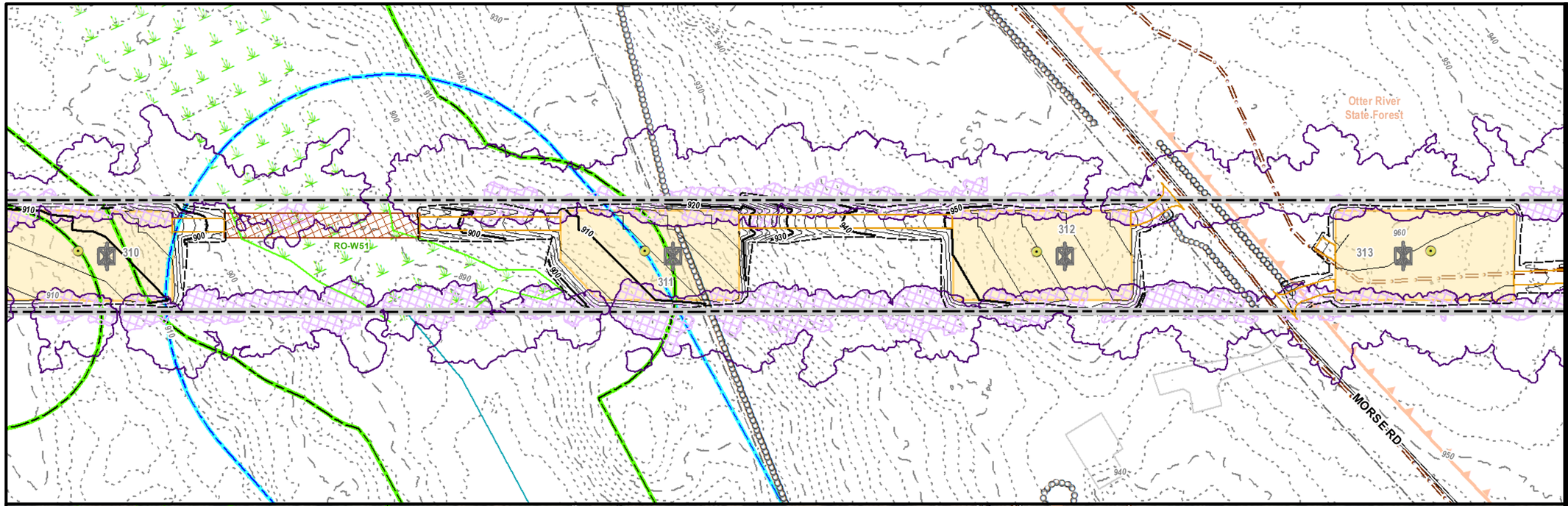
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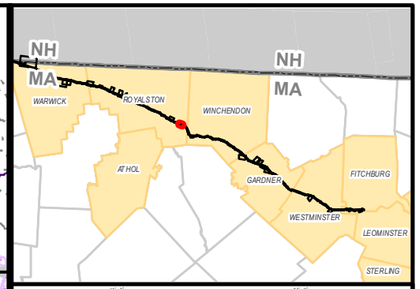
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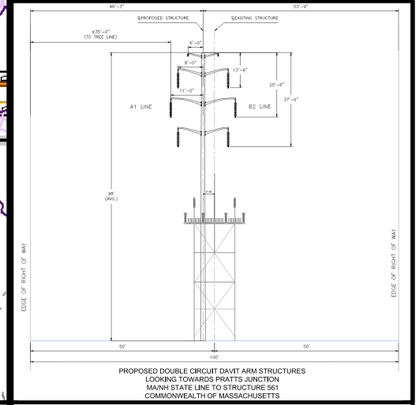
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WORCESTER, MA 01608

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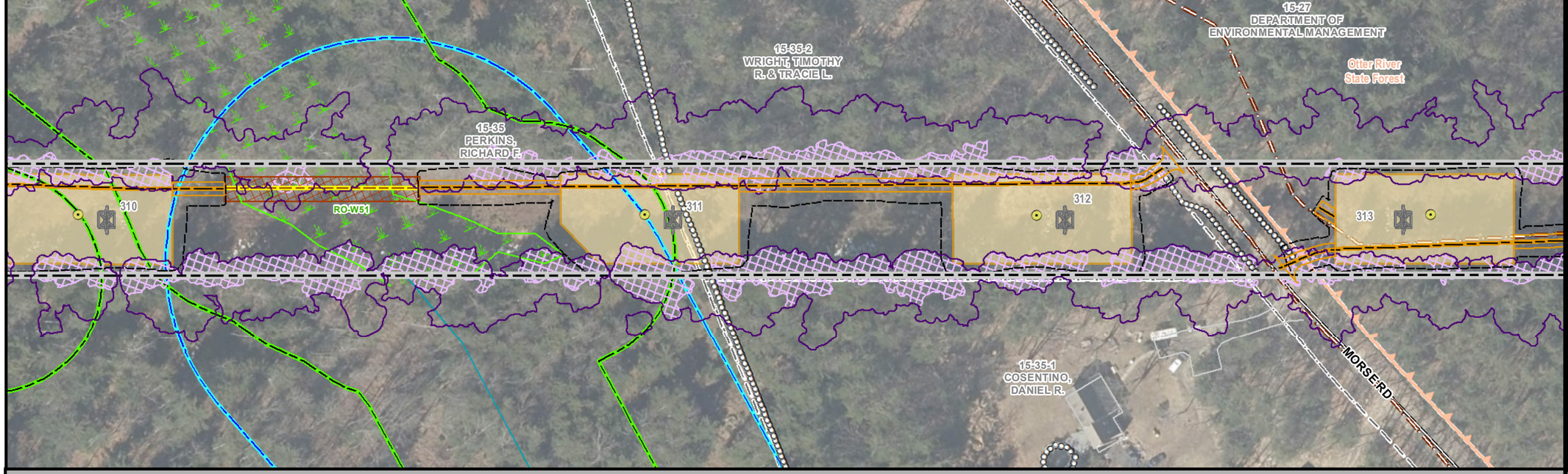
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 63 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
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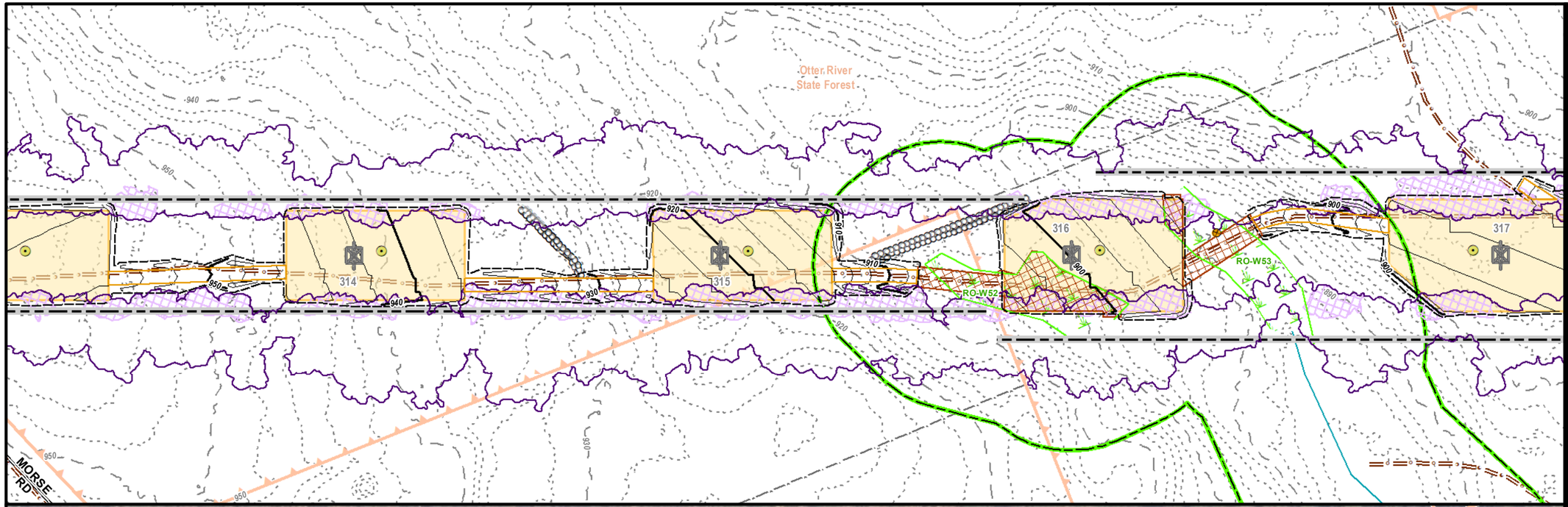
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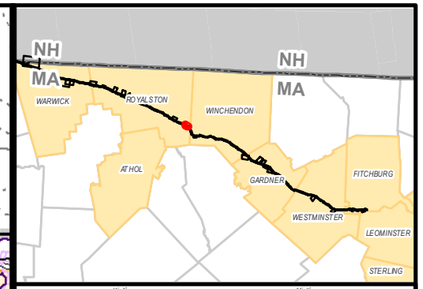
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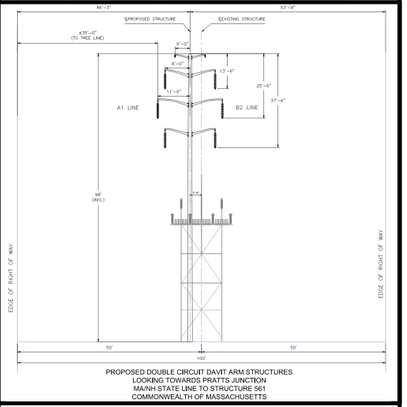
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1 MERCANTILE STREET SUITE 601
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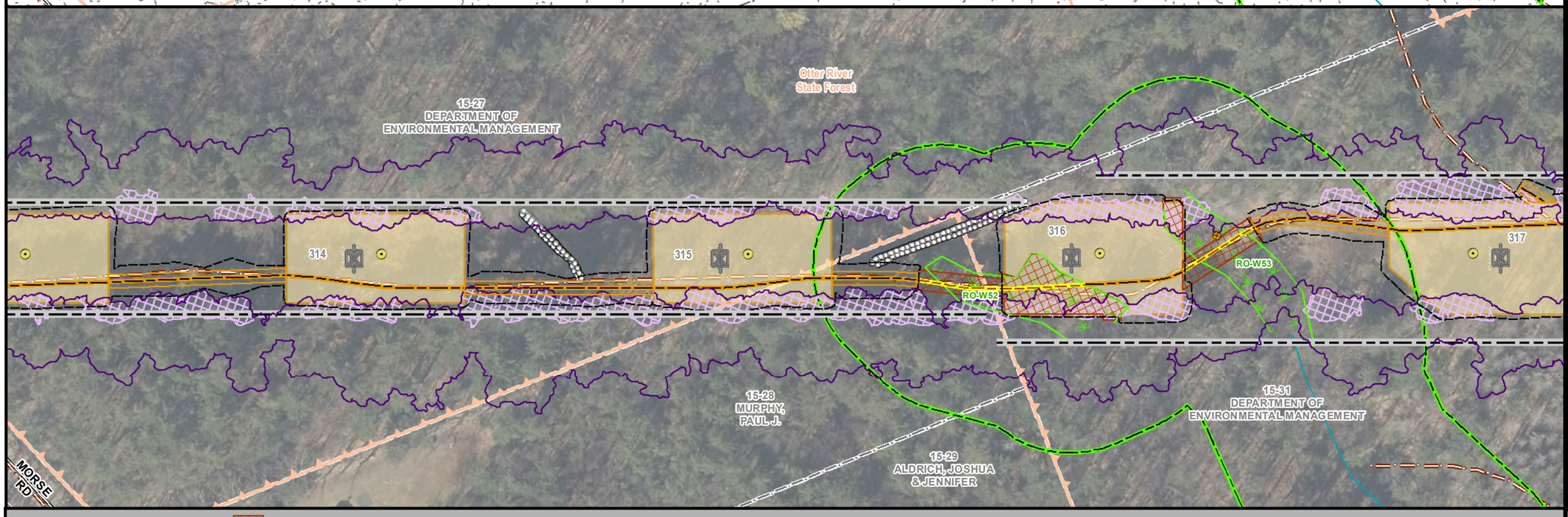
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON, MA
PAGE 64 OF 137

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0 50 100
Feet

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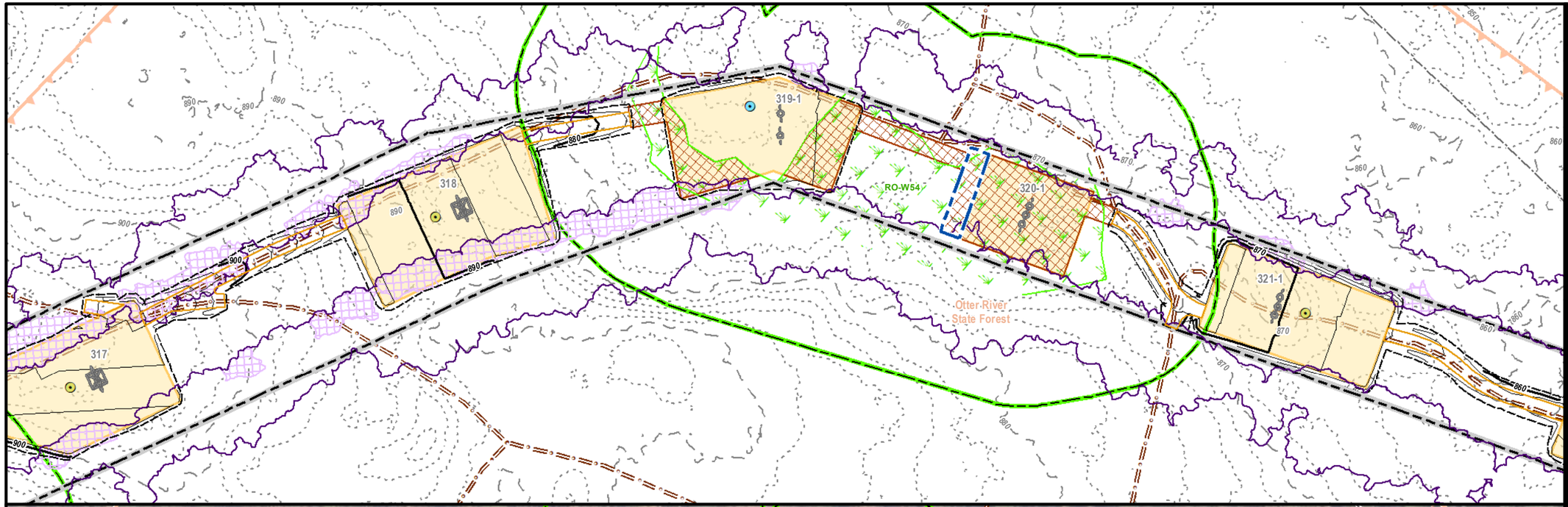
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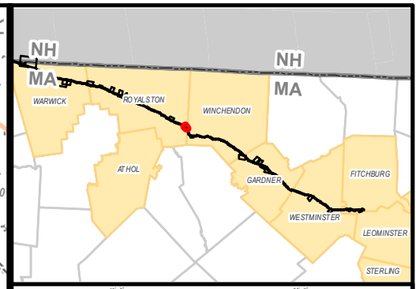
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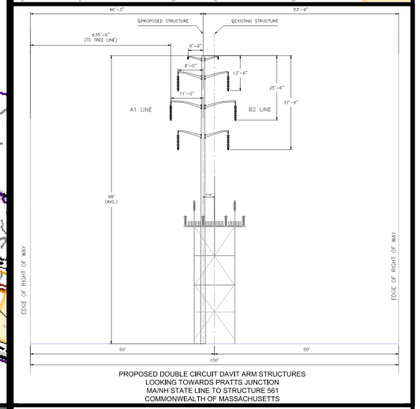
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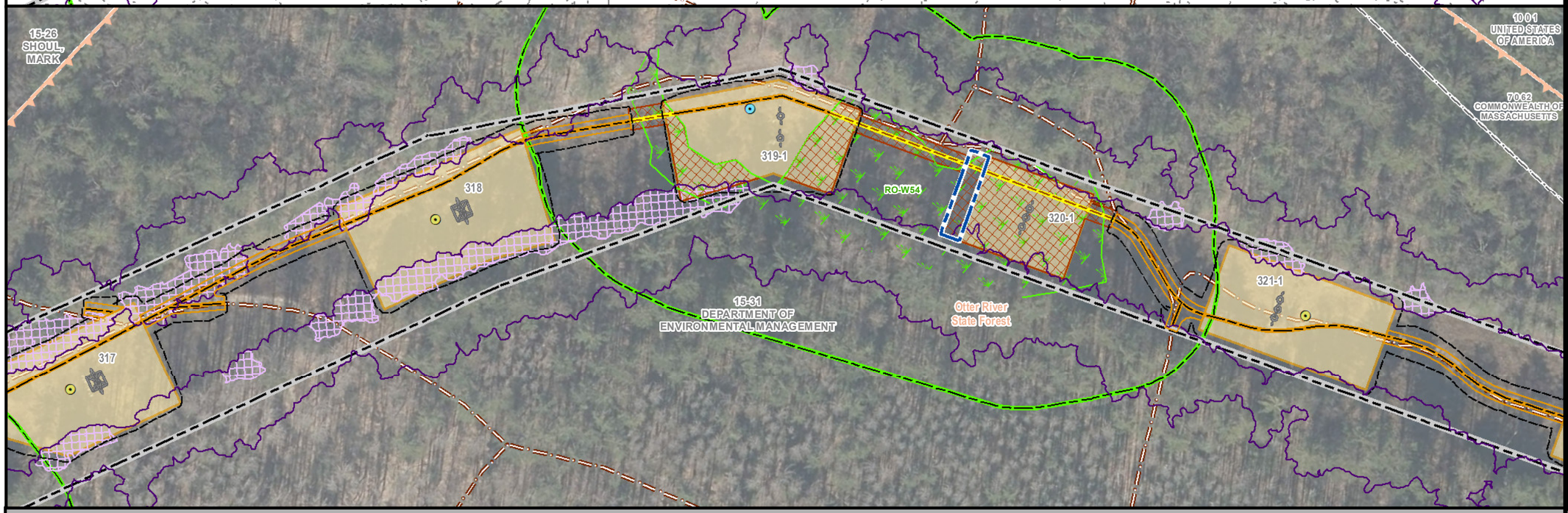
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON &
WINCHENDON, MA
PAGE 65 OF 137

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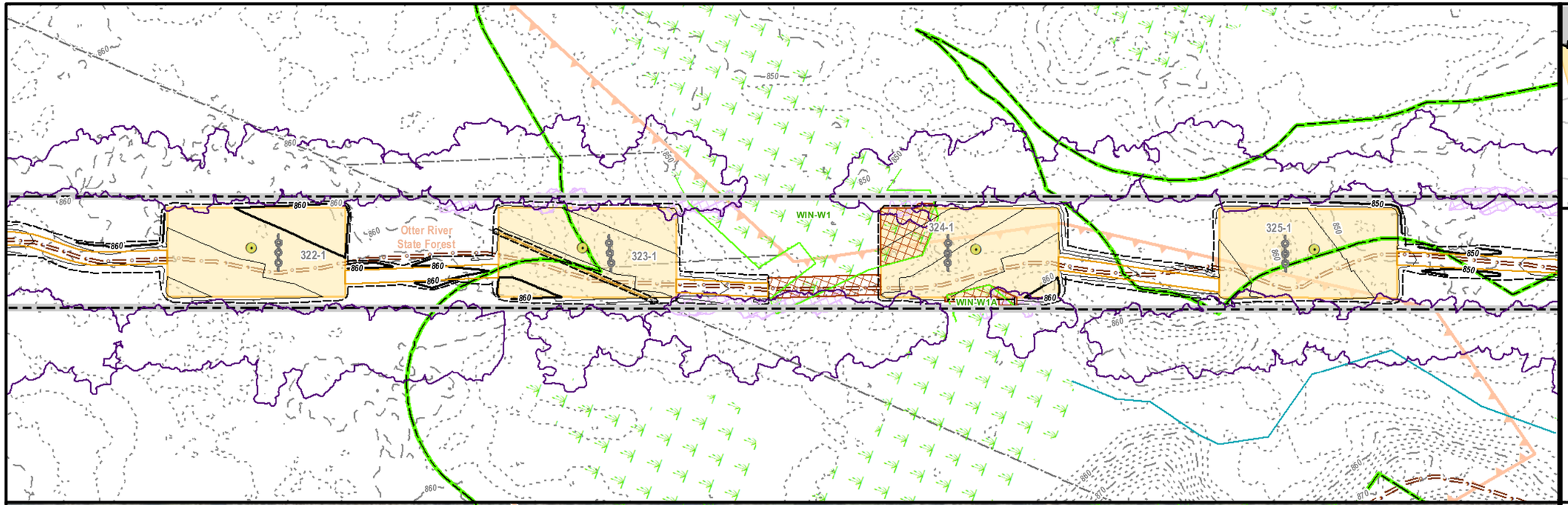
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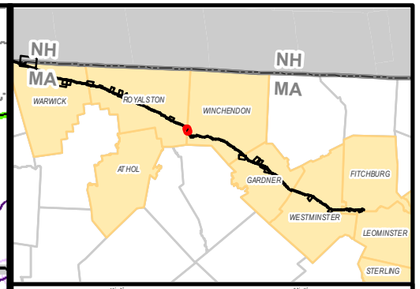
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WALTHAM, MA 02451

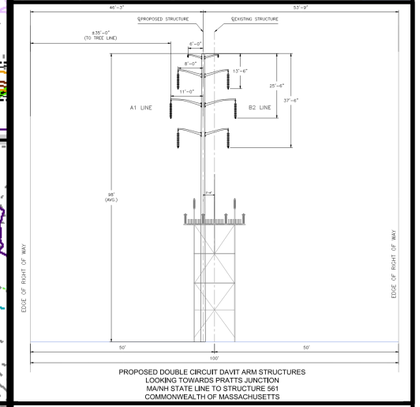
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WORCESTER, MA 01608

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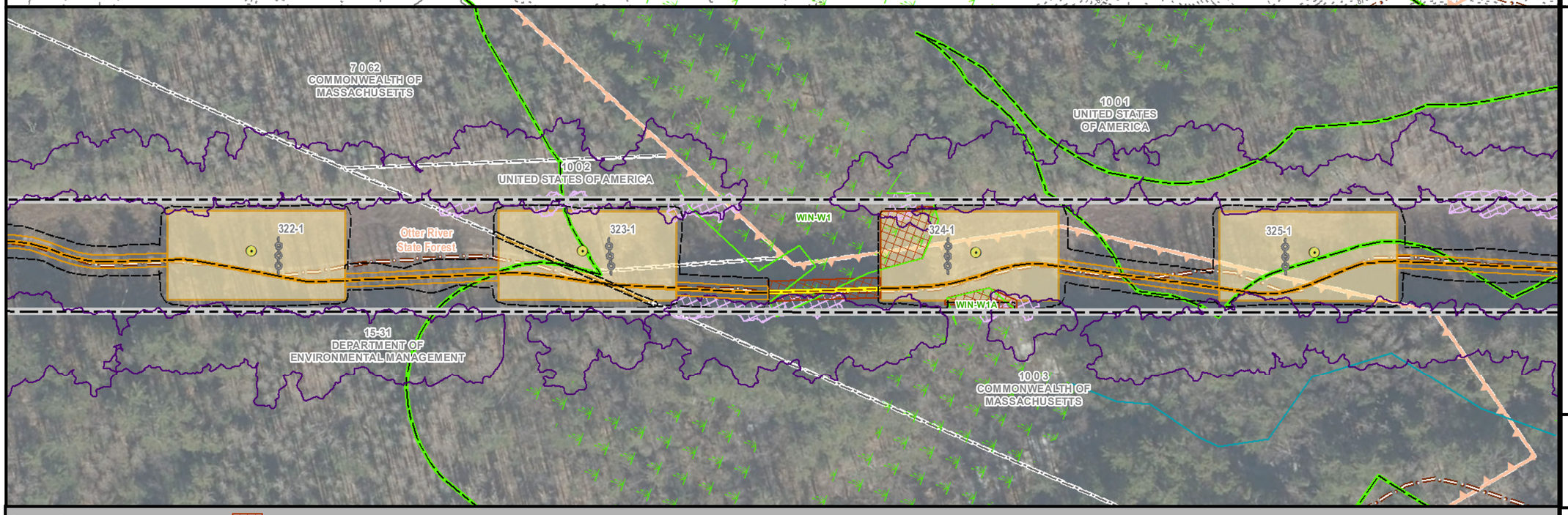
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

ROYALSTON & WINCHENDON, MA
PAGE 66 OF 137

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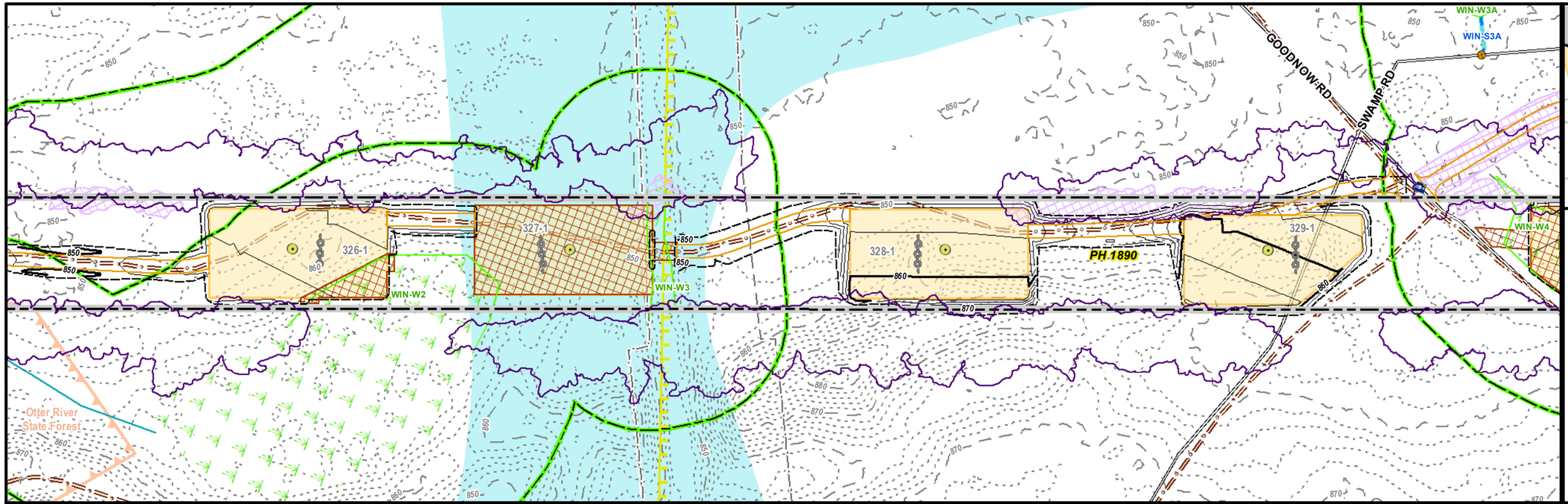
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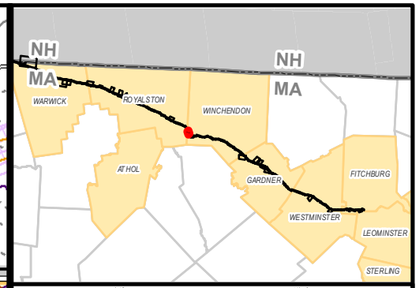
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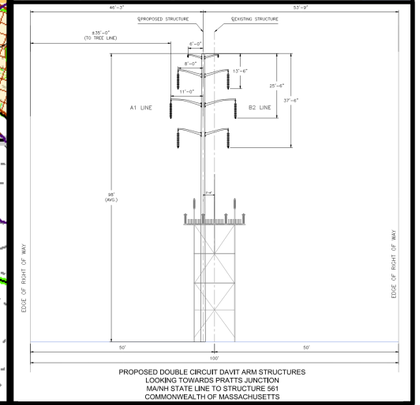
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MEPA General Purpose Plans

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WINCHENDON, MA
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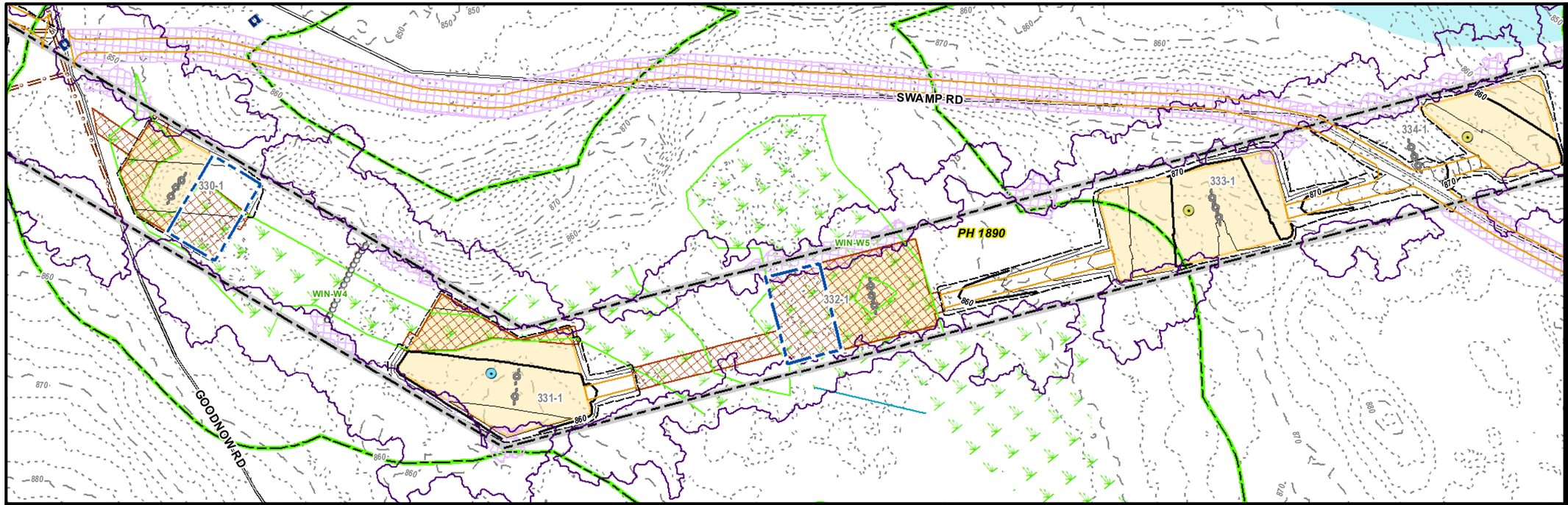
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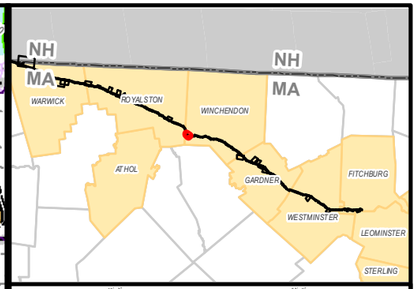
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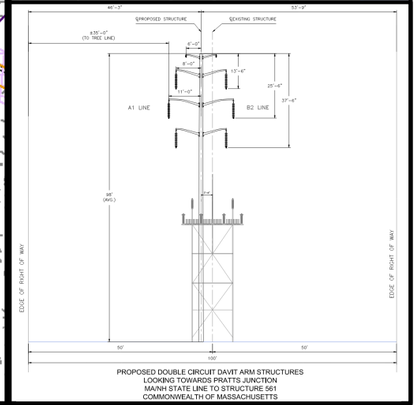
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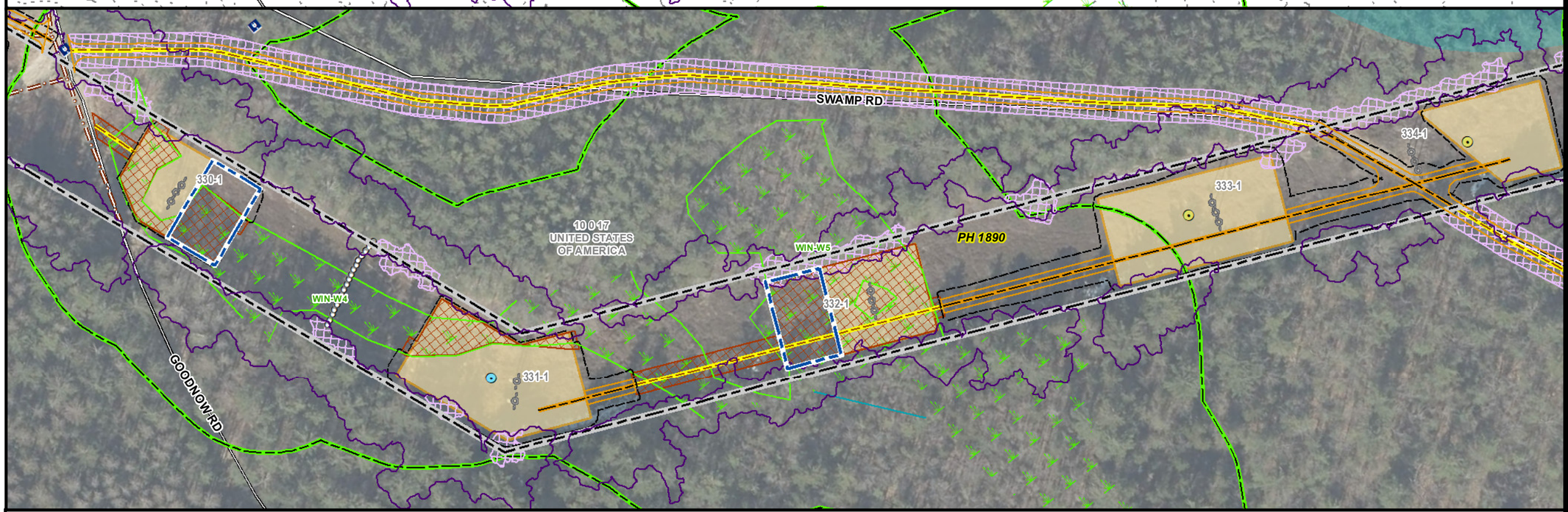
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- Private

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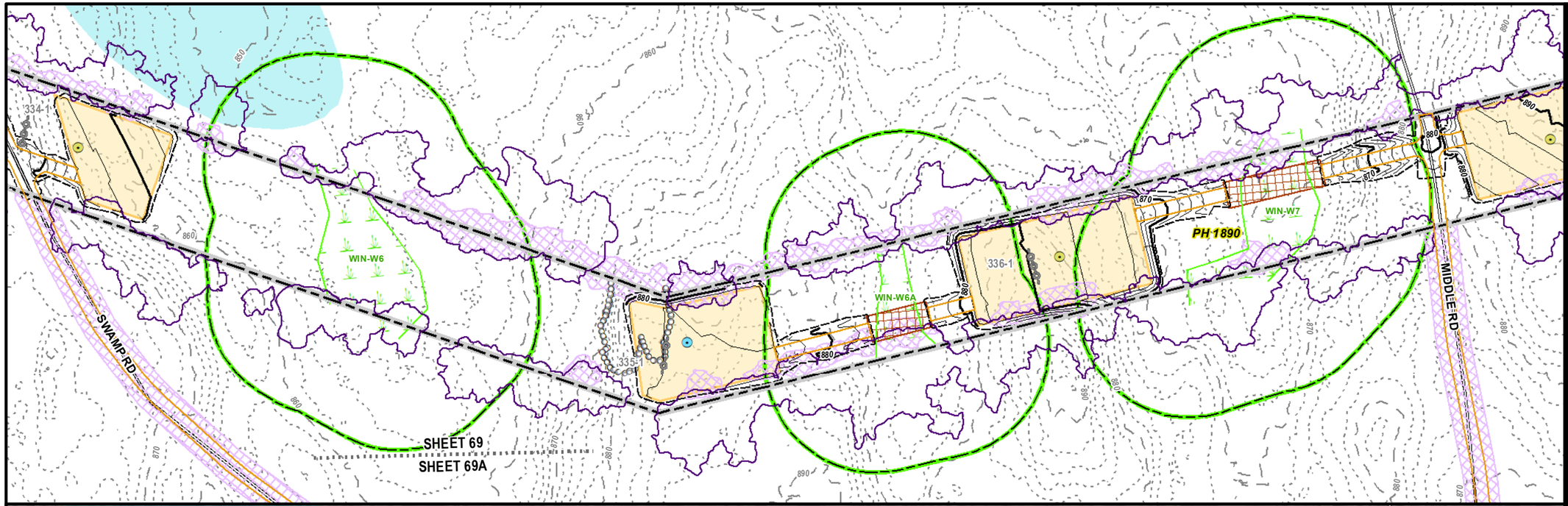
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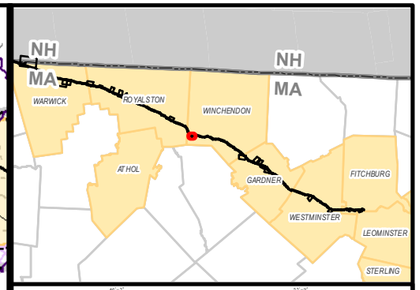
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

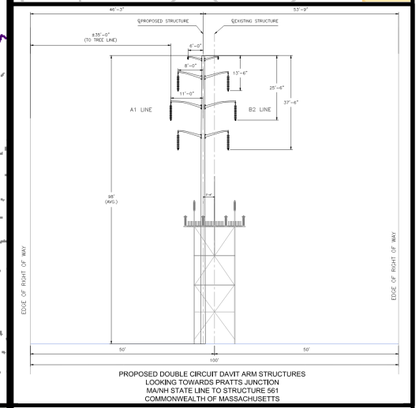
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
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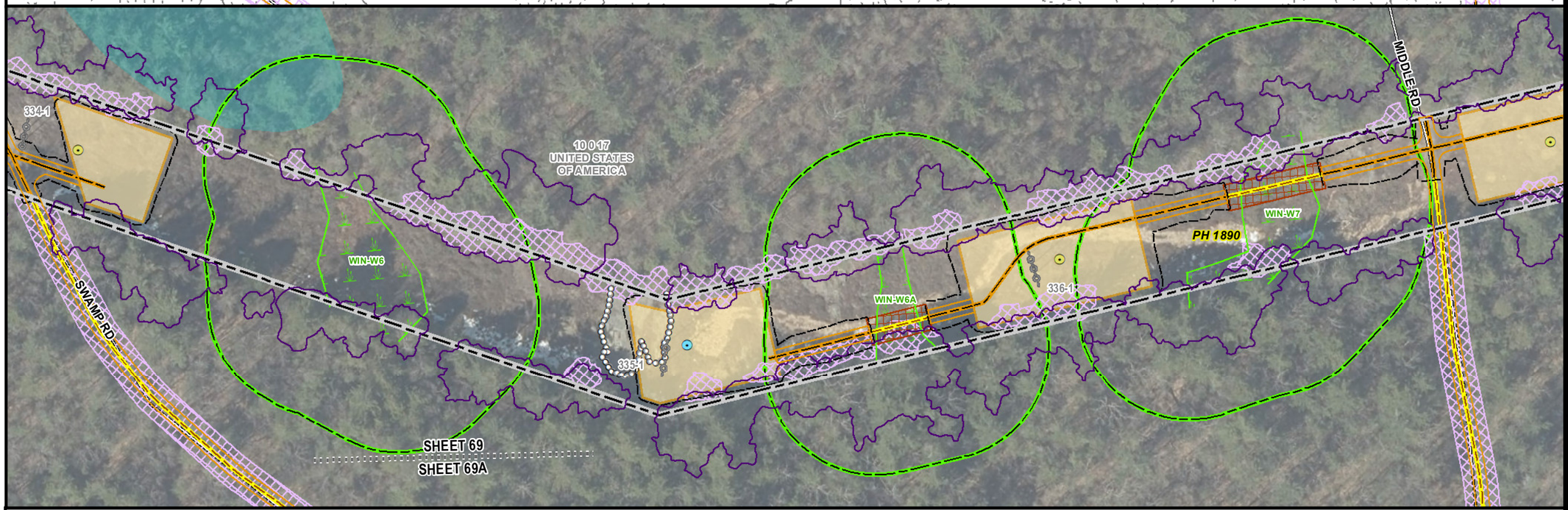
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 69 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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- Wetland Edge
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Article 97 Lands

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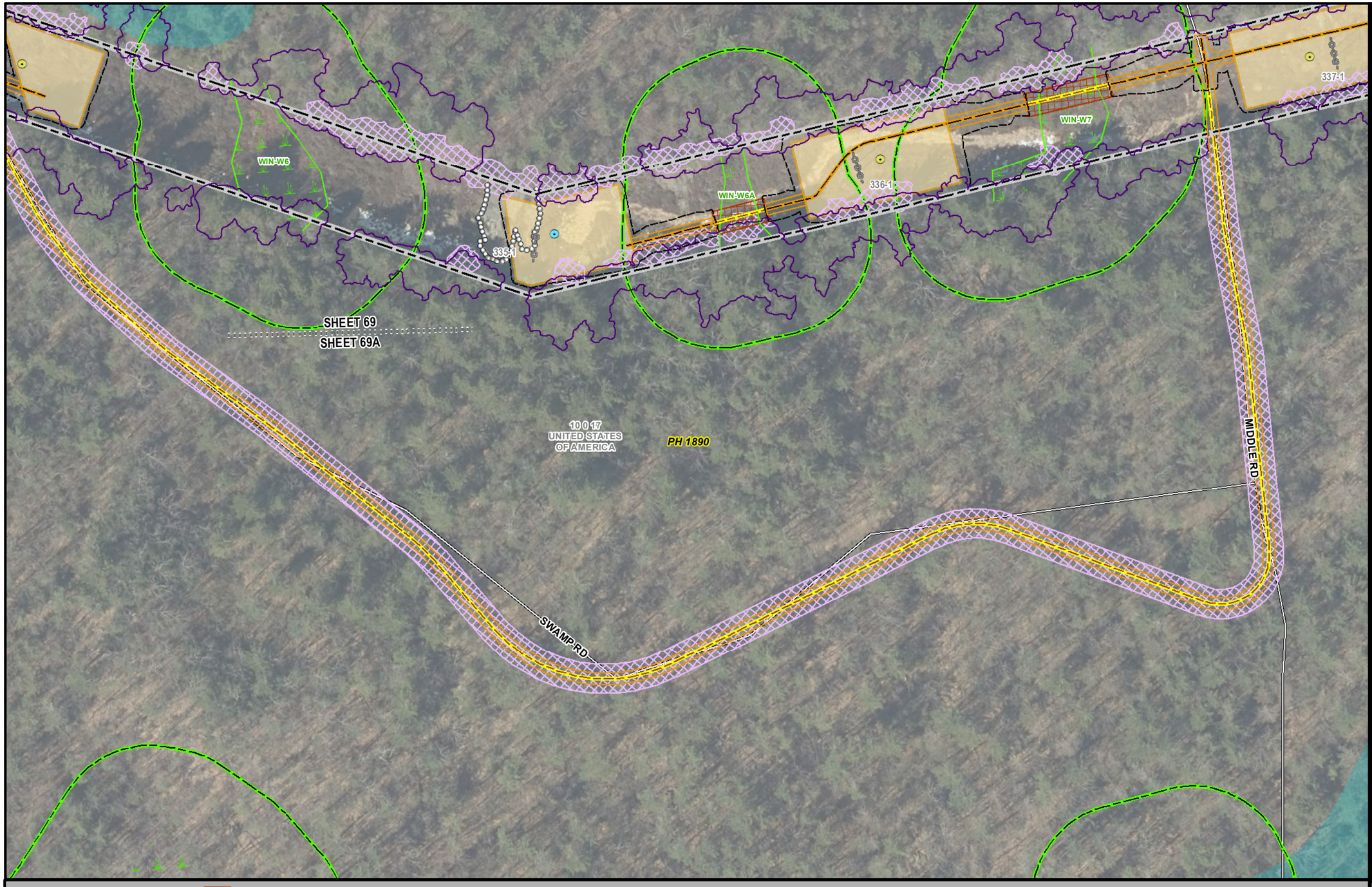
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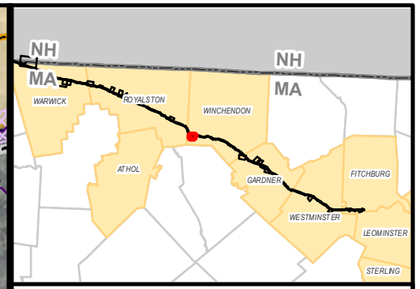
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nationalgrid
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WALTHAM, MA 02451

PREPARED BY:
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MEPA General Purpose Plans

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WINCHENDON, MA
PAGE 69A OF 137

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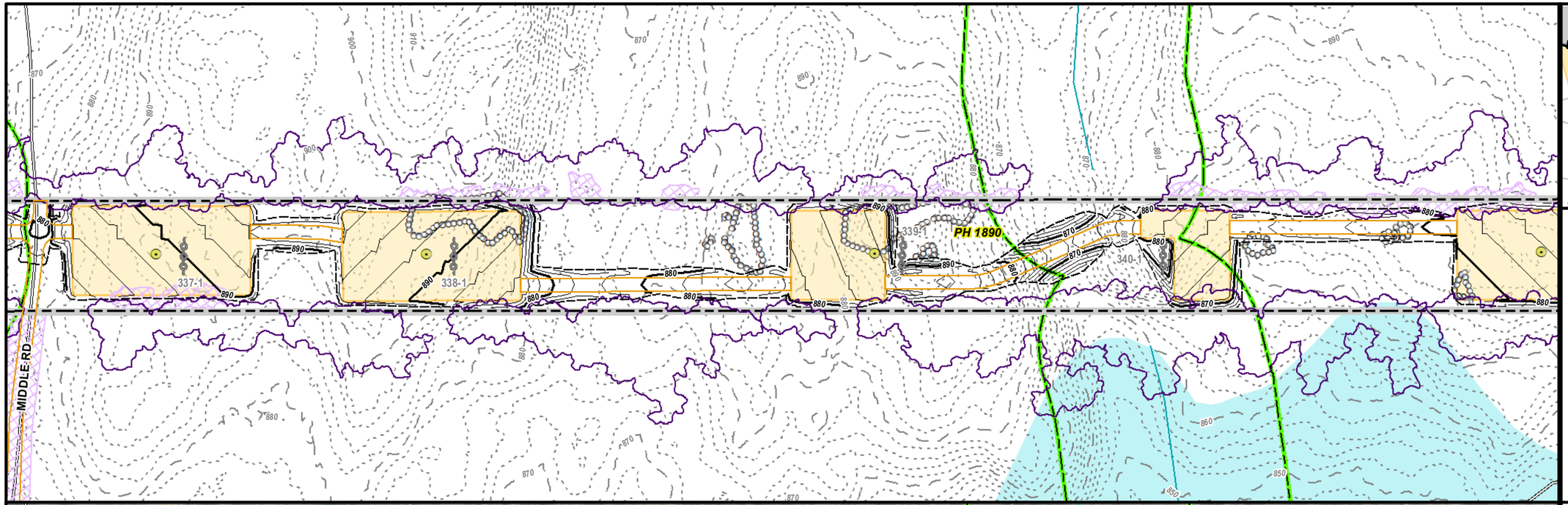
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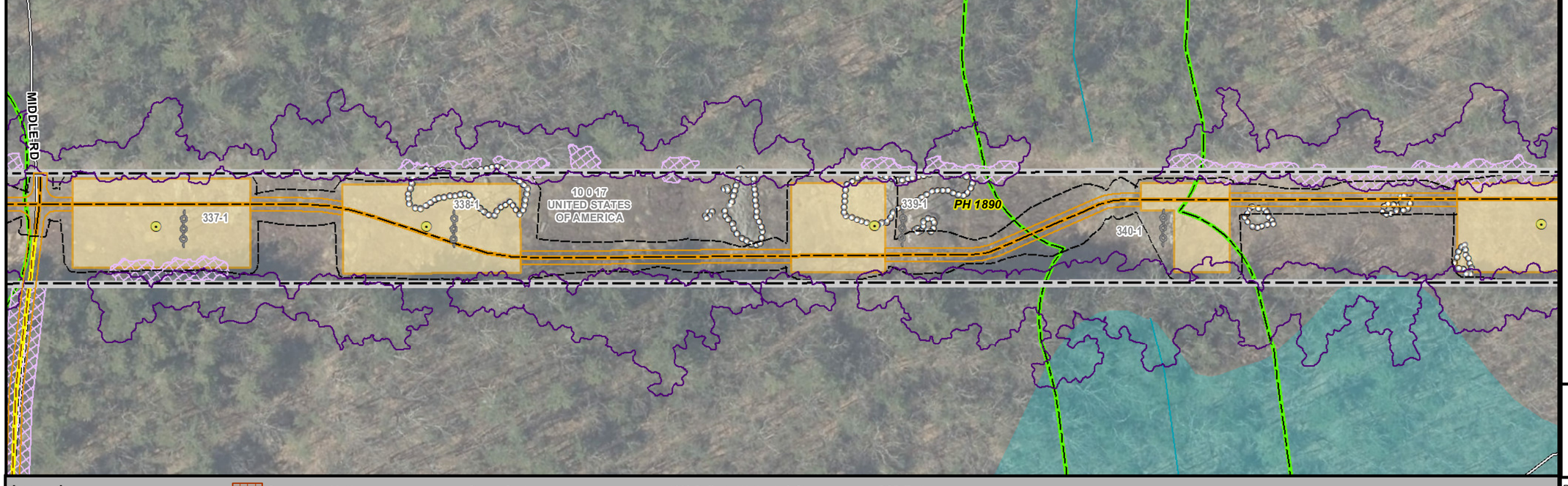
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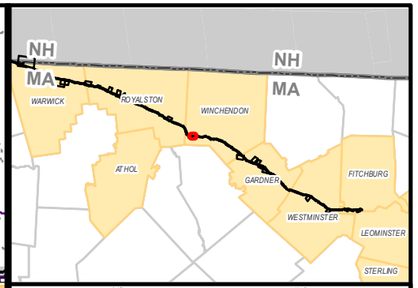
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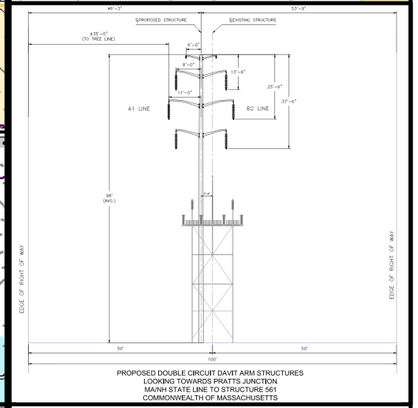
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 70 OF 137

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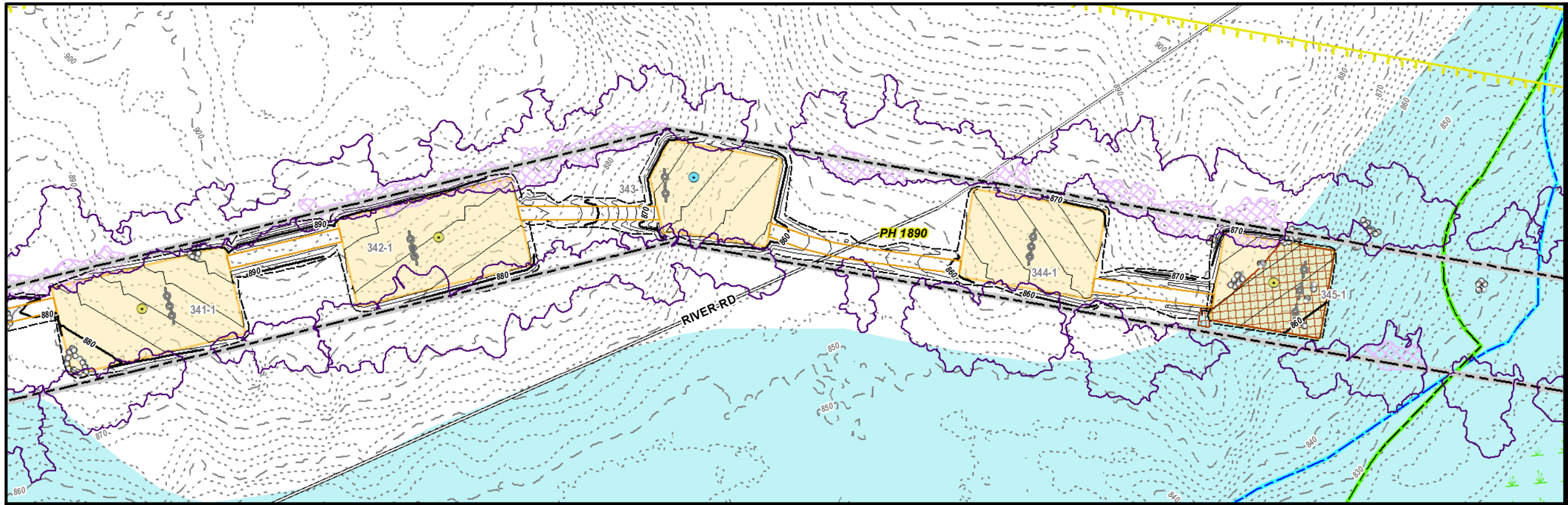
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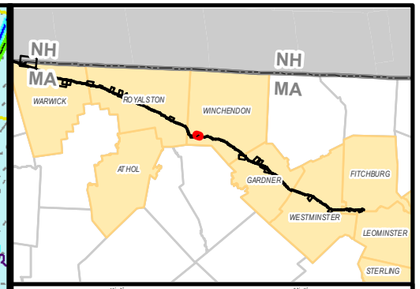
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170 DATA DRIVE
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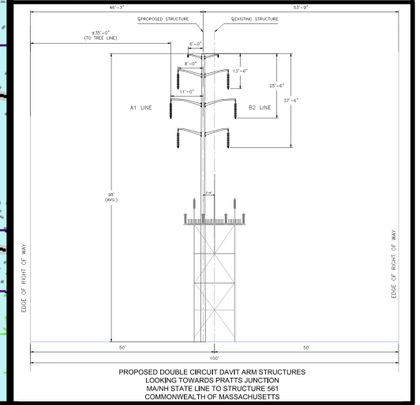
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BSC GROUP
1 MERCANTILE STREET SUITE 601
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WINCHENDON, MA
PAGE 71 OF 137

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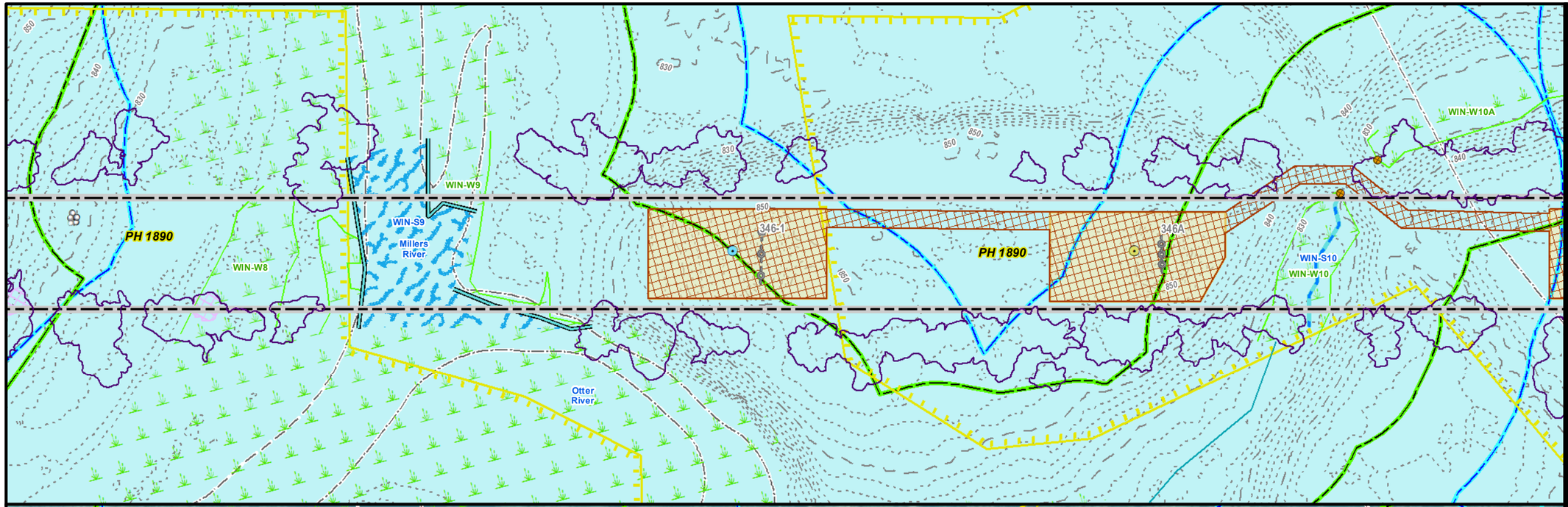
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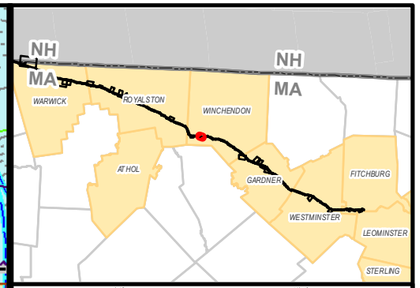
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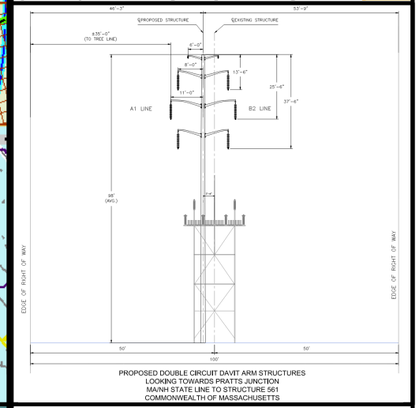
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 72 OF 137

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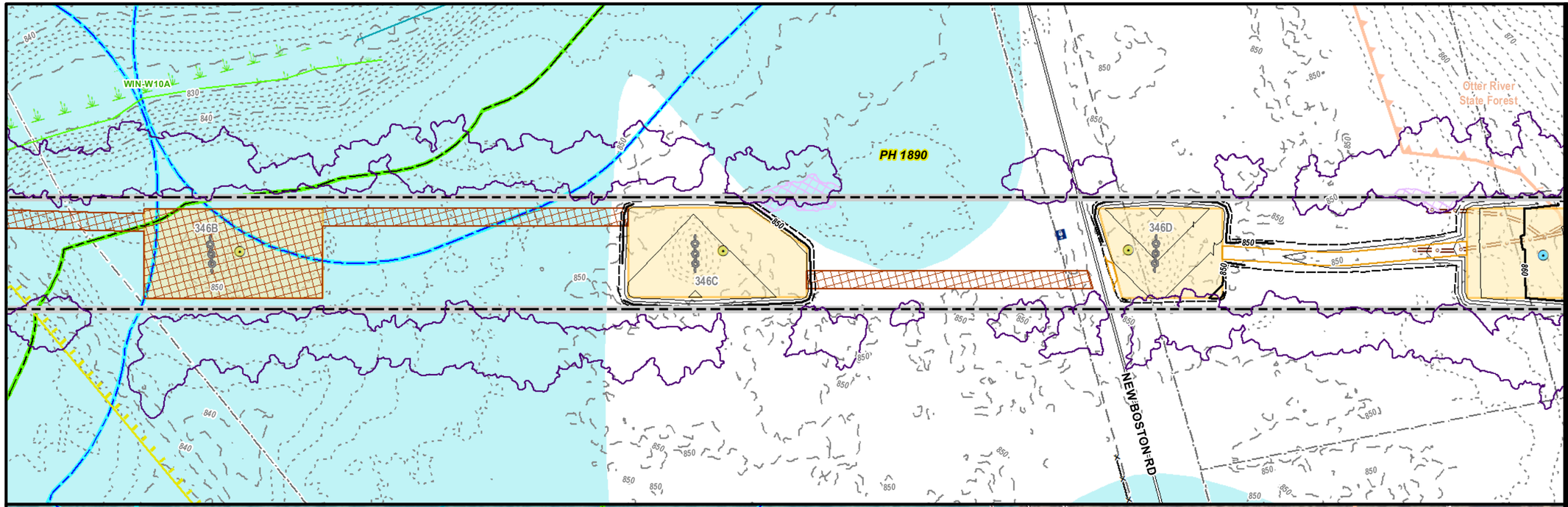
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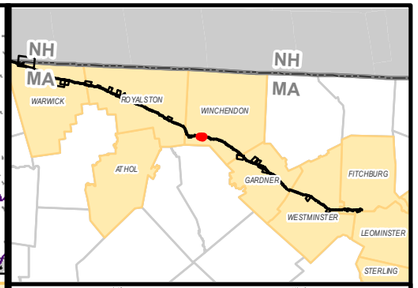
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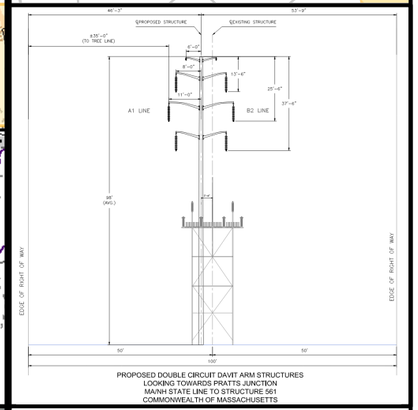
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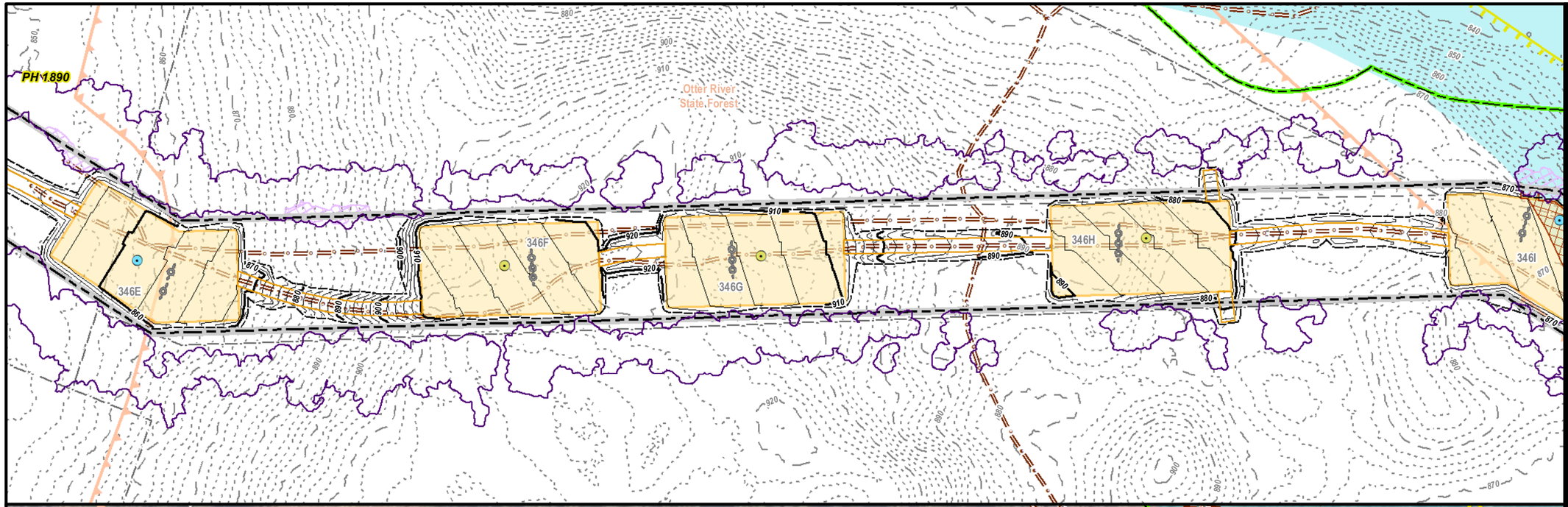
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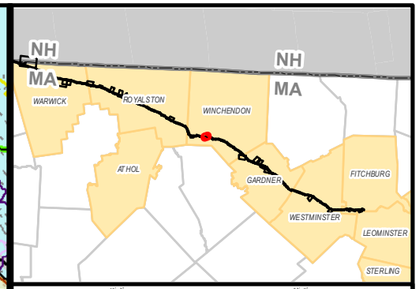
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170 DATA DRIVE
WALTHAM, MA 02451

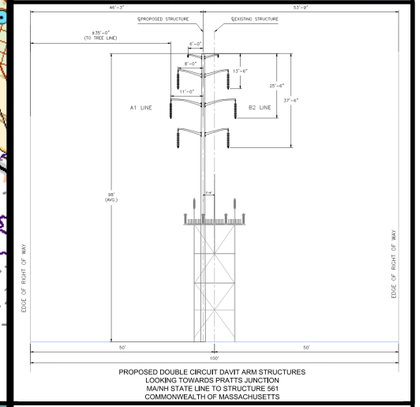
PREPARED BY:
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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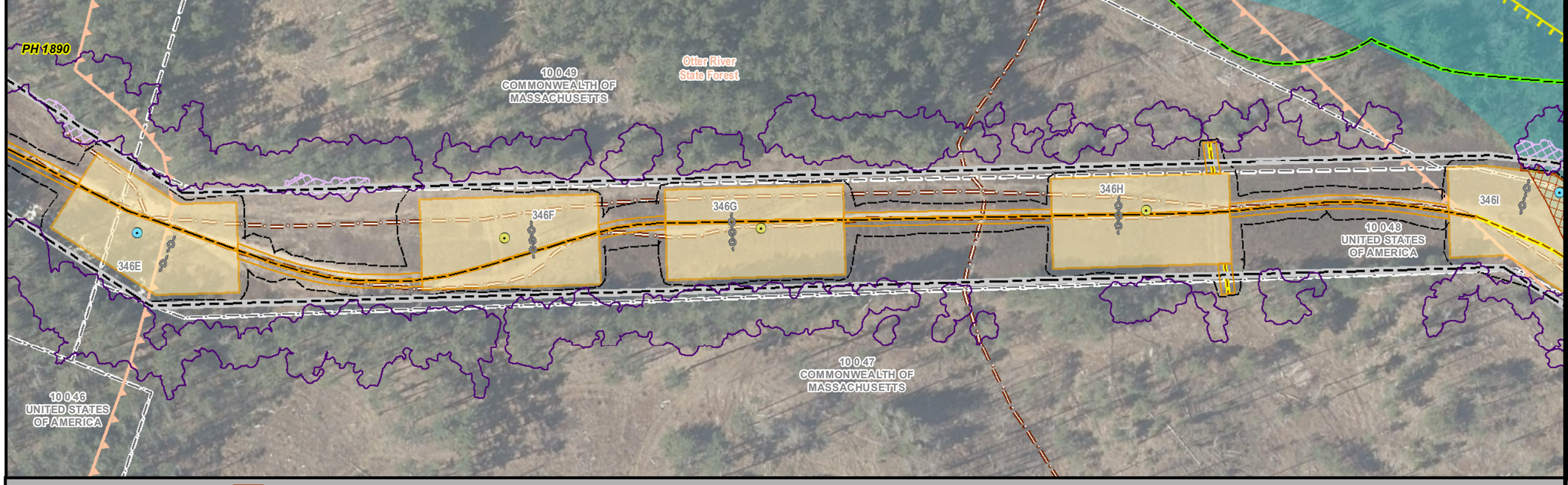
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 74 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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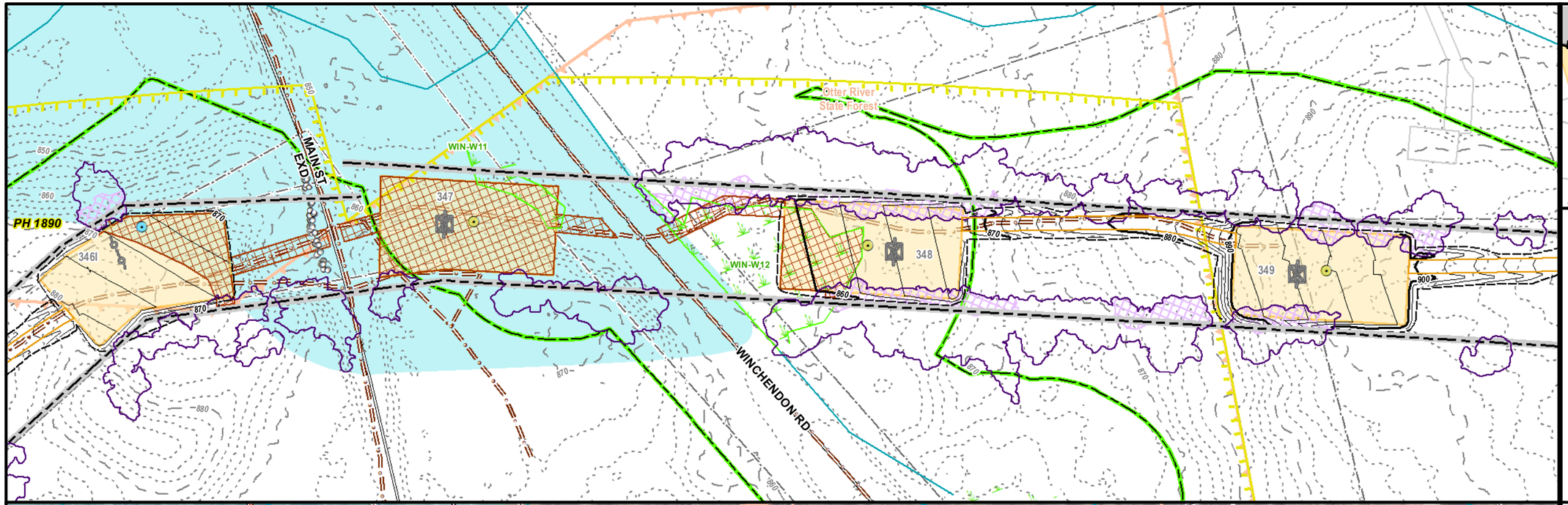
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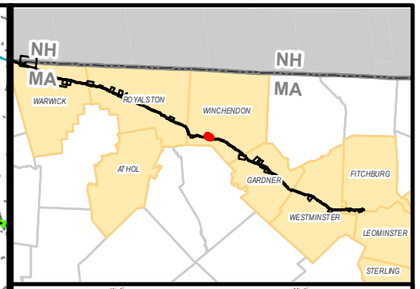
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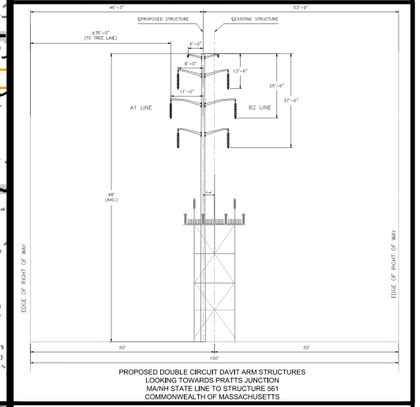
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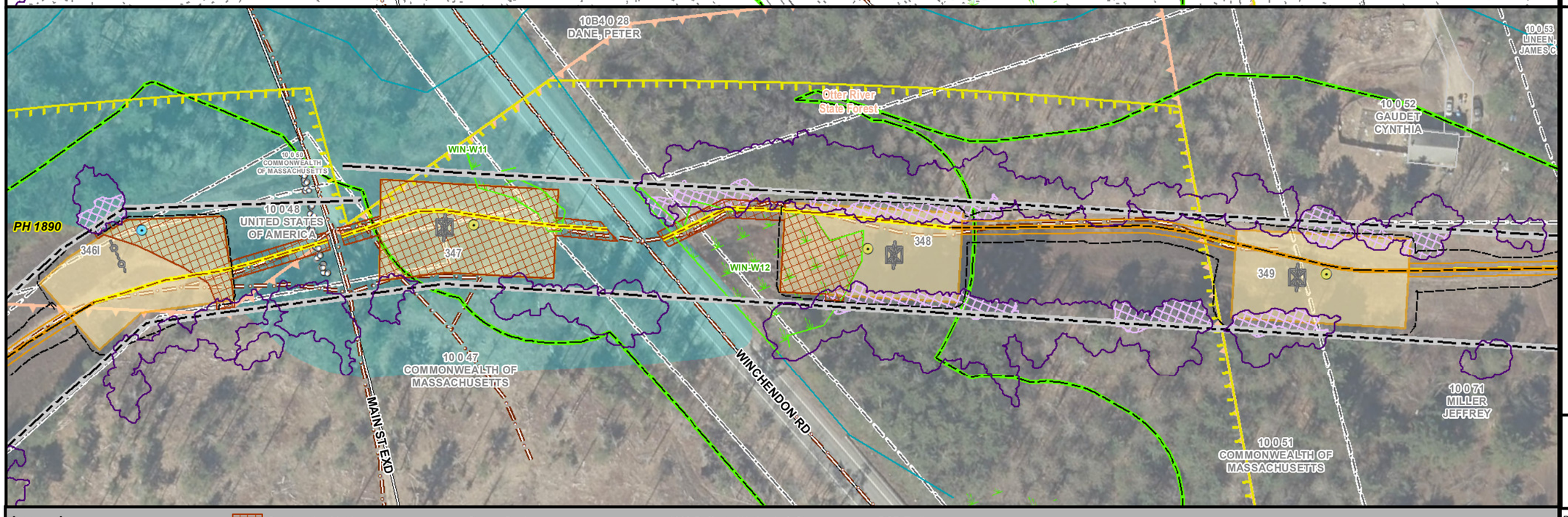
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
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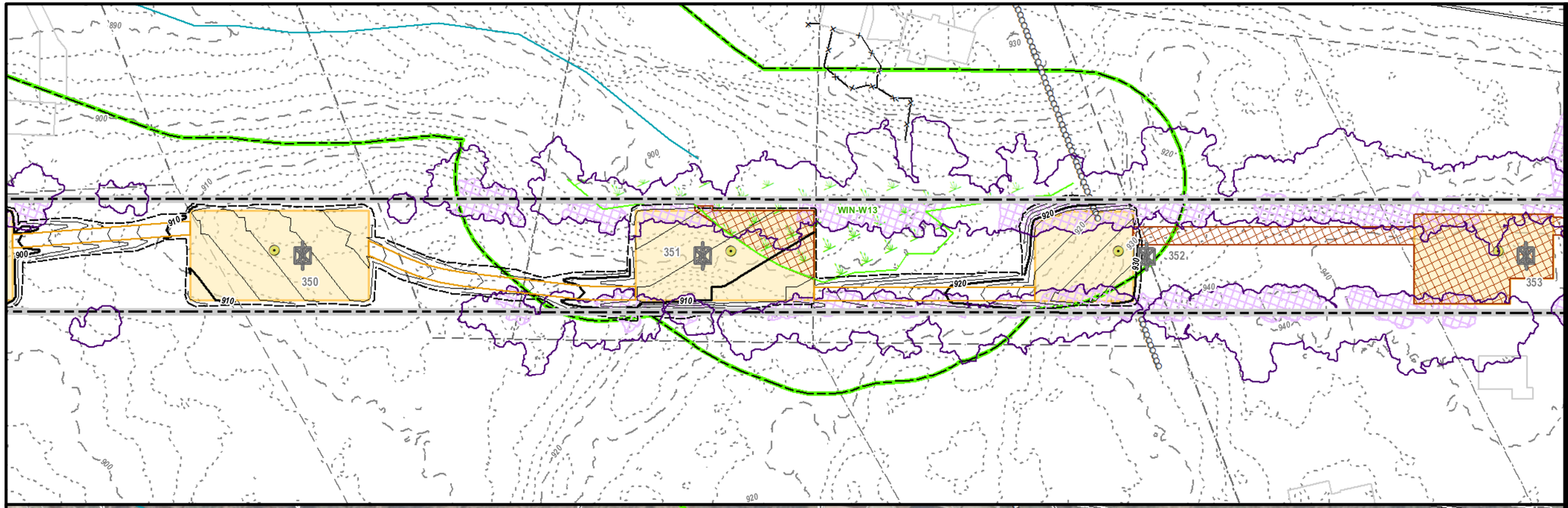
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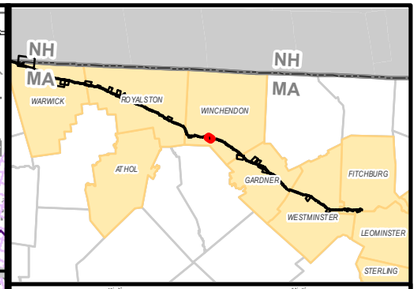
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nationalgrid
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WALTHAM, MA 02451

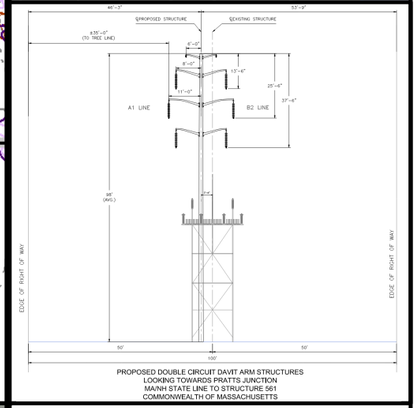
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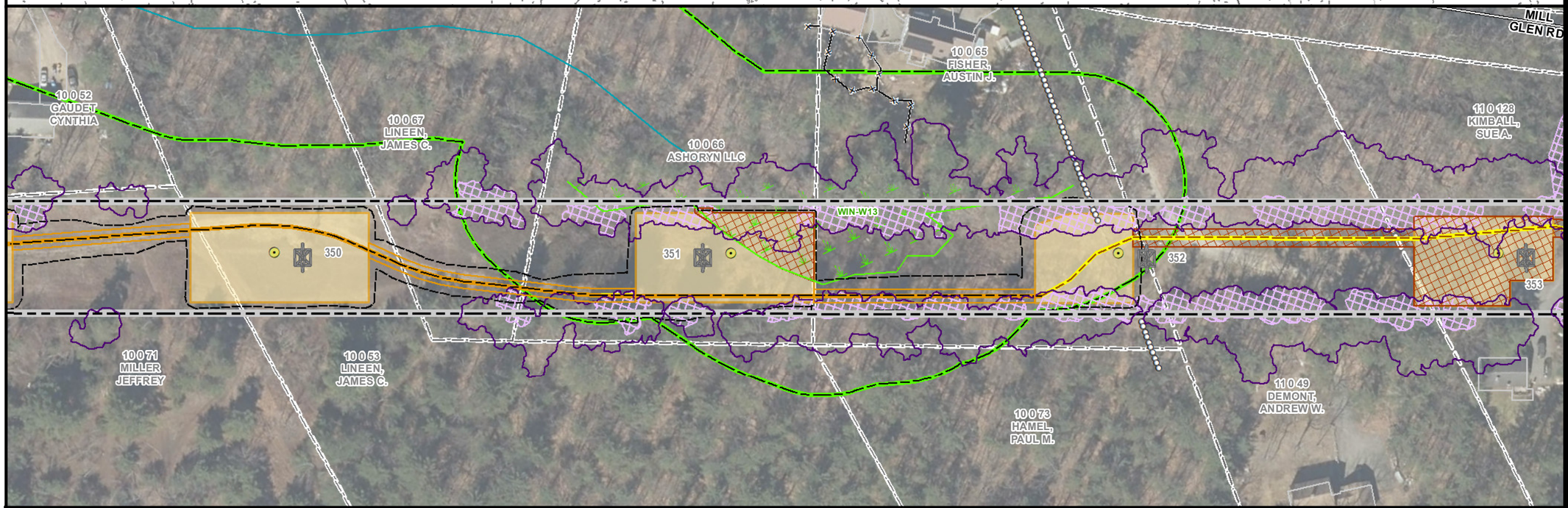
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MA/NH STATE LINE TO STRUCTURE 561
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
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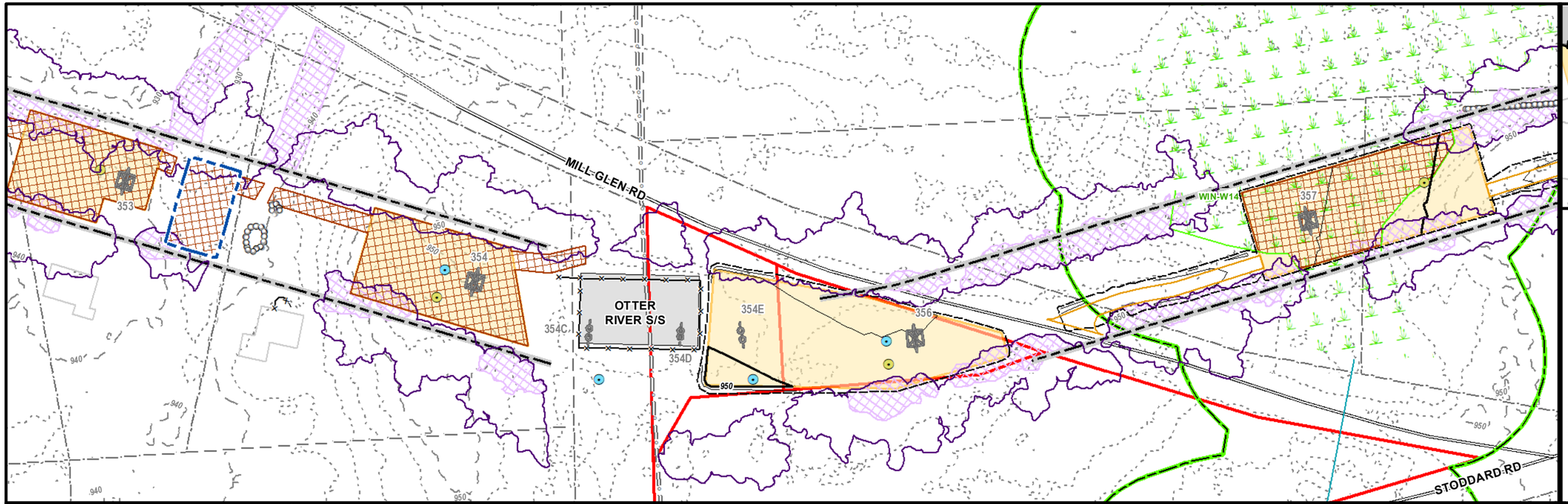
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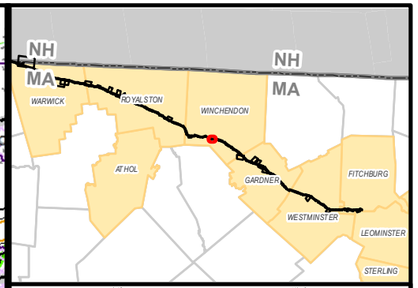
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nationalgrid
170 DATA DRIVE
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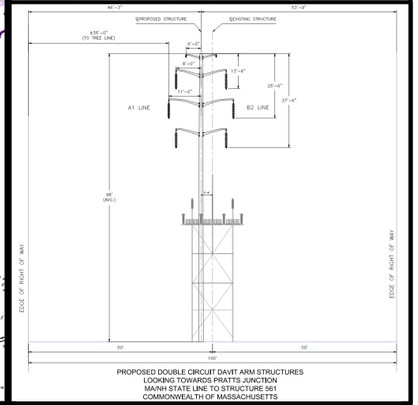
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WINCHENDON, MA
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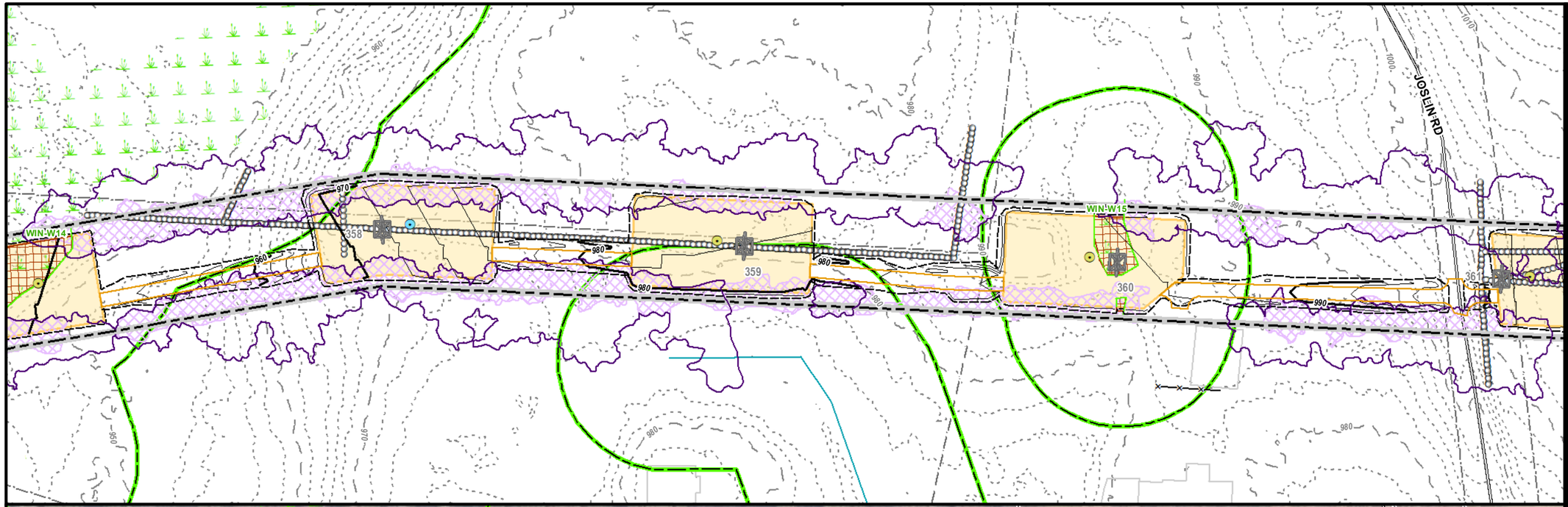
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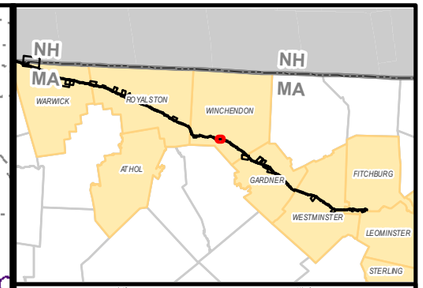
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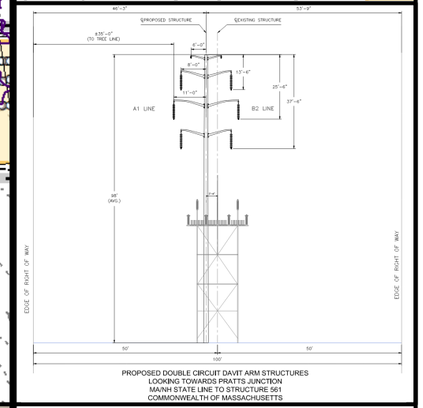
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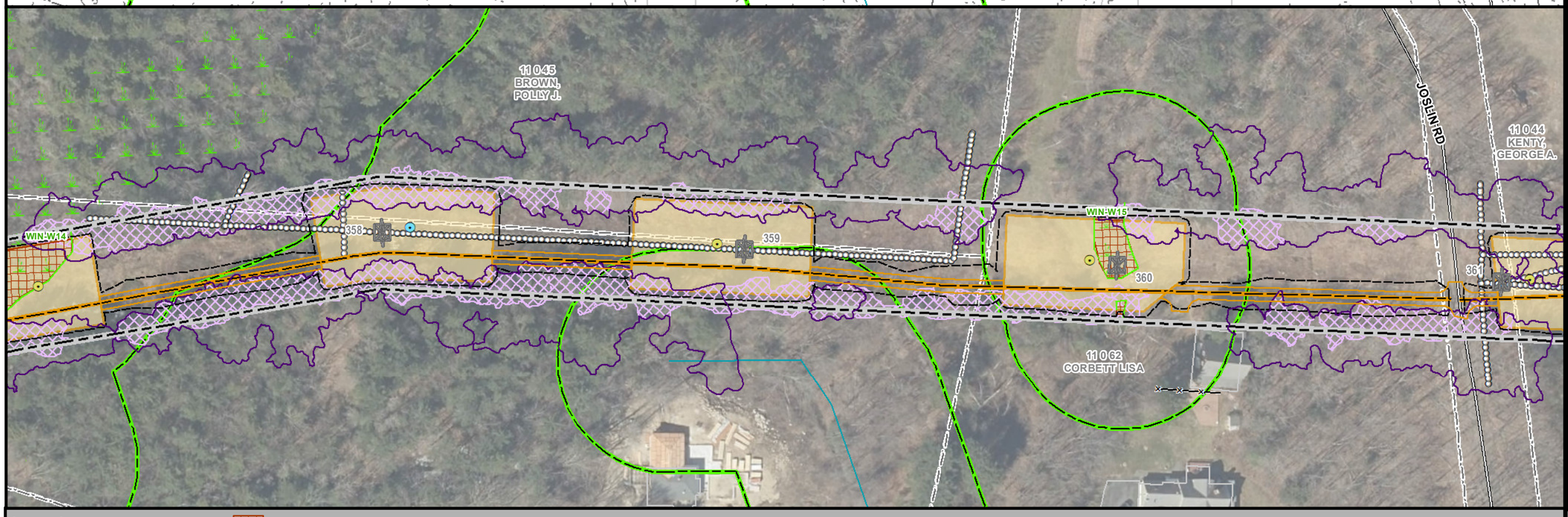
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WINCHENDON, MA
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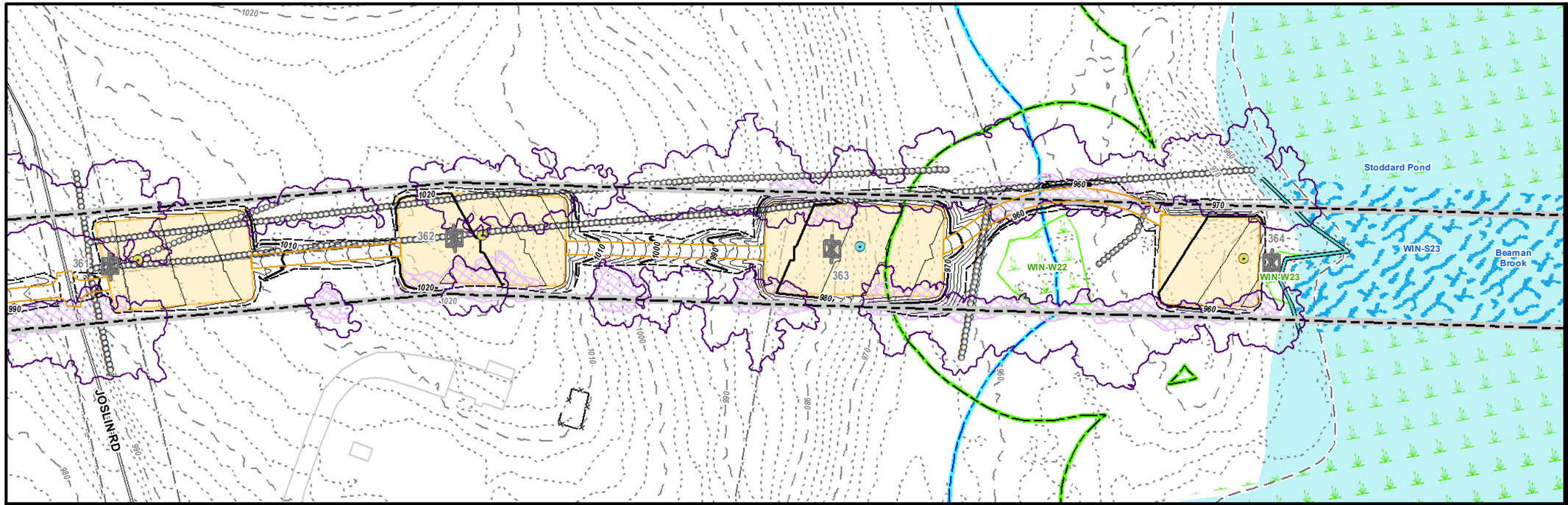
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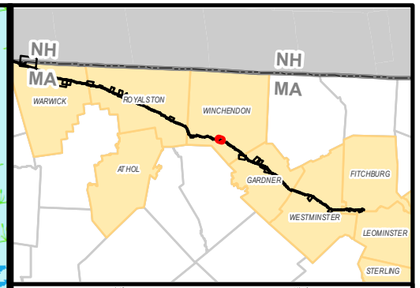
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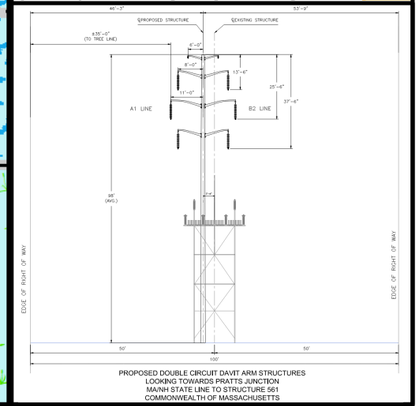
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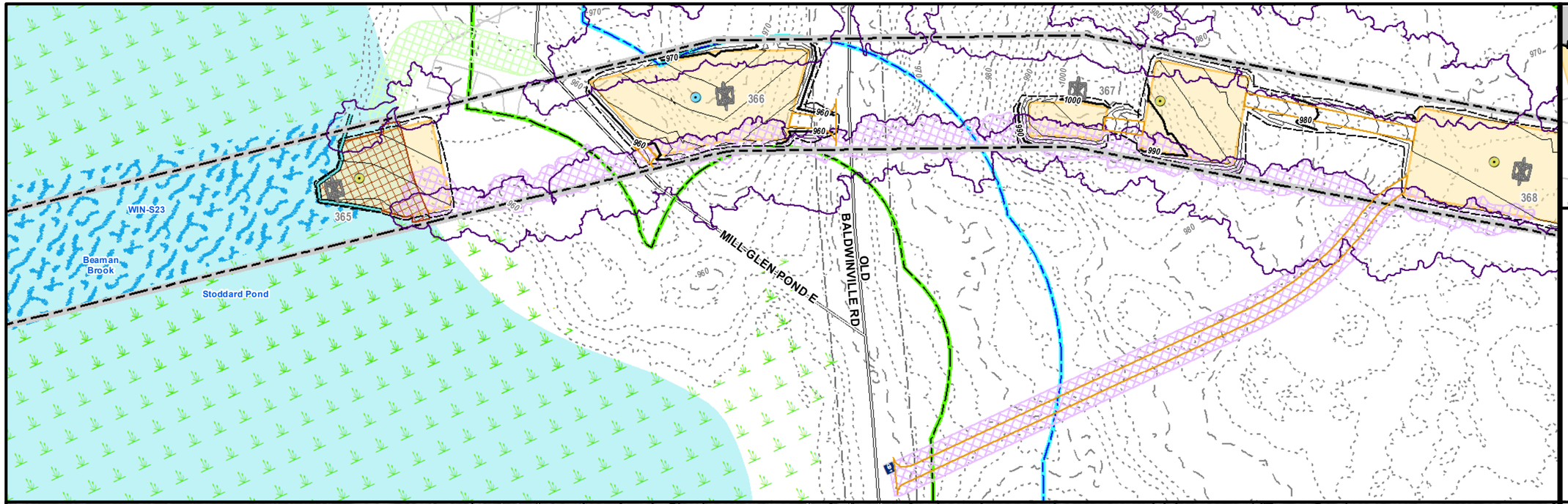
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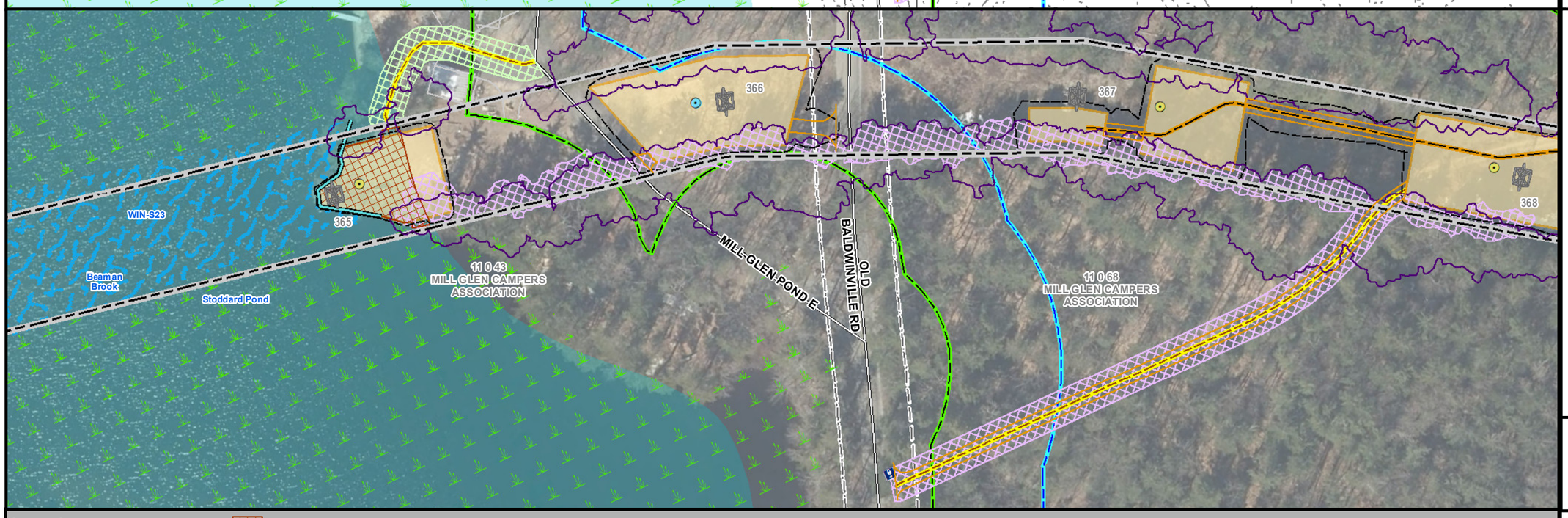
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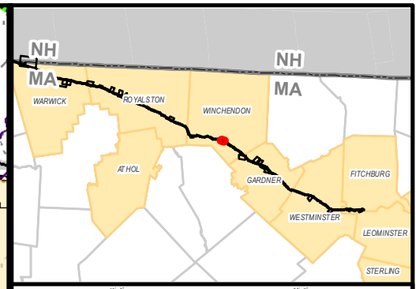
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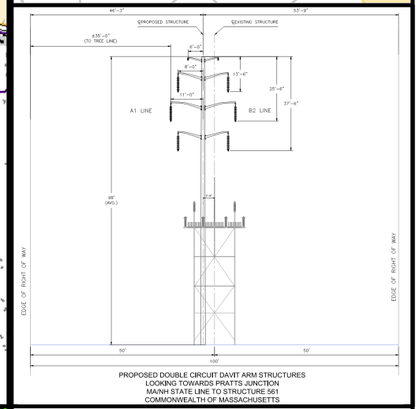
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 80 OF 137

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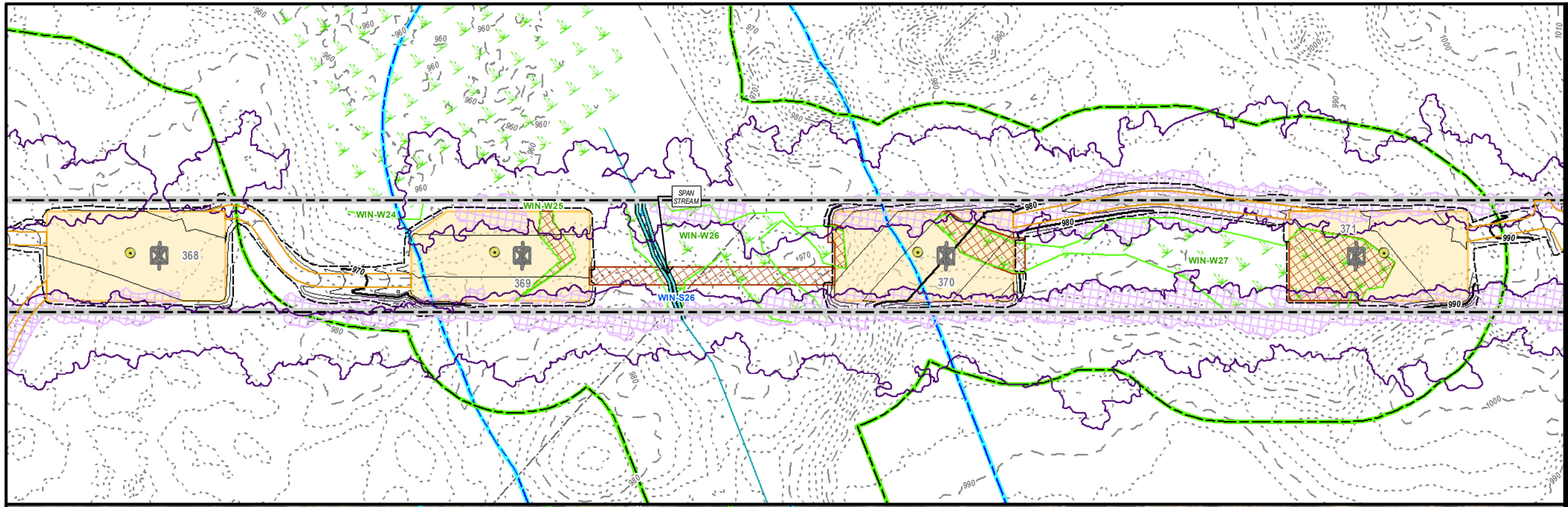
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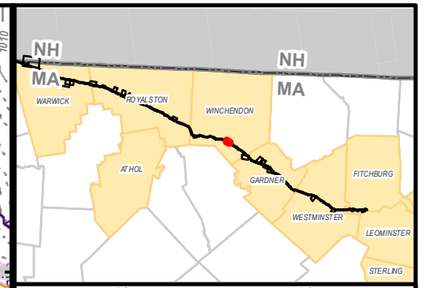
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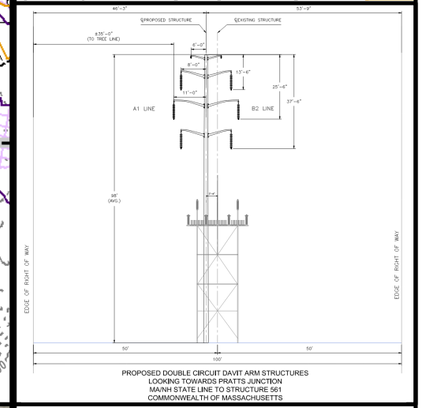
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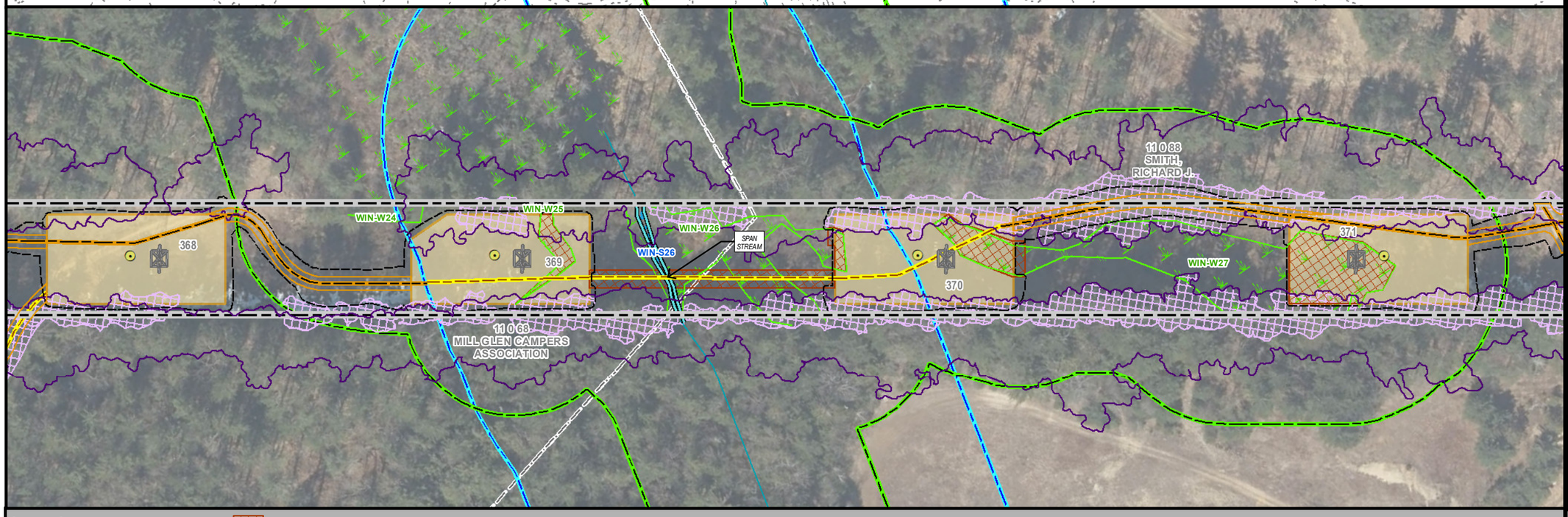
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 81 OF 137

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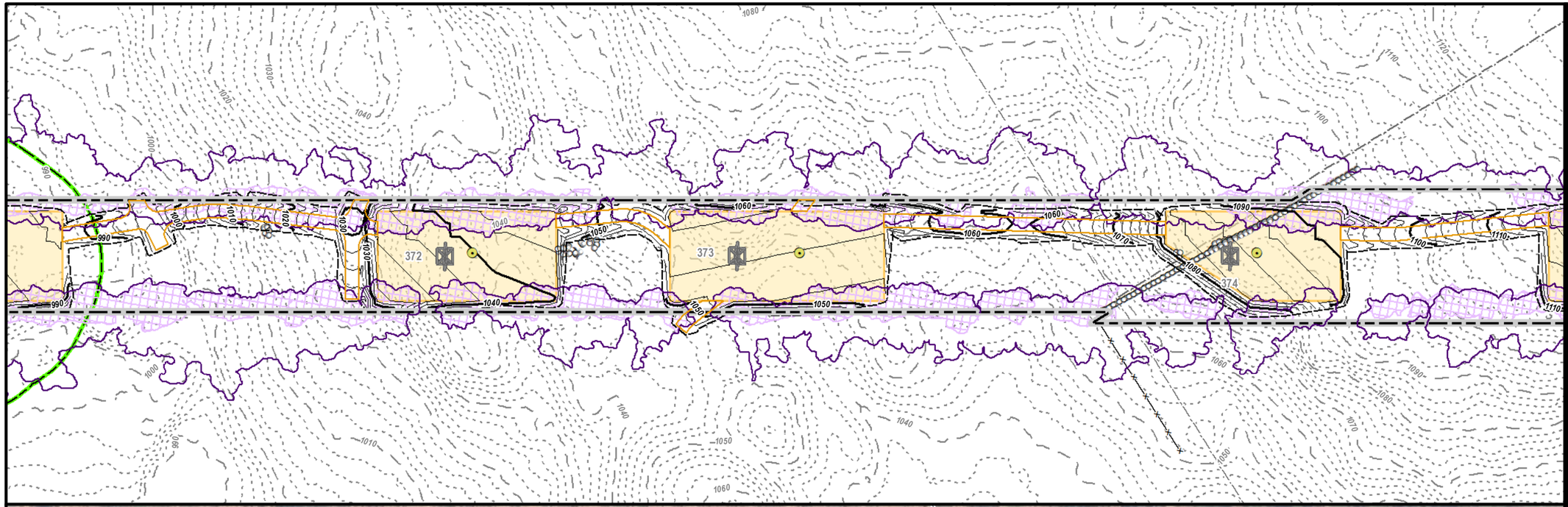
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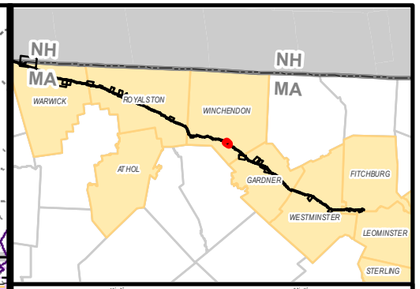
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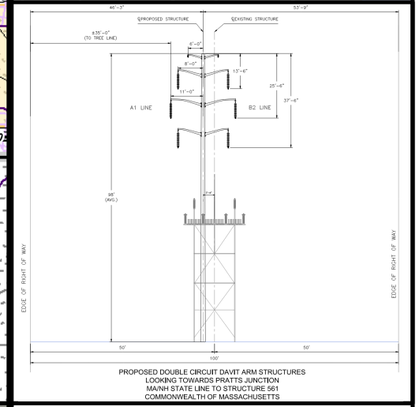
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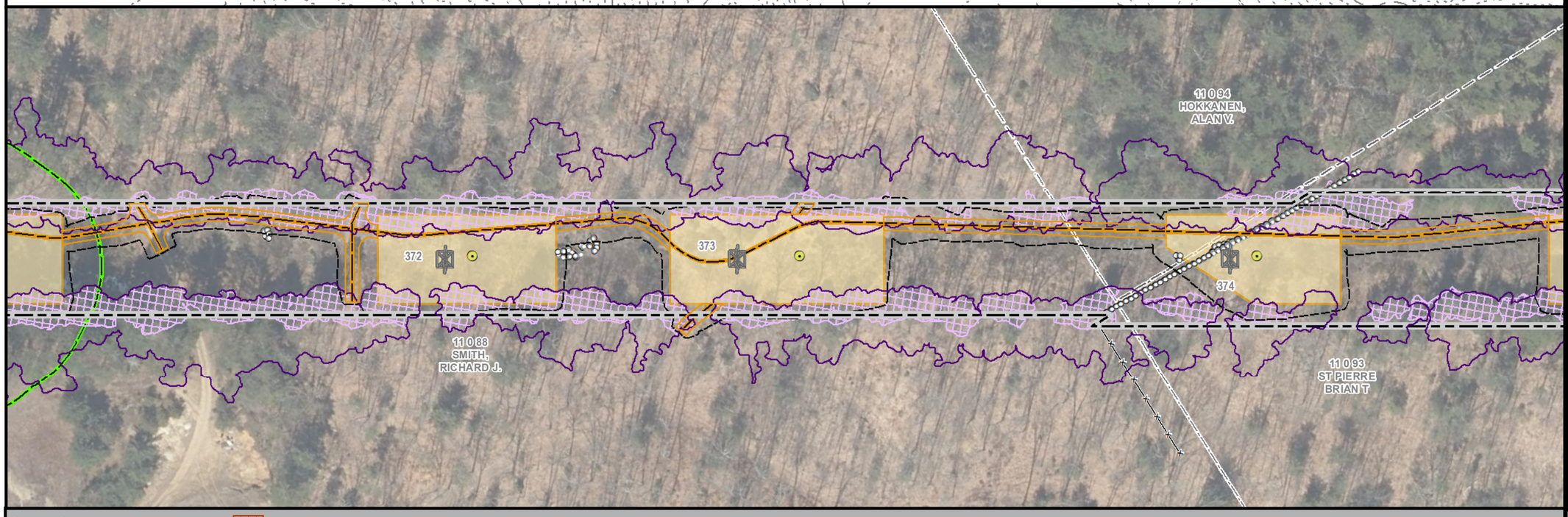
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 82 OF 137

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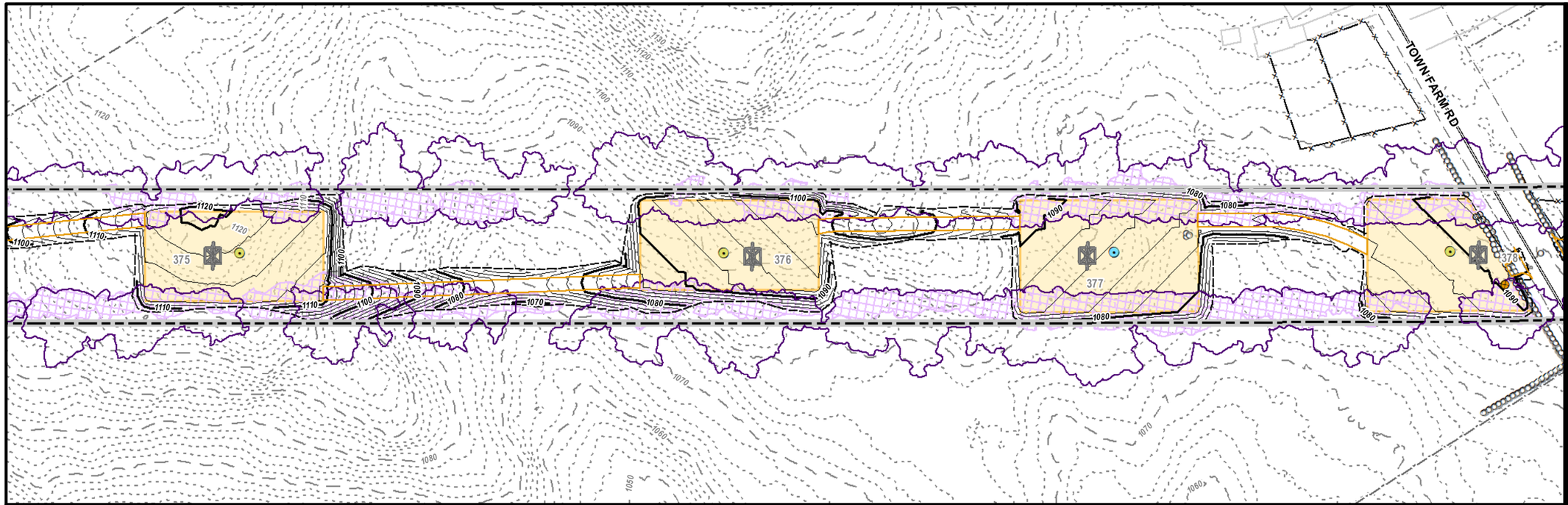
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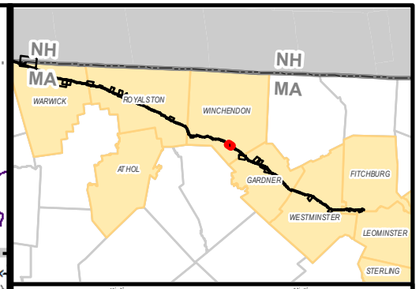
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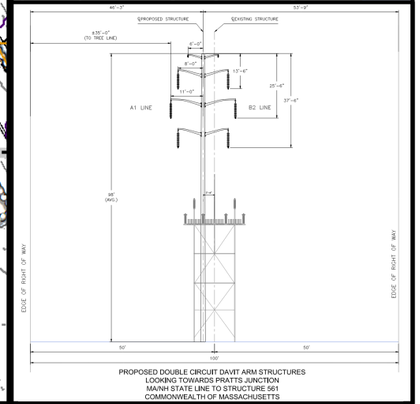
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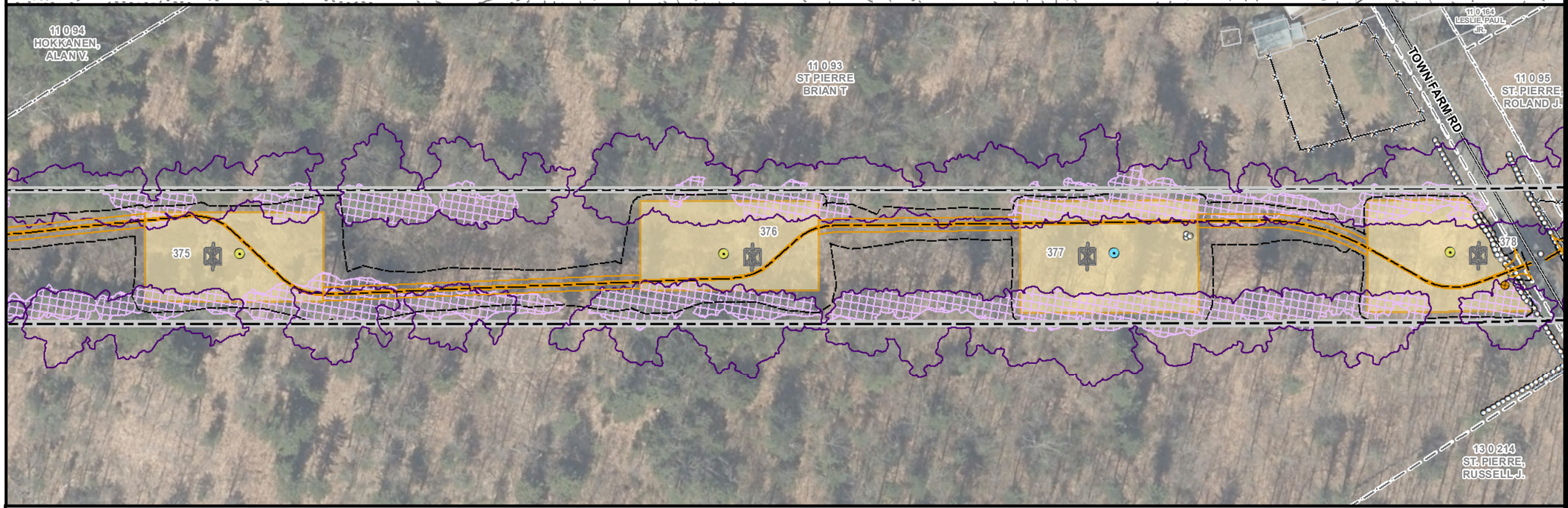
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WINCHENDON, MA
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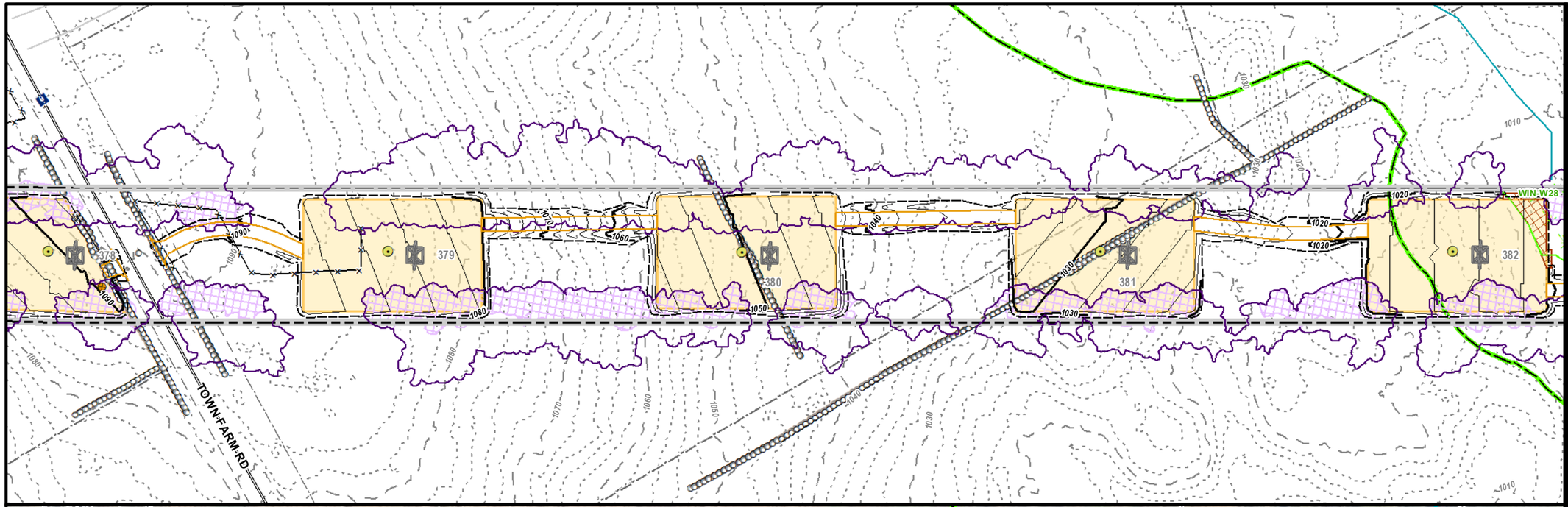
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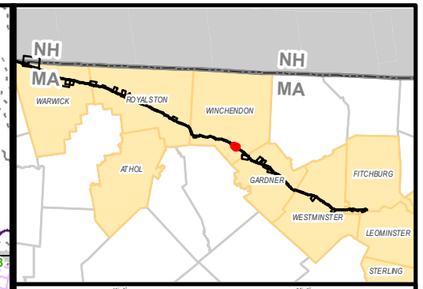
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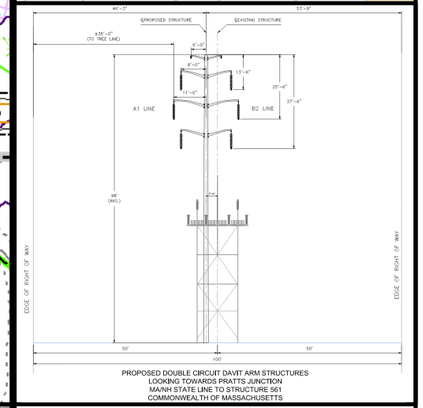
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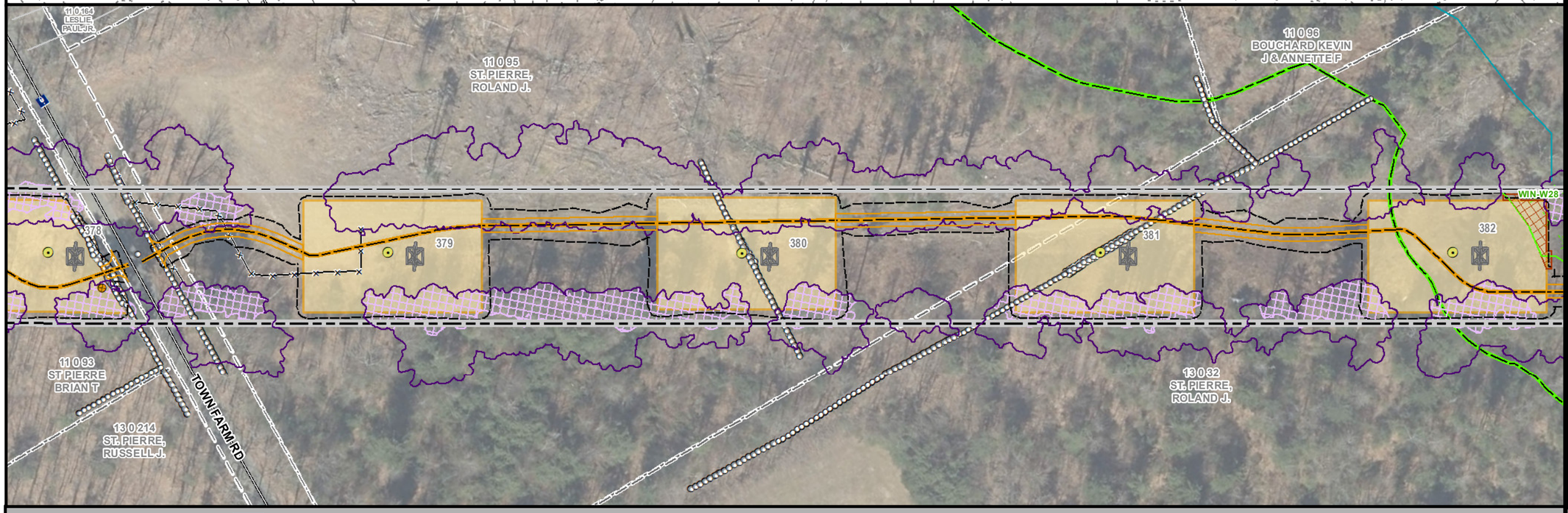
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WINCHENDON, MA
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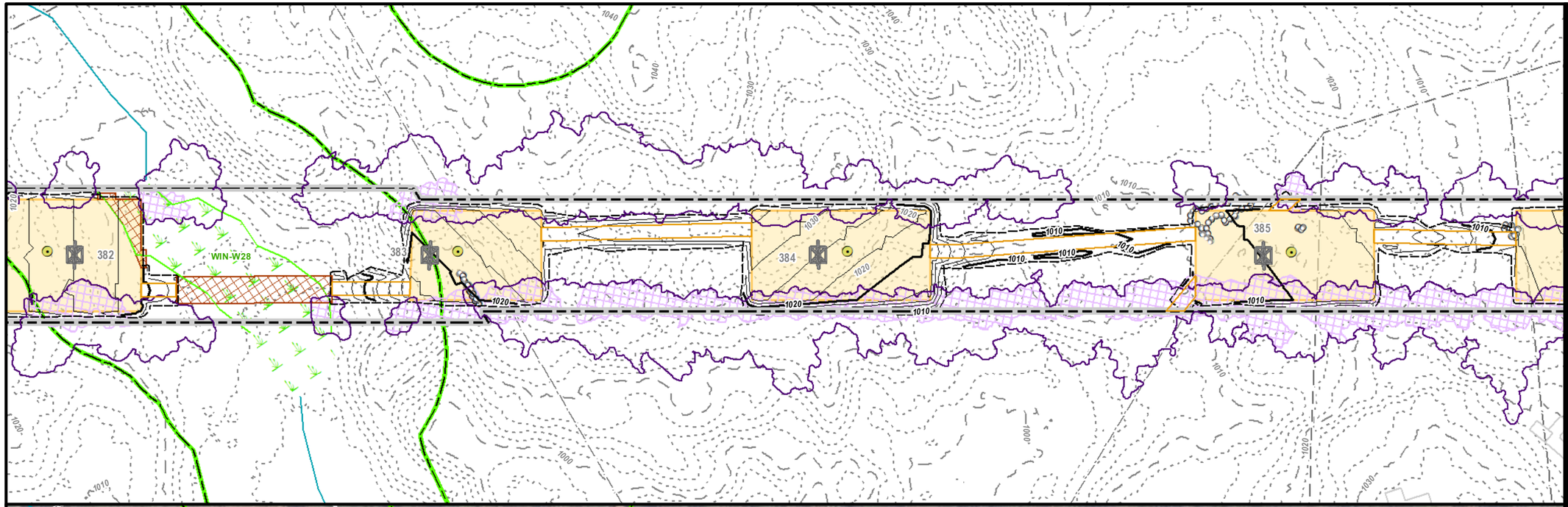
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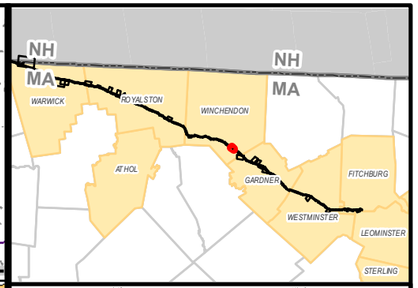
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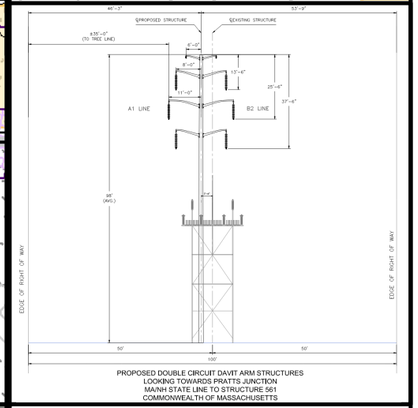
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BSC GROUP
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WORCESTER, MA 01608

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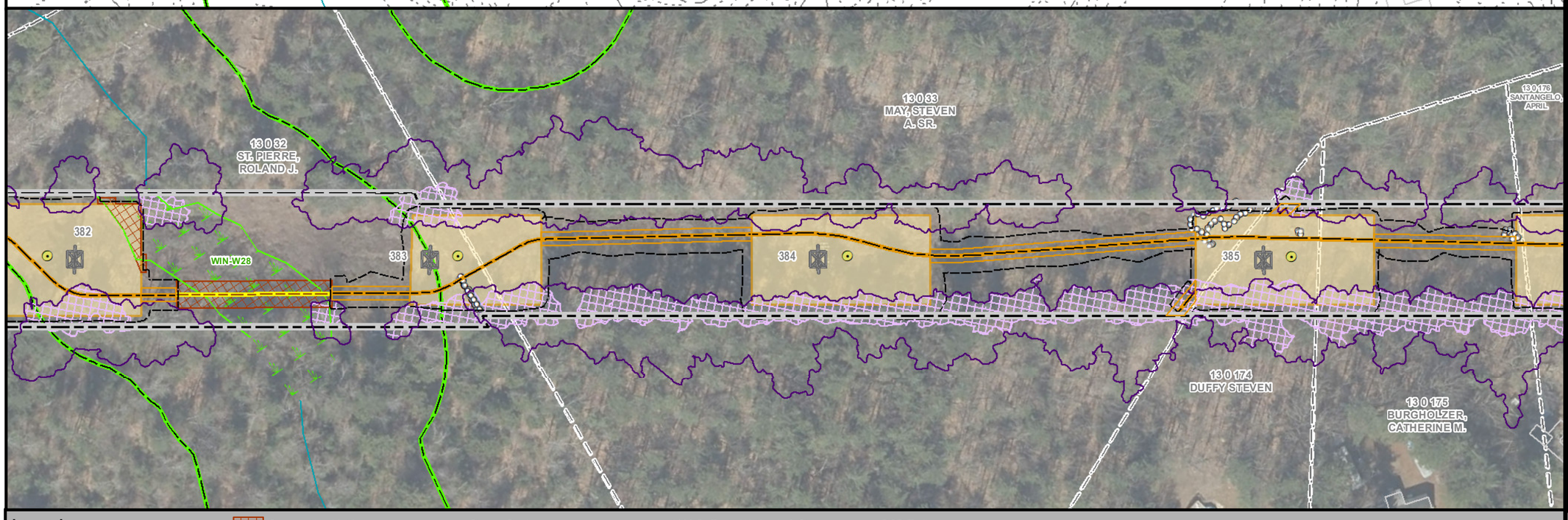
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 85 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
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- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
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- Wetland Edge
- Wetland Area*
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Article 97 Lands

- DCR-State Parks & Recreation
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- Land Trust
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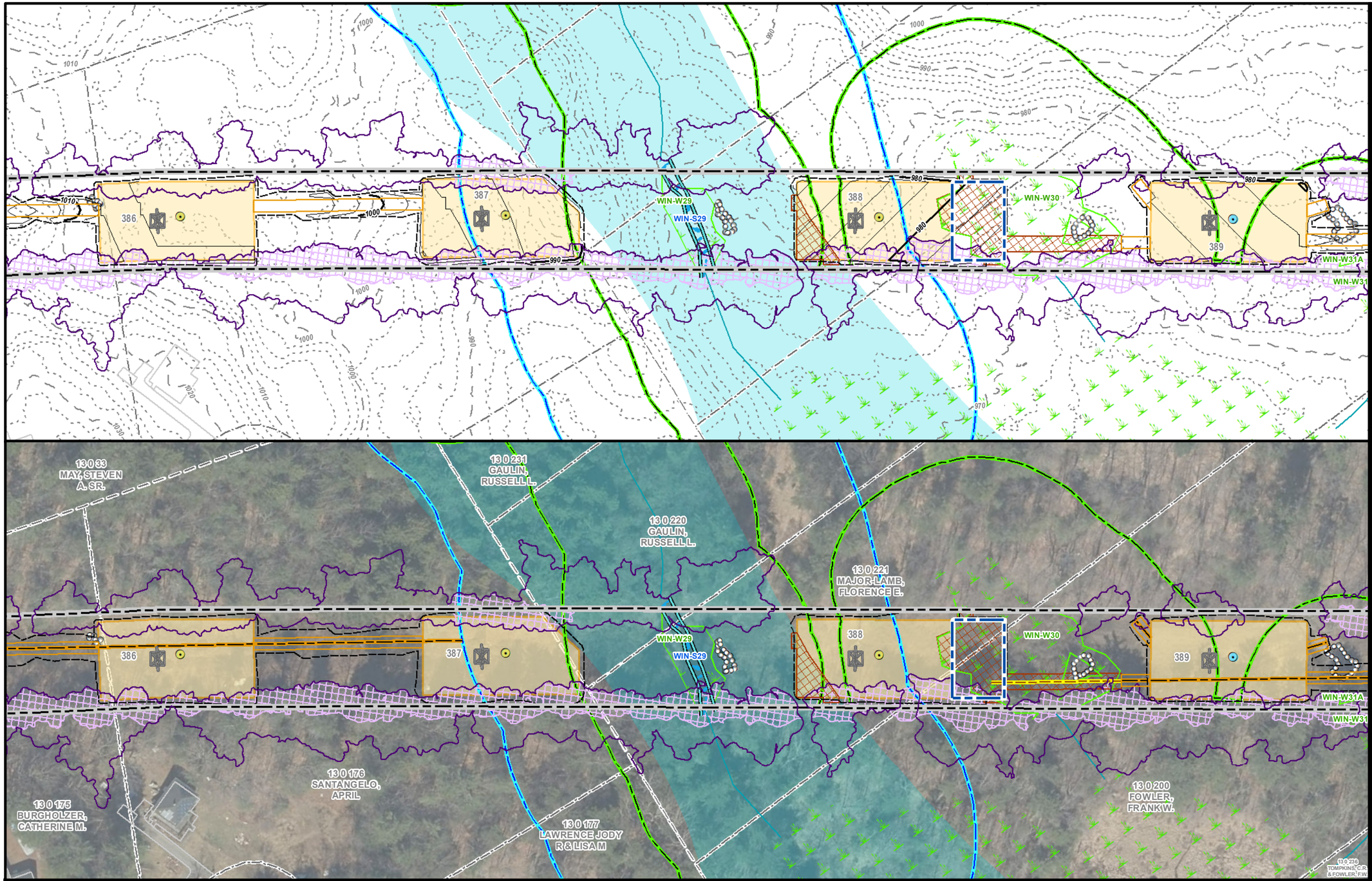
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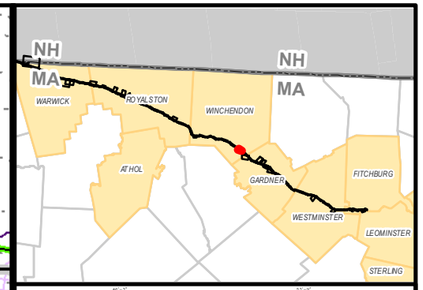
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170 DATA DRIVE
WALTHAM, MA 02451

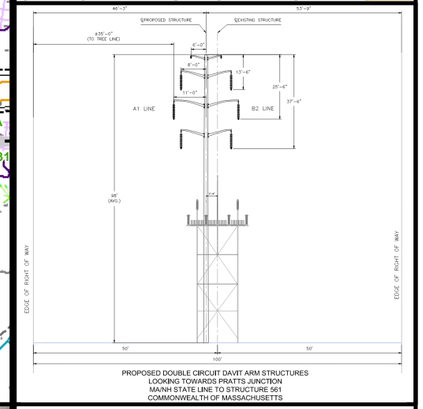
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

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ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
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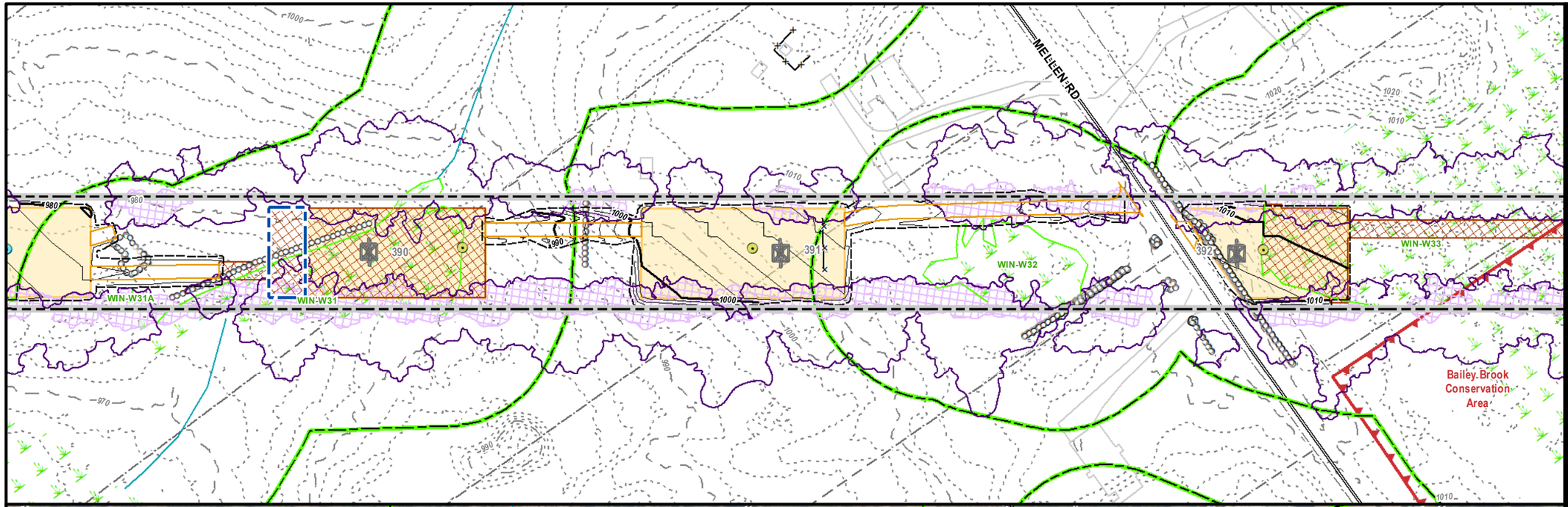
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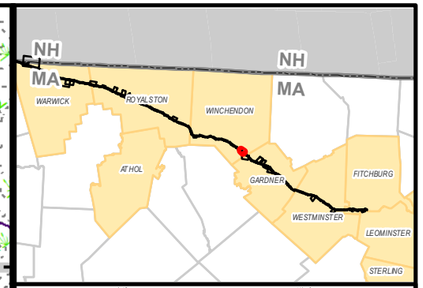
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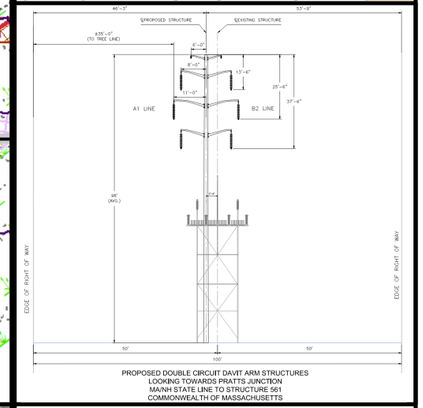
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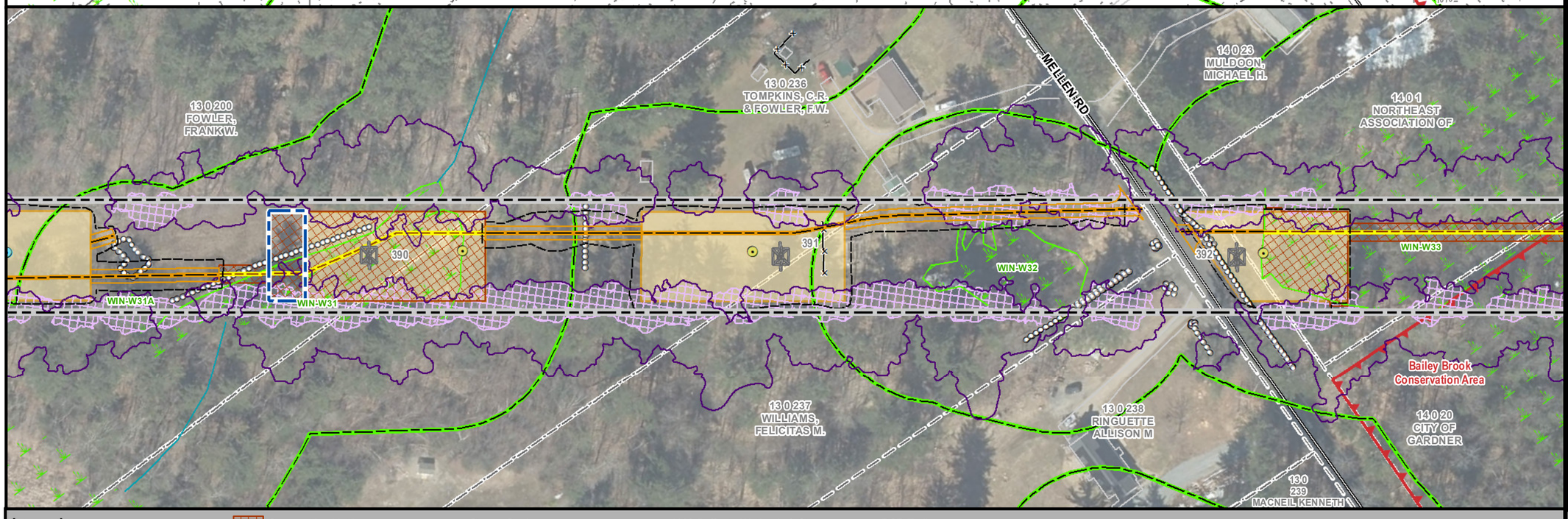
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 87 OF 137

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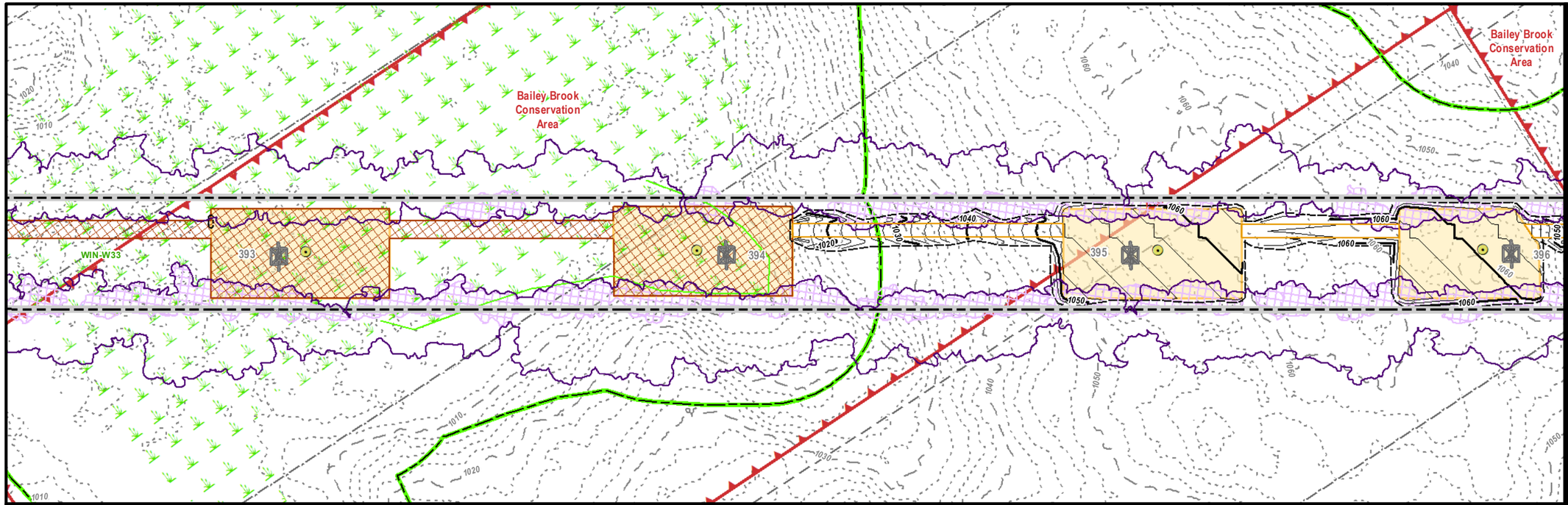
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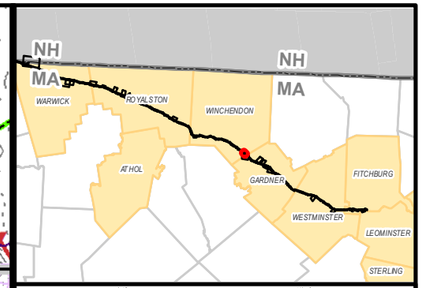
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WALTHAM, MA 02451

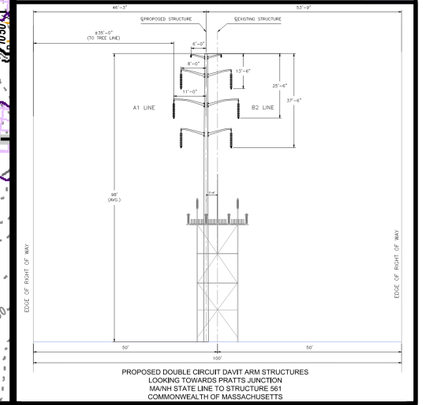
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BSC GROUP
1 MERCANTILE STREET SUITE 601
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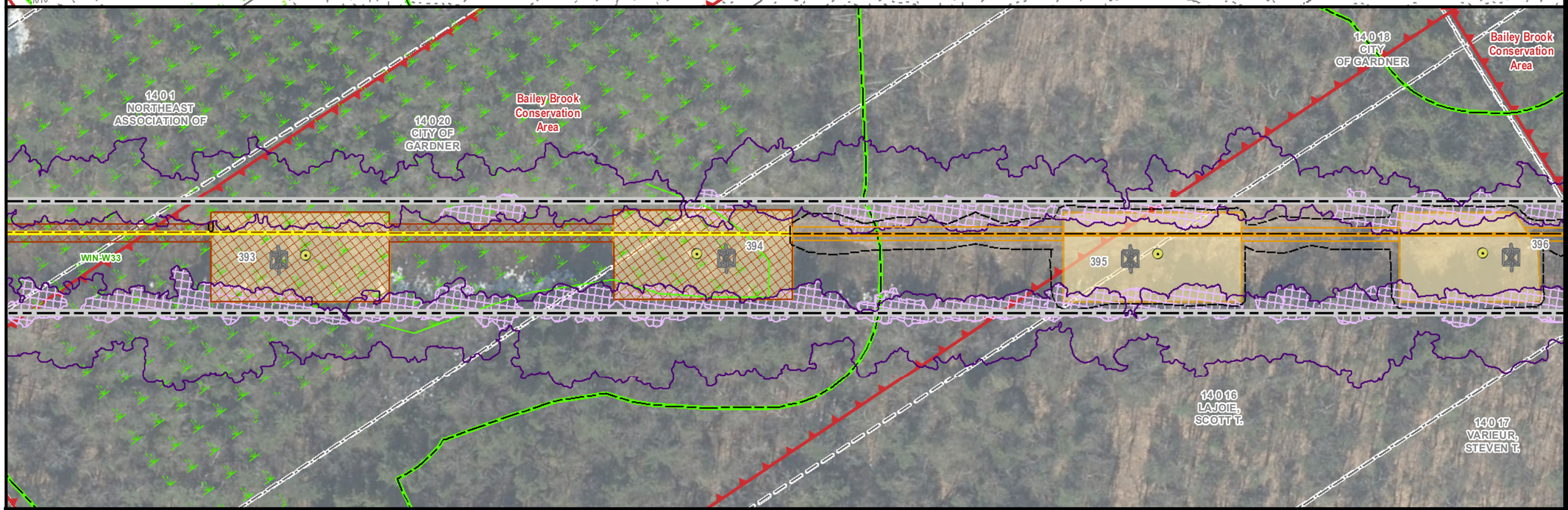
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON, MA
PAGE 88 OF 137

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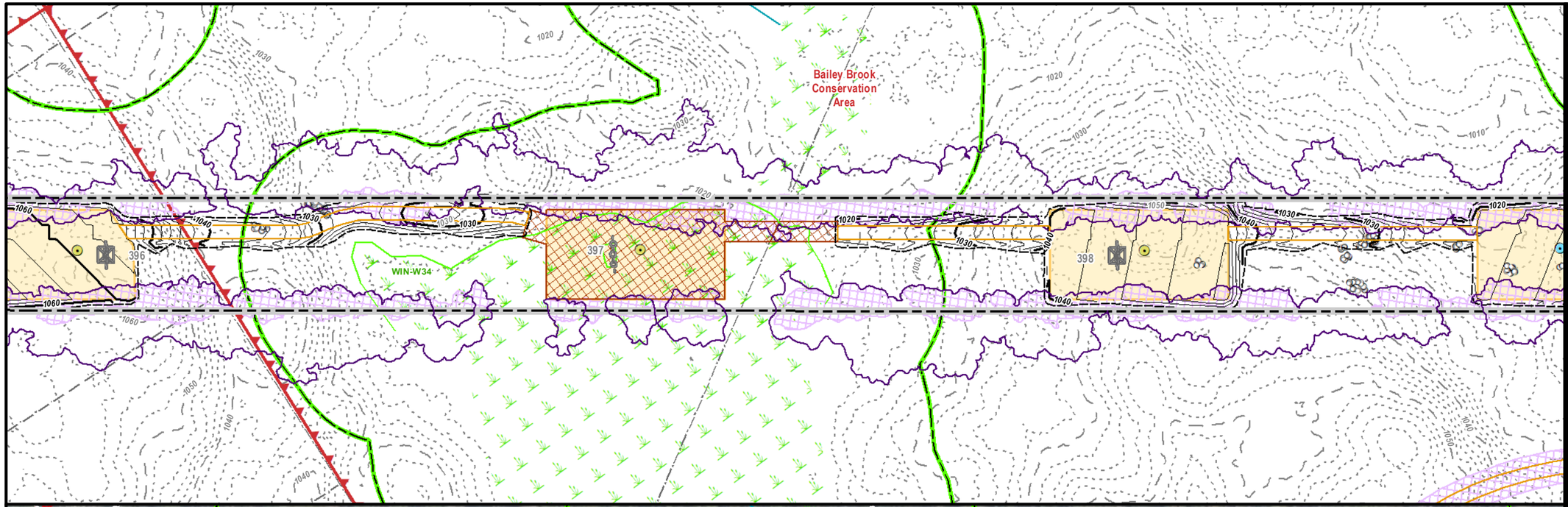
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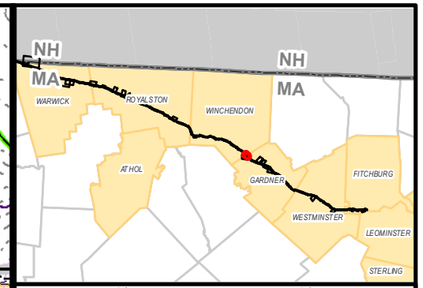
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170 DATA DRIVE
WALTHAM, MA 02451

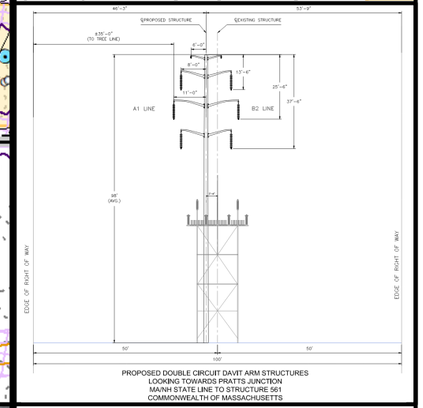
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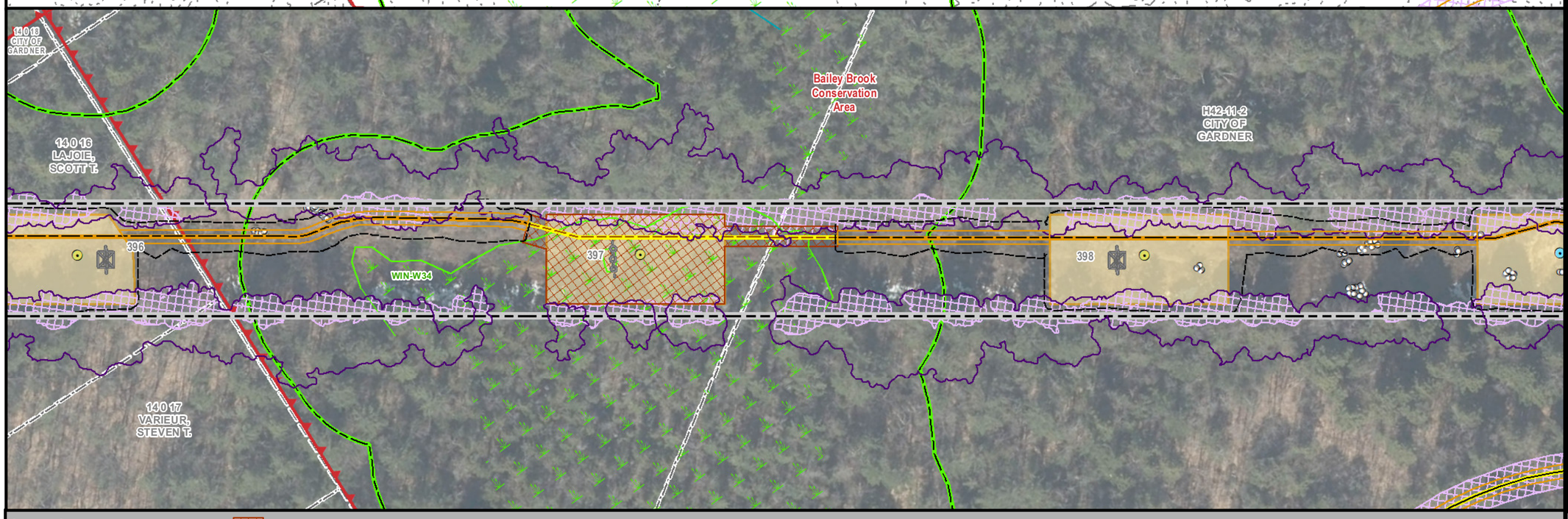
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MEPA General Purpose Plans

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WINCHENDON & GARDNER, MA
PAGE 89 OF 137

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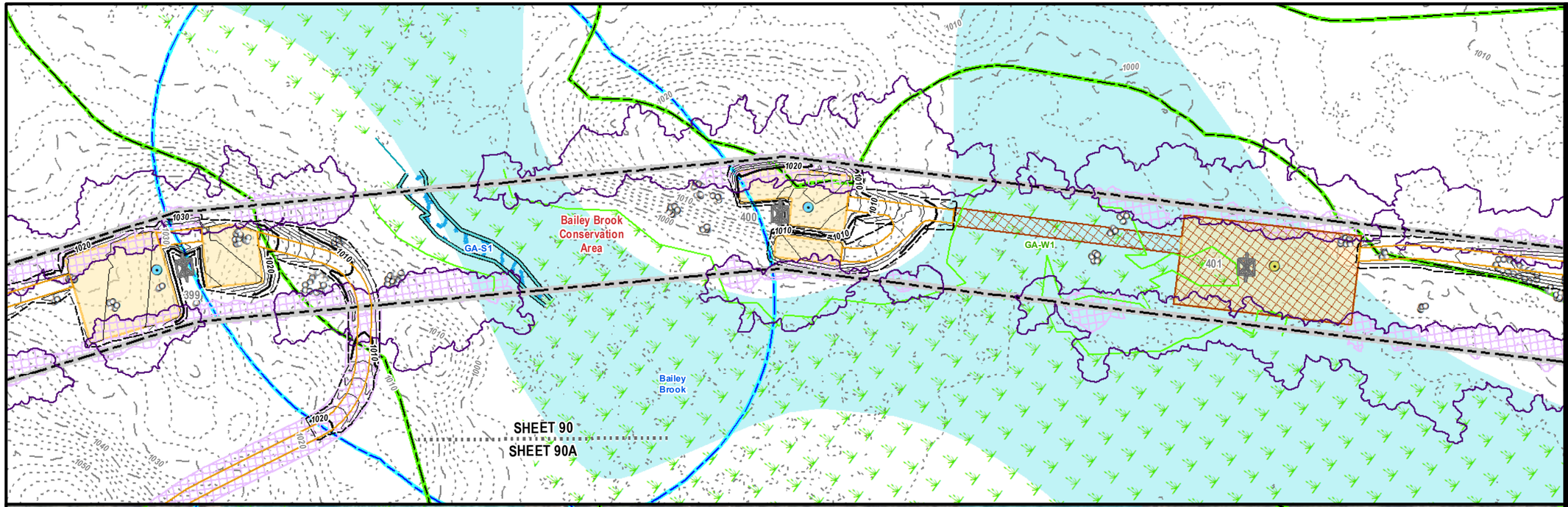
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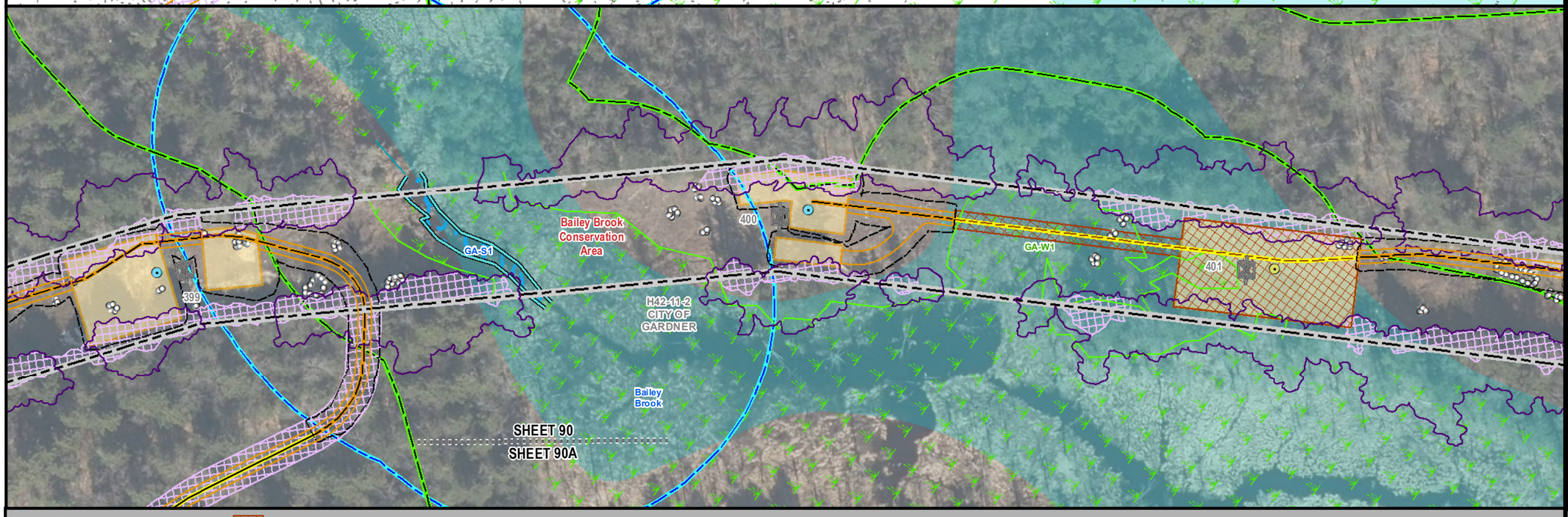
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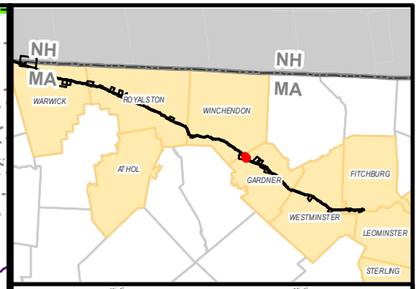
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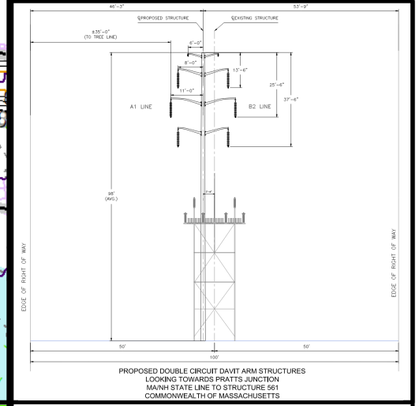
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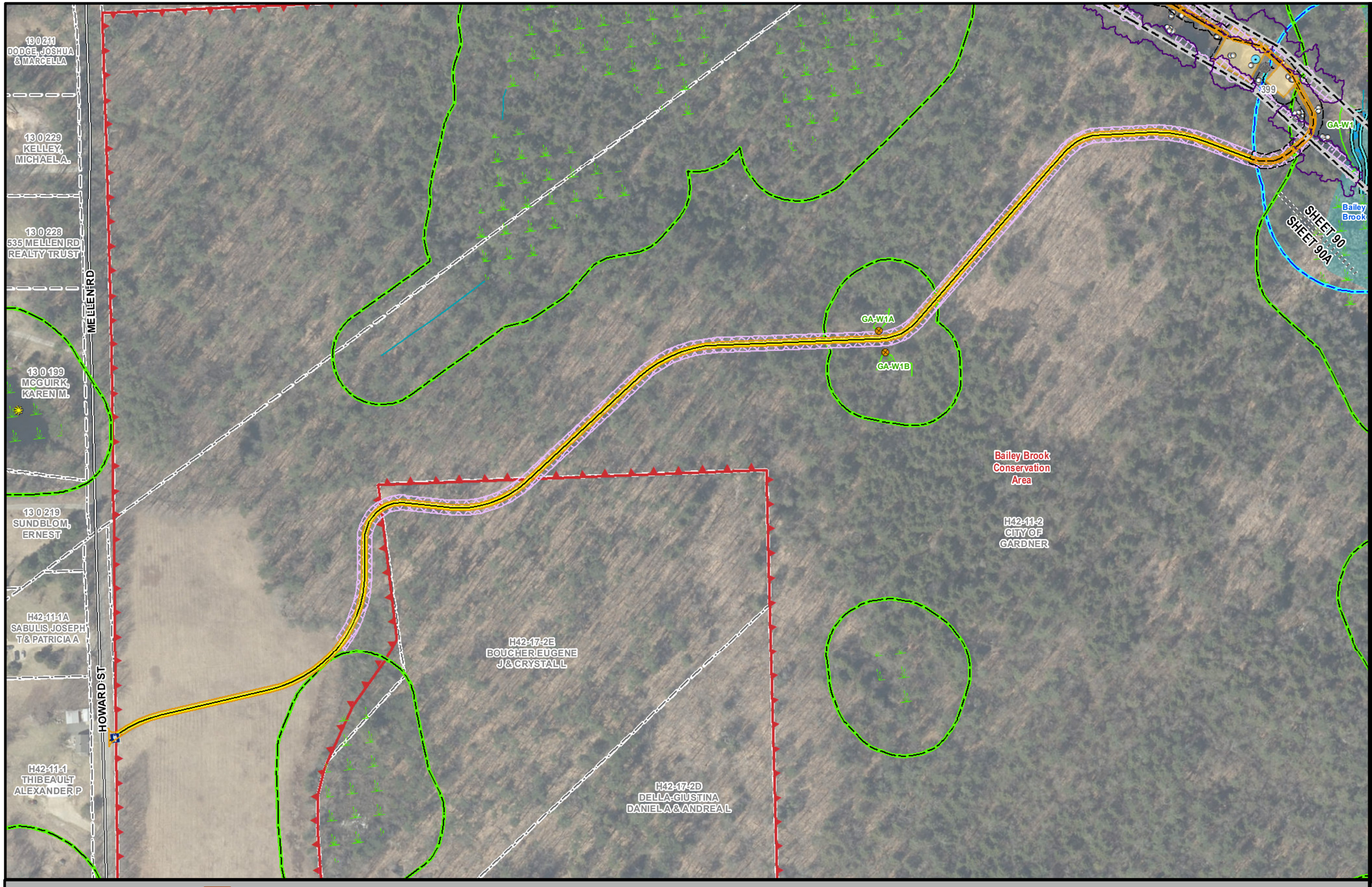
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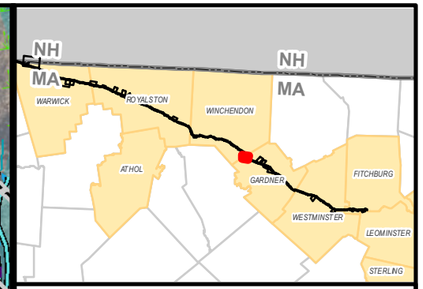
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nationalgrid
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WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WINCHENDON & GARDNER, MA
PAGE 90A OF 137

1 inch = 200 feet
0 100 200
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
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- Work Envelope**
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Article 97 Lands

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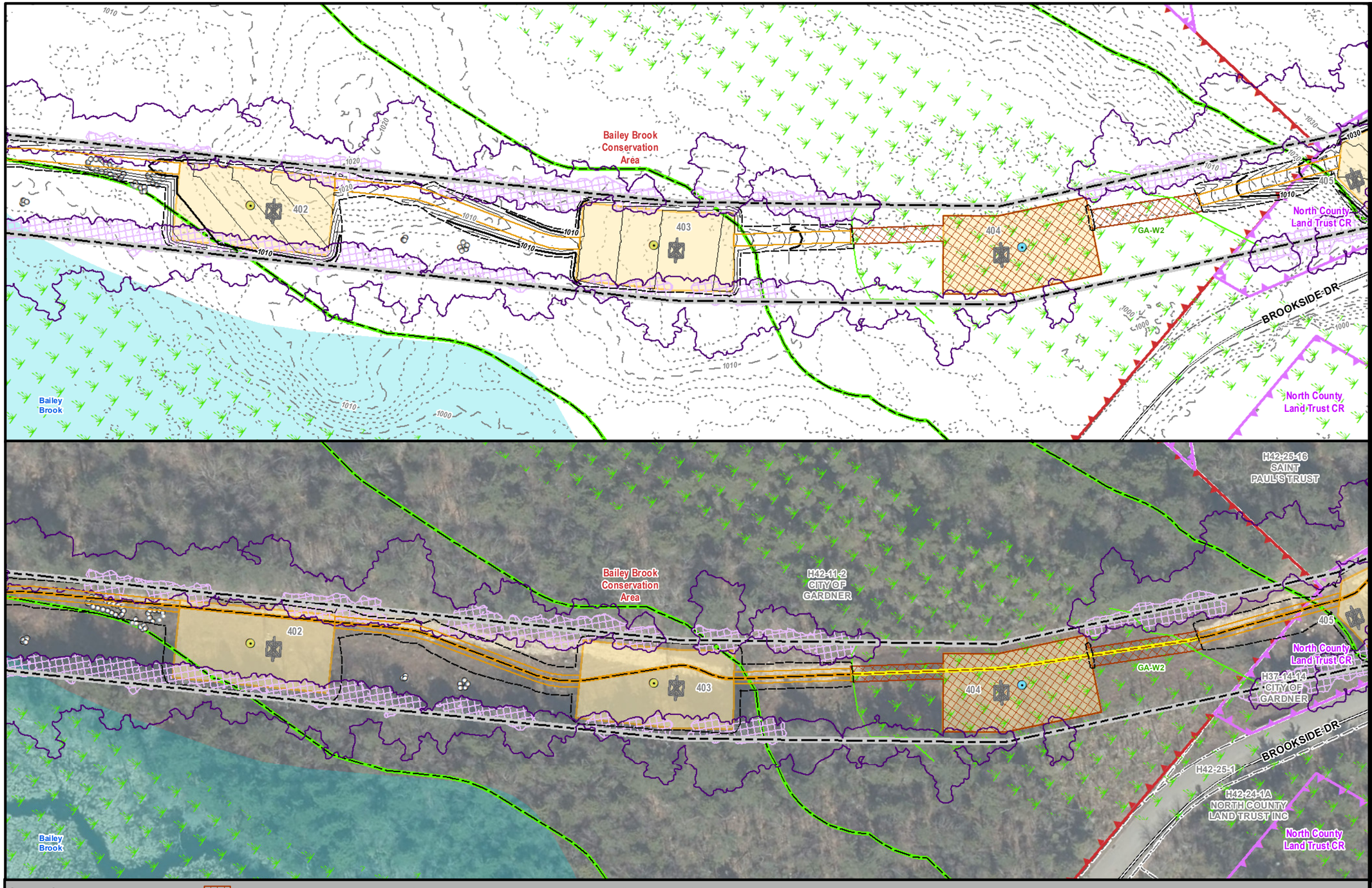
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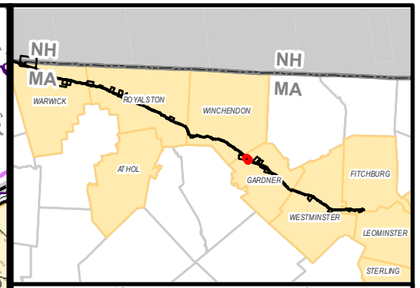
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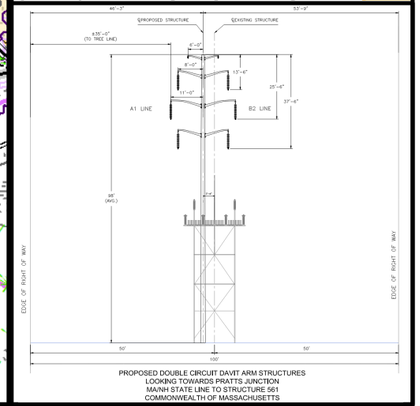
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 91 OF 137

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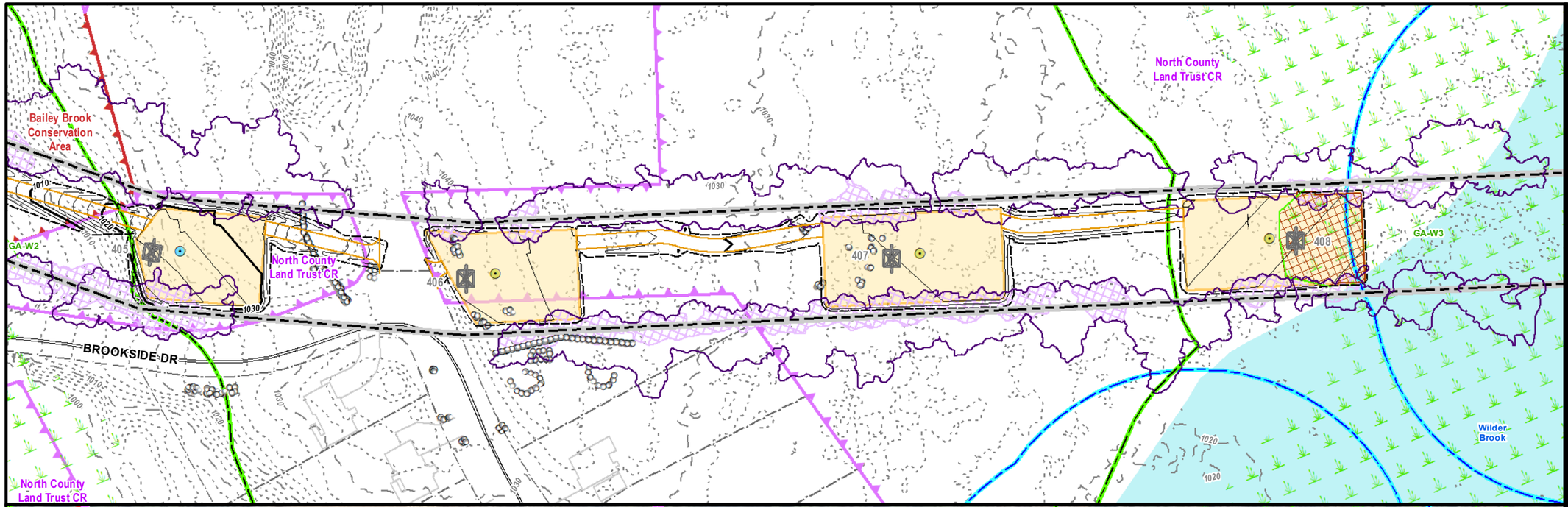
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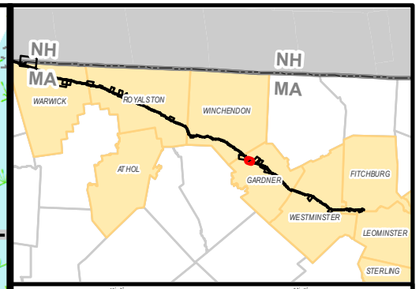
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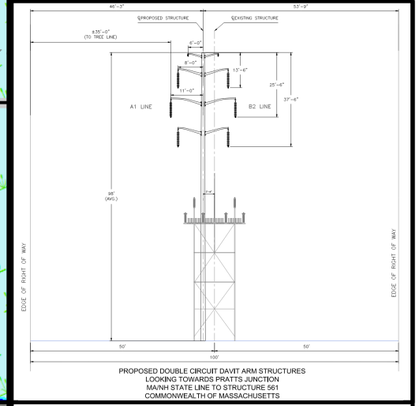
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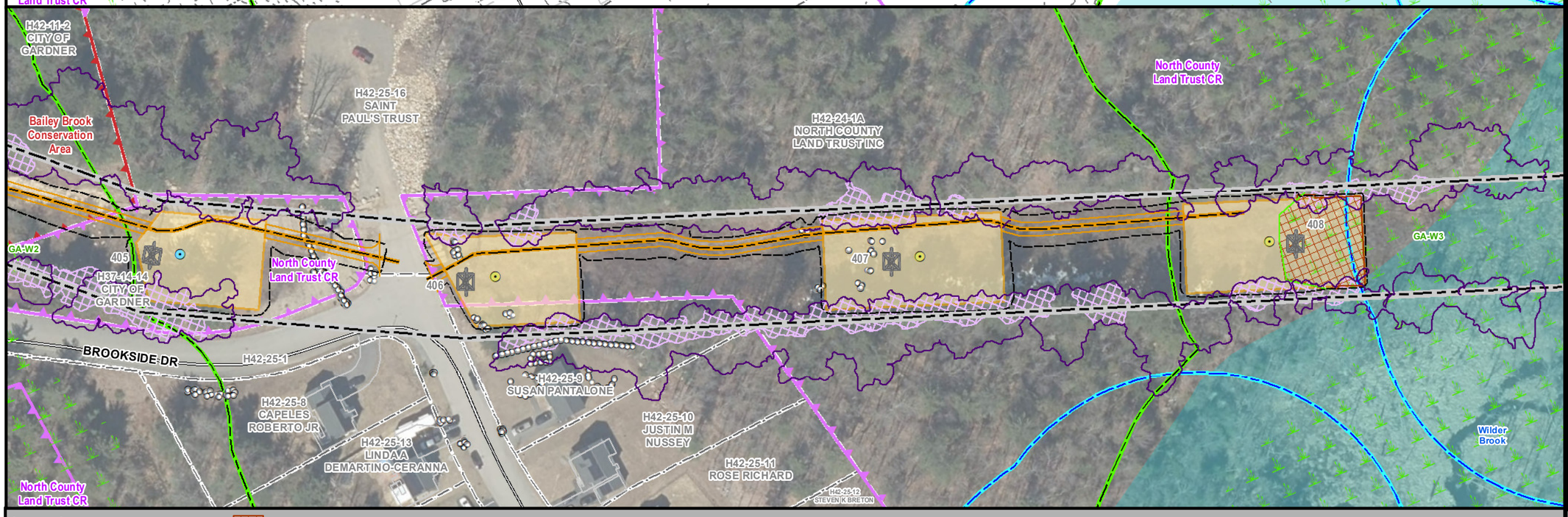
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 92 OF 137

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0 50 100
Feet

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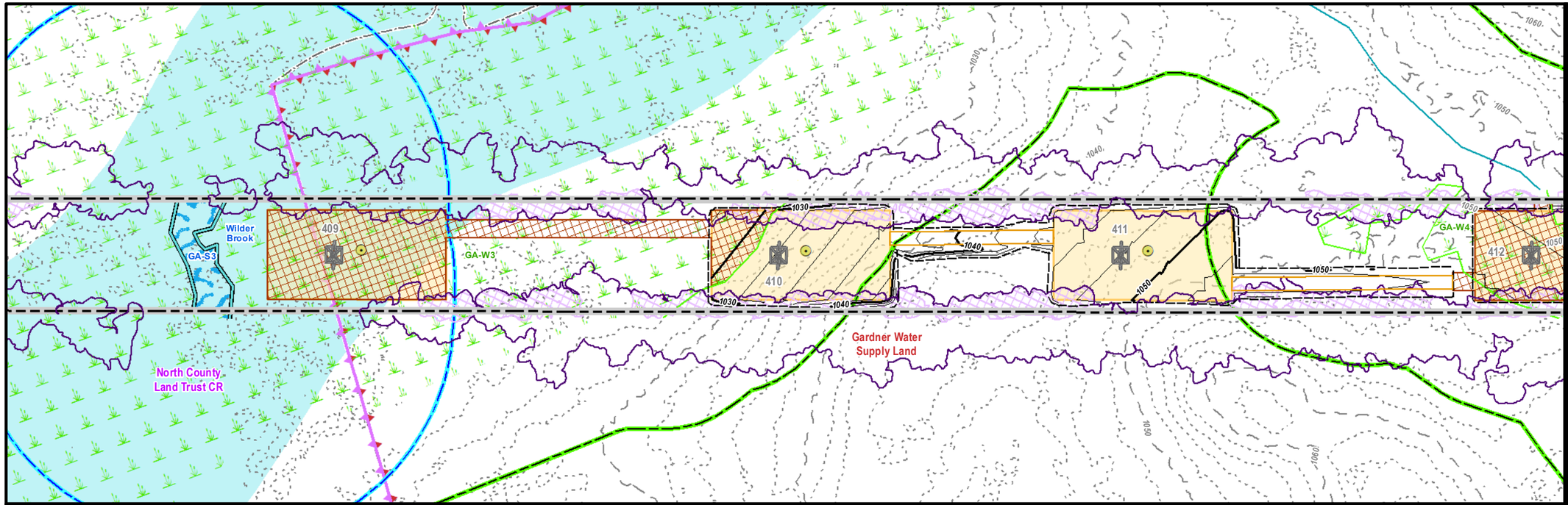
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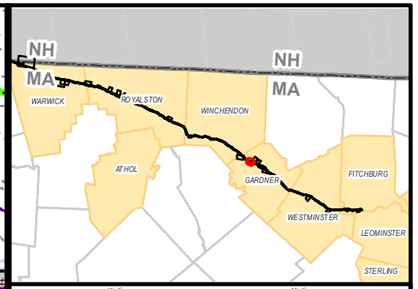
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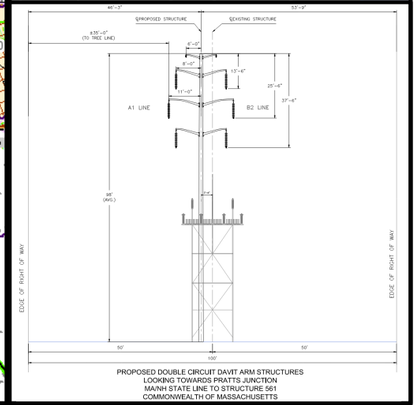
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 93 OF 137

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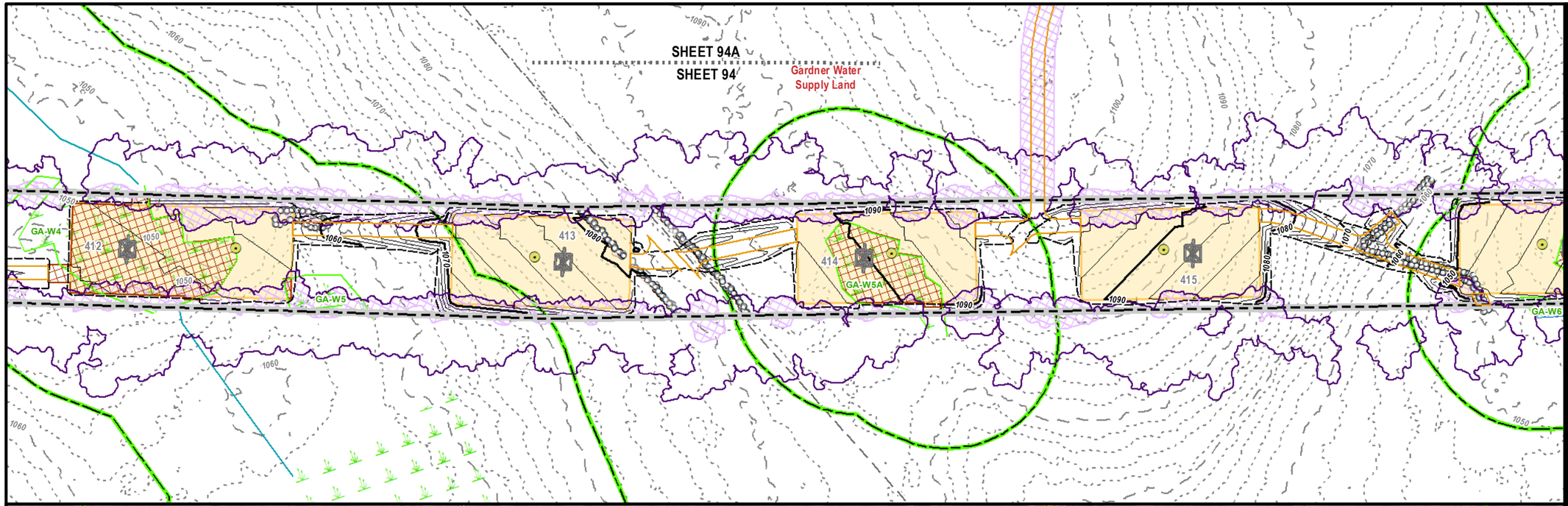
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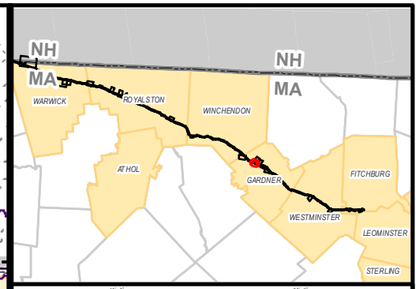
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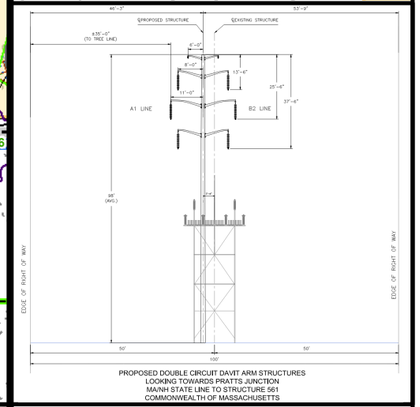
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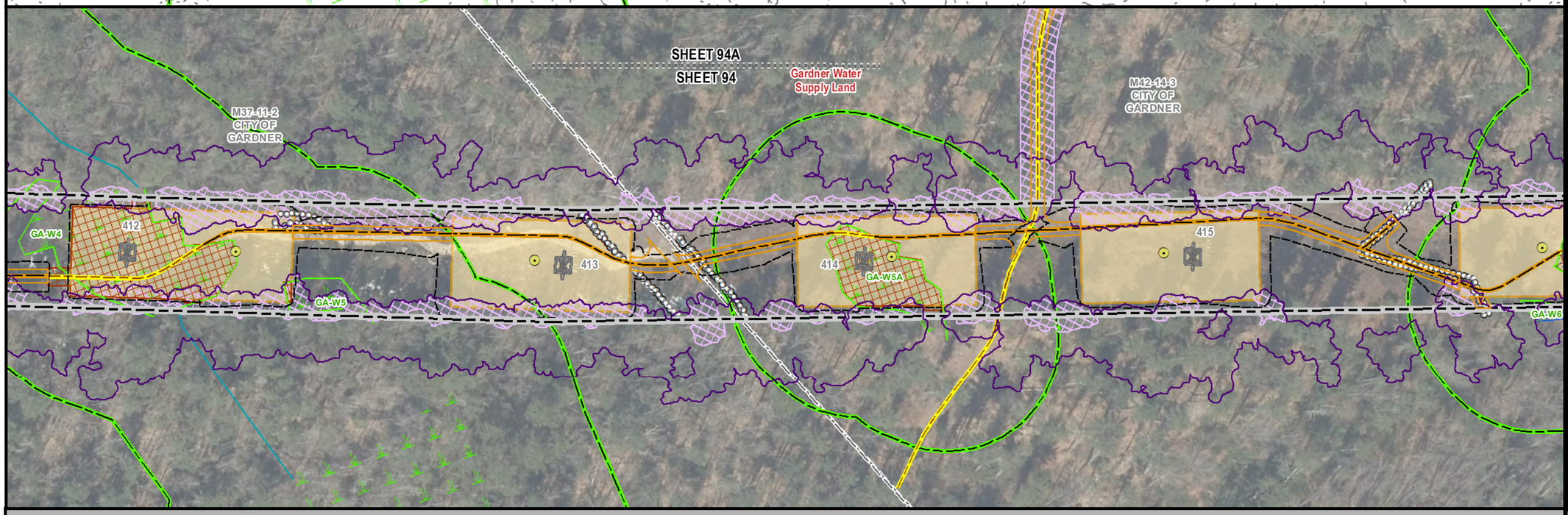
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MEPA General Purpose Plans

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GARDNER, MA
PAGE 94 OF 137

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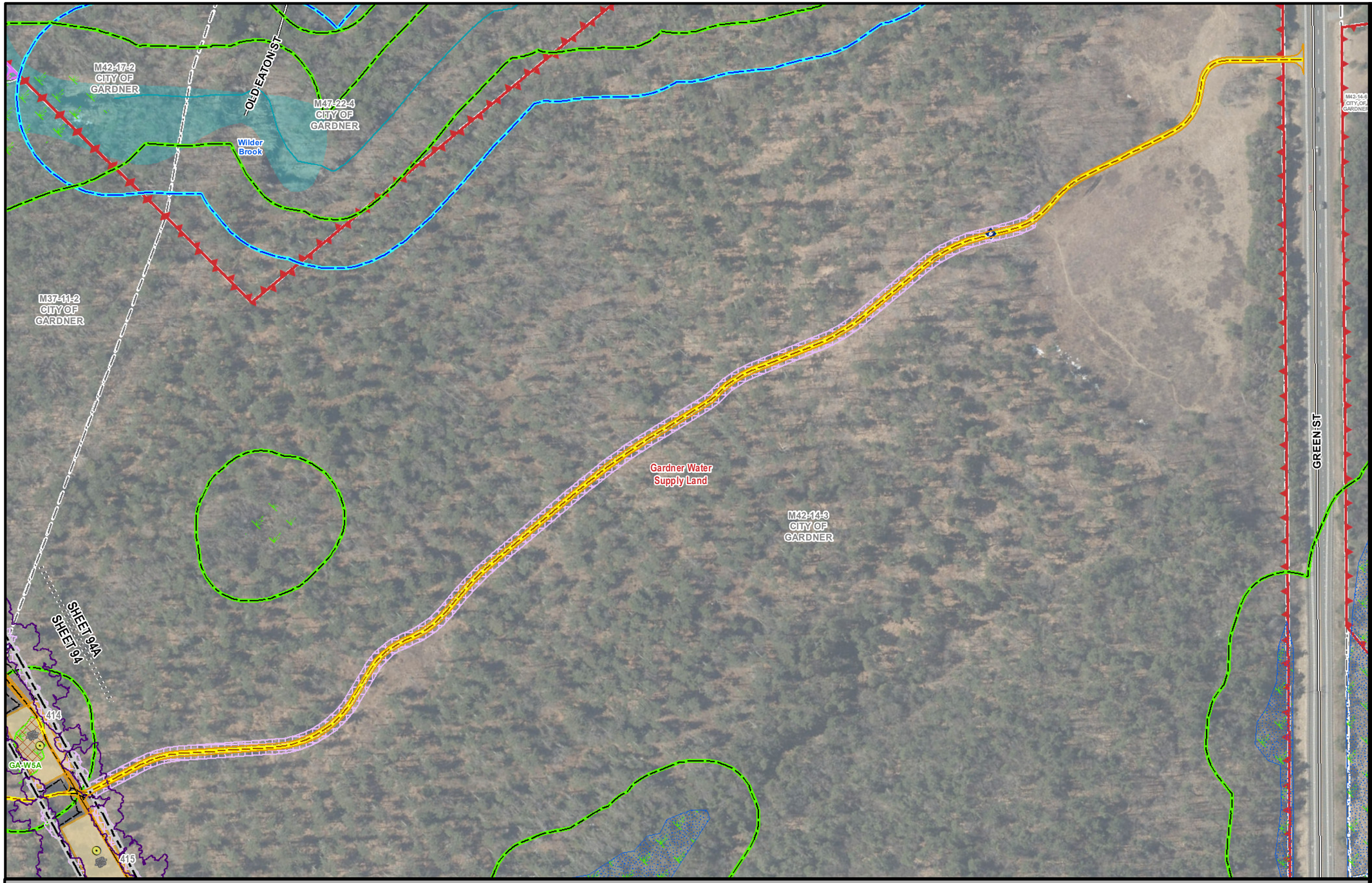
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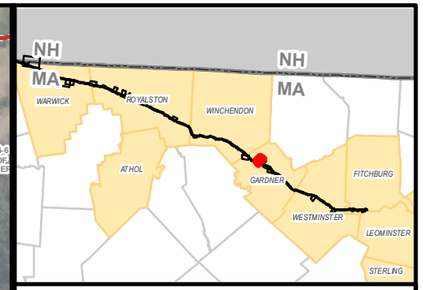
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GARDNER, MA
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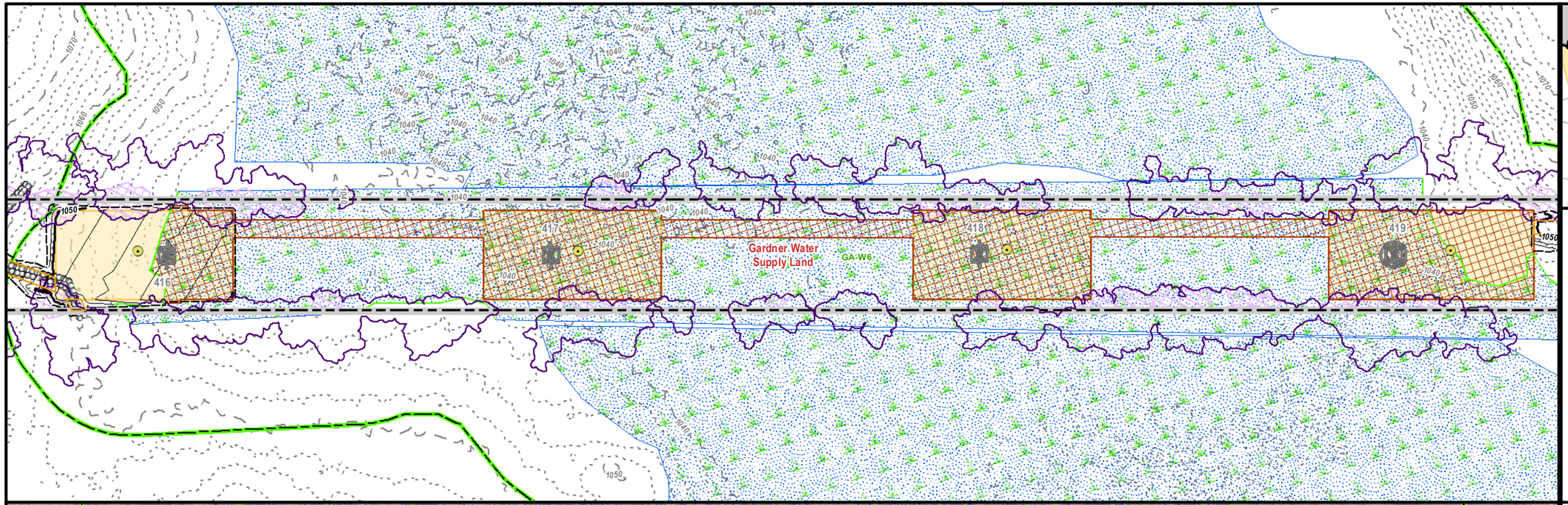
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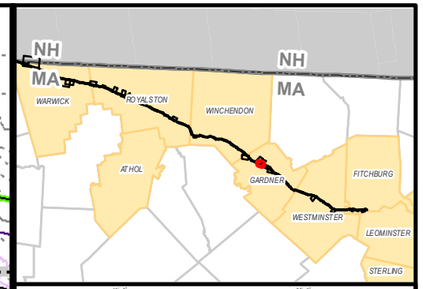
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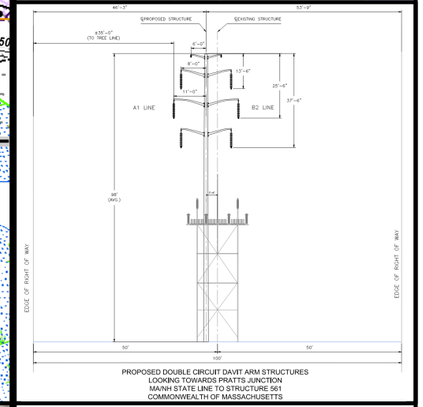
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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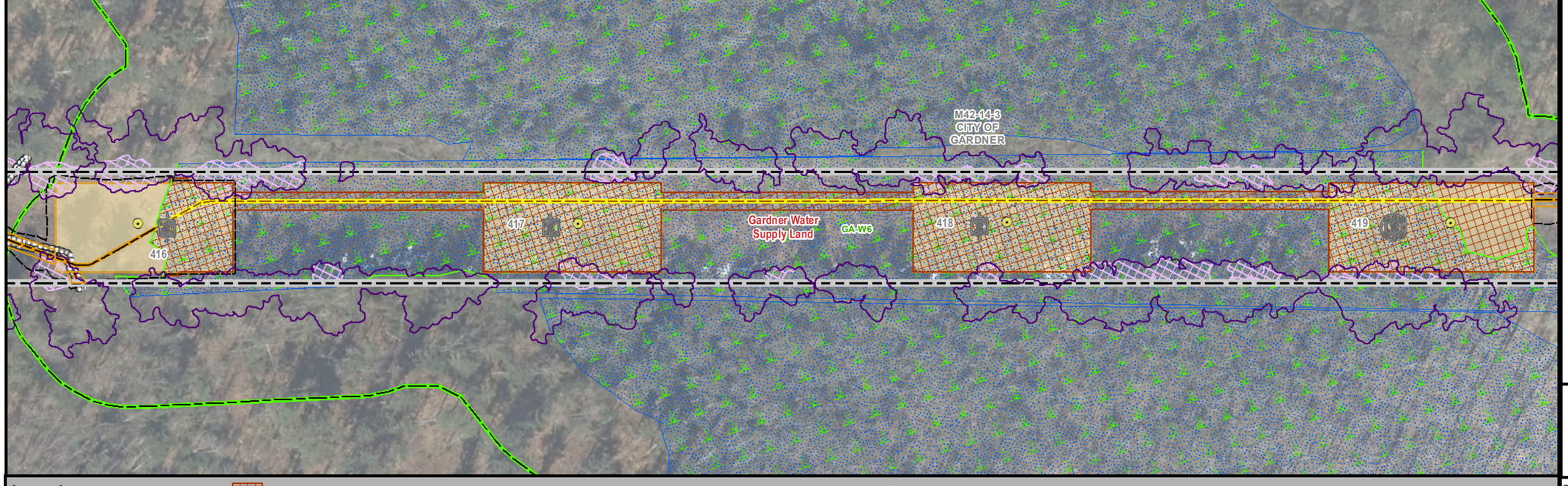
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 95 OF 137

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Feet

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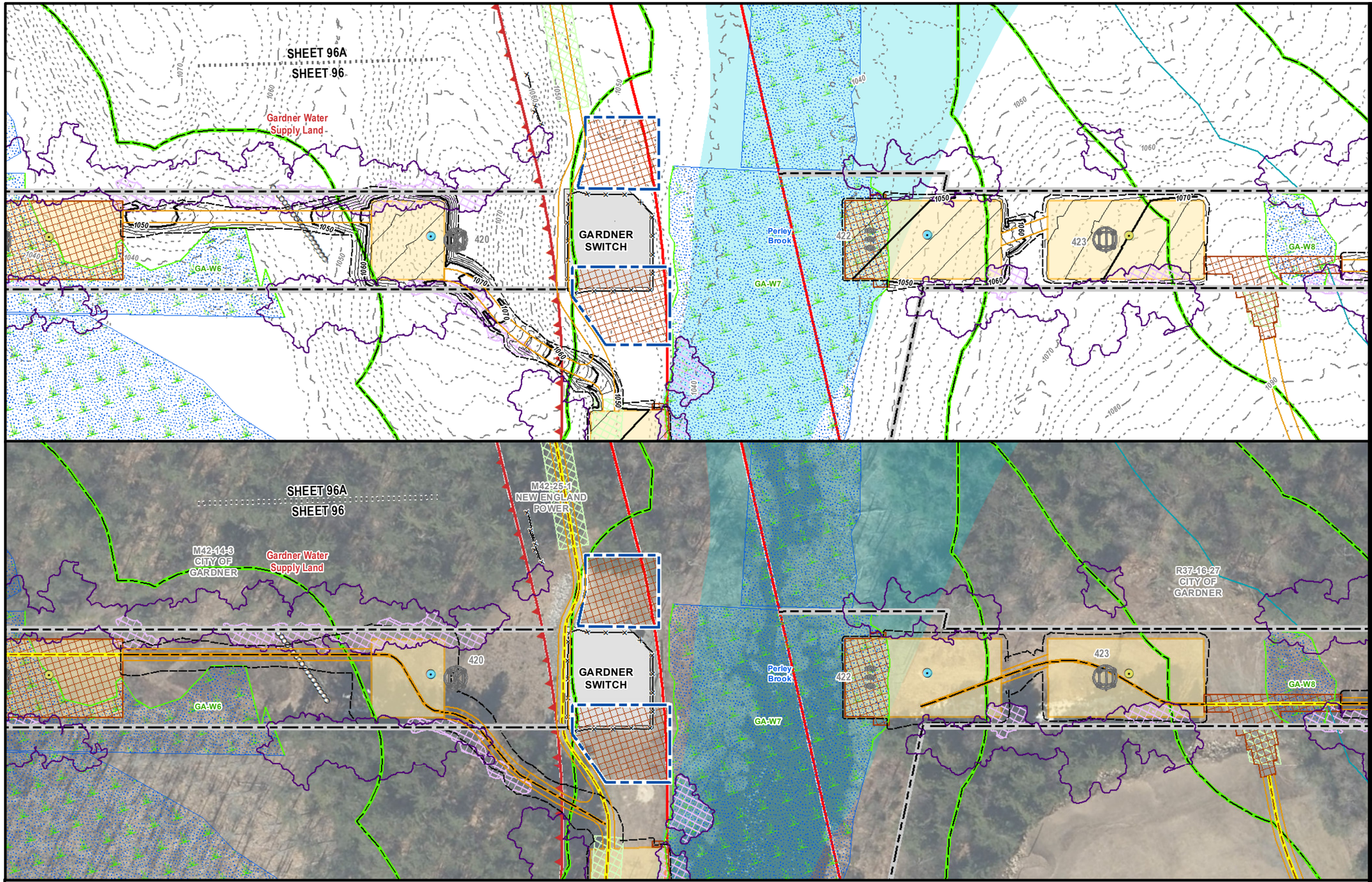
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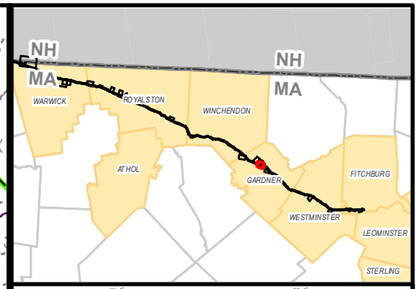
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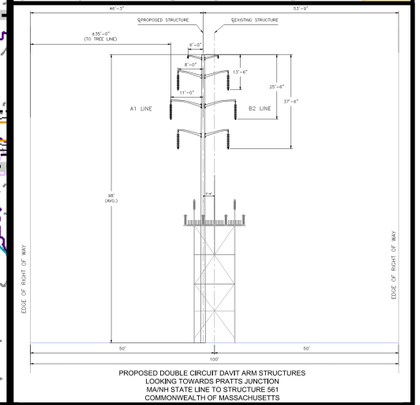
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GARDNER, MA
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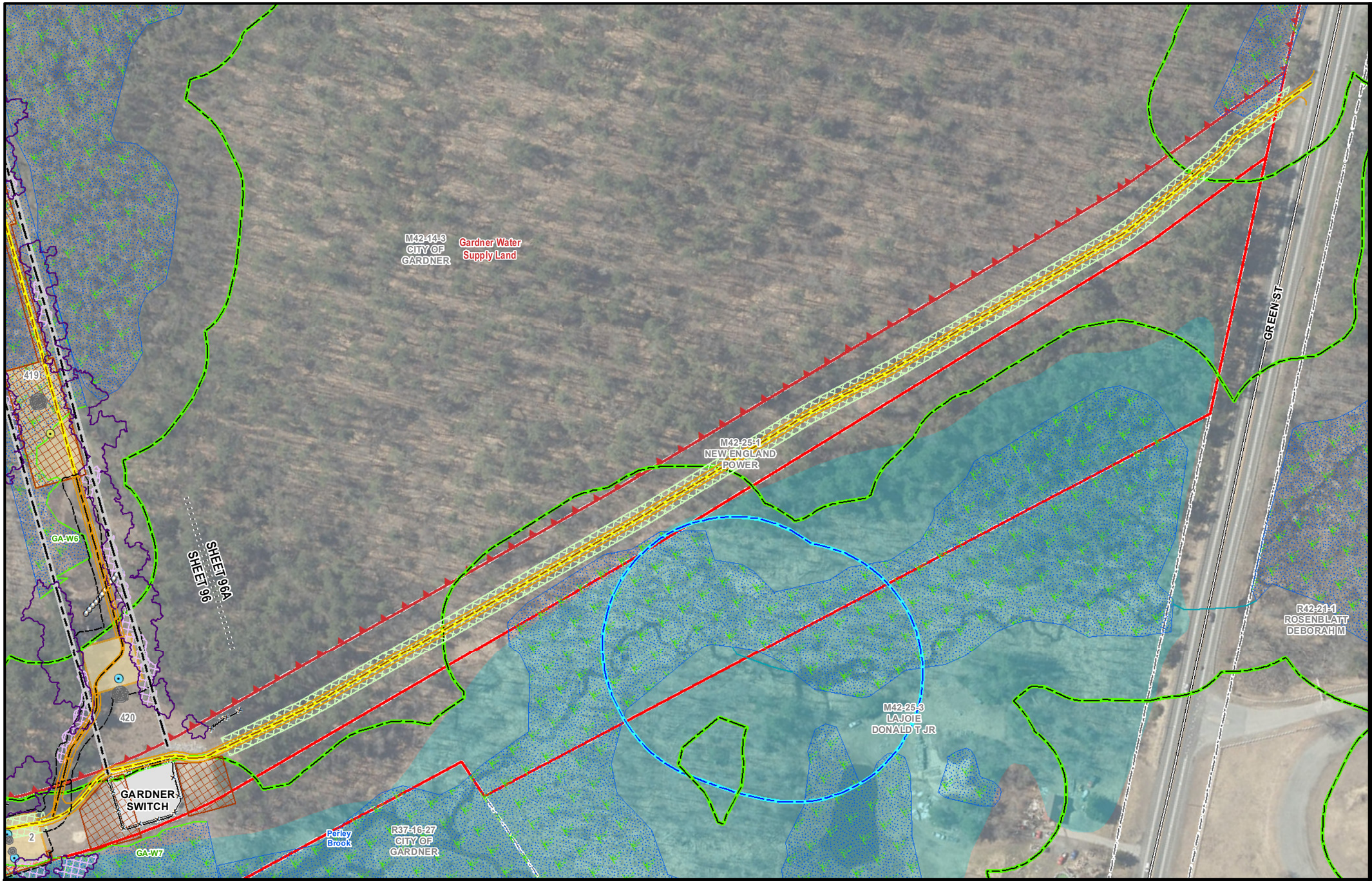
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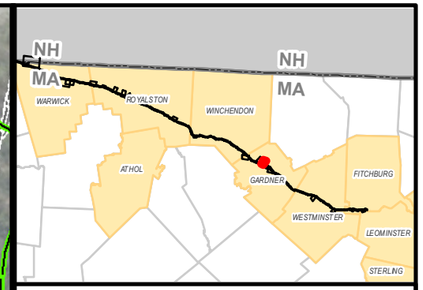
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MEPA General Purpose Plans

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GARDNER, MA
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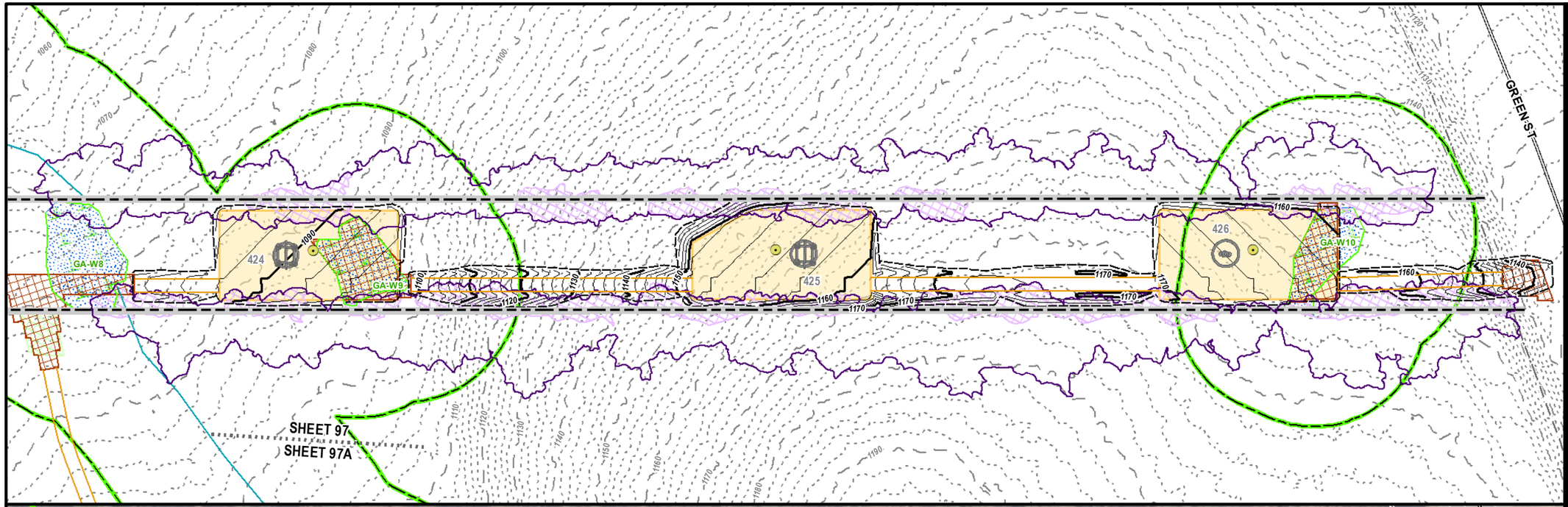
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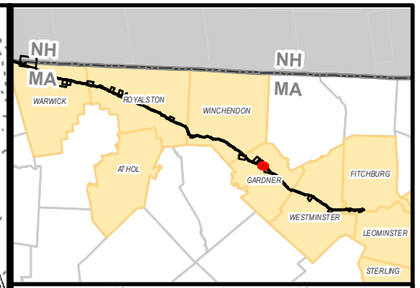
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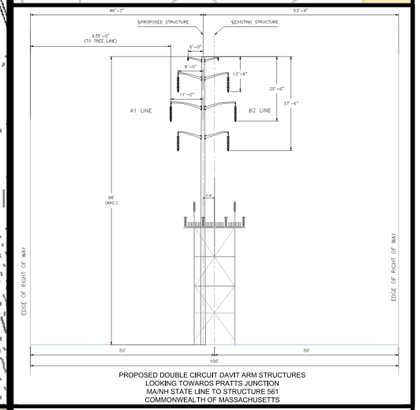
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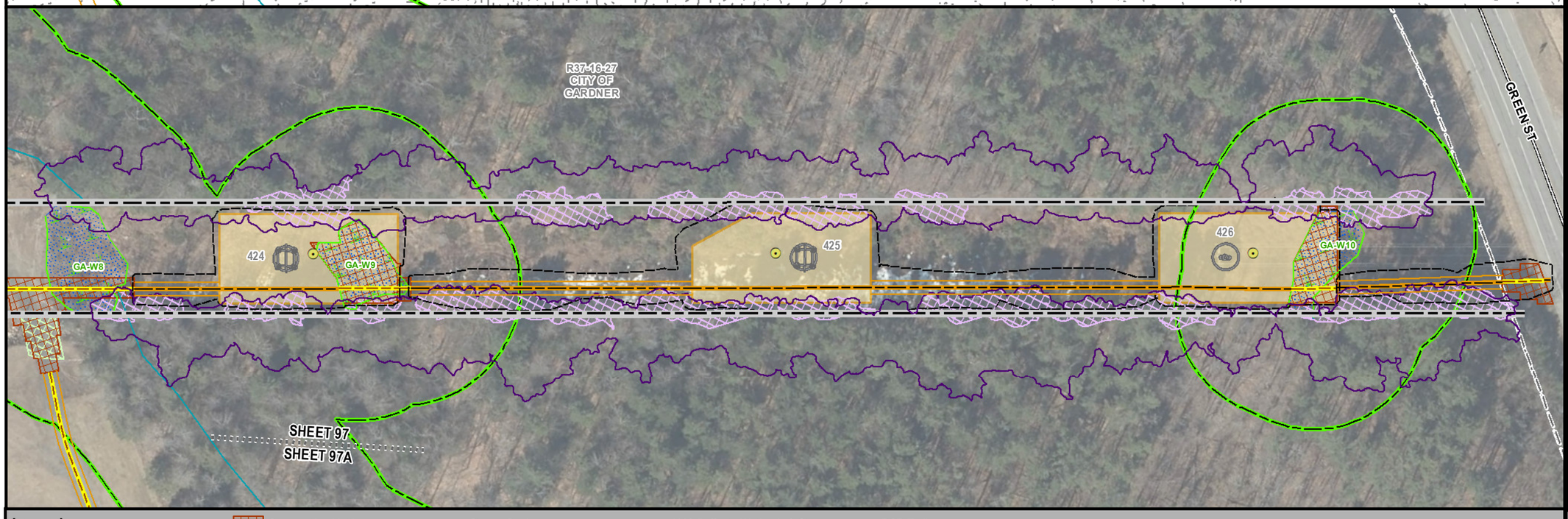
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MA/NH STATE LINE TO STRUCTURE 561
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 97 OF 137

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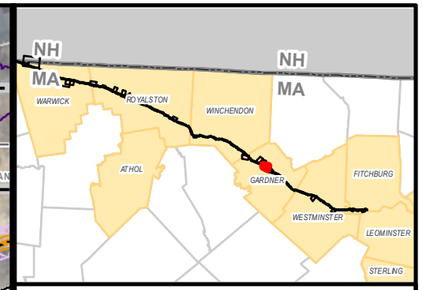
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MEPA General Purpose Plans

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GARDNER, MA
PAGE 97A OF 137

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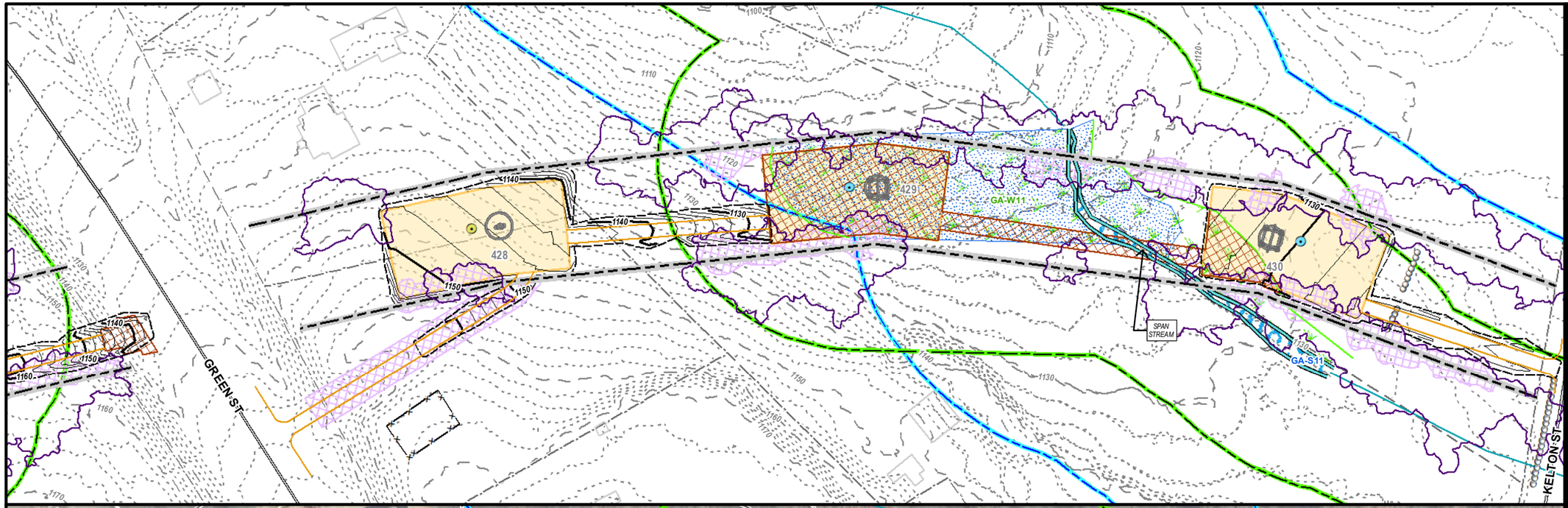
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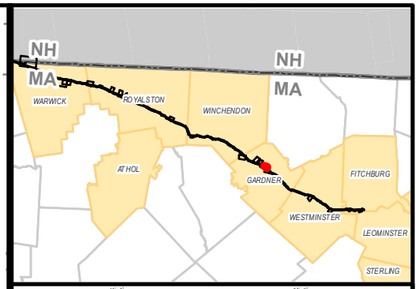
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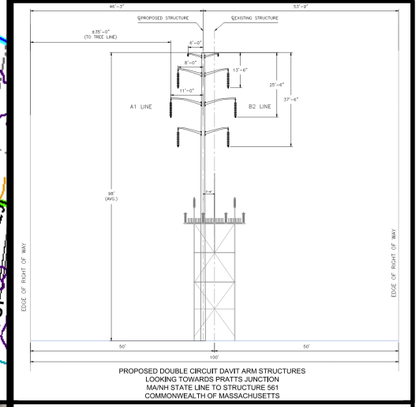
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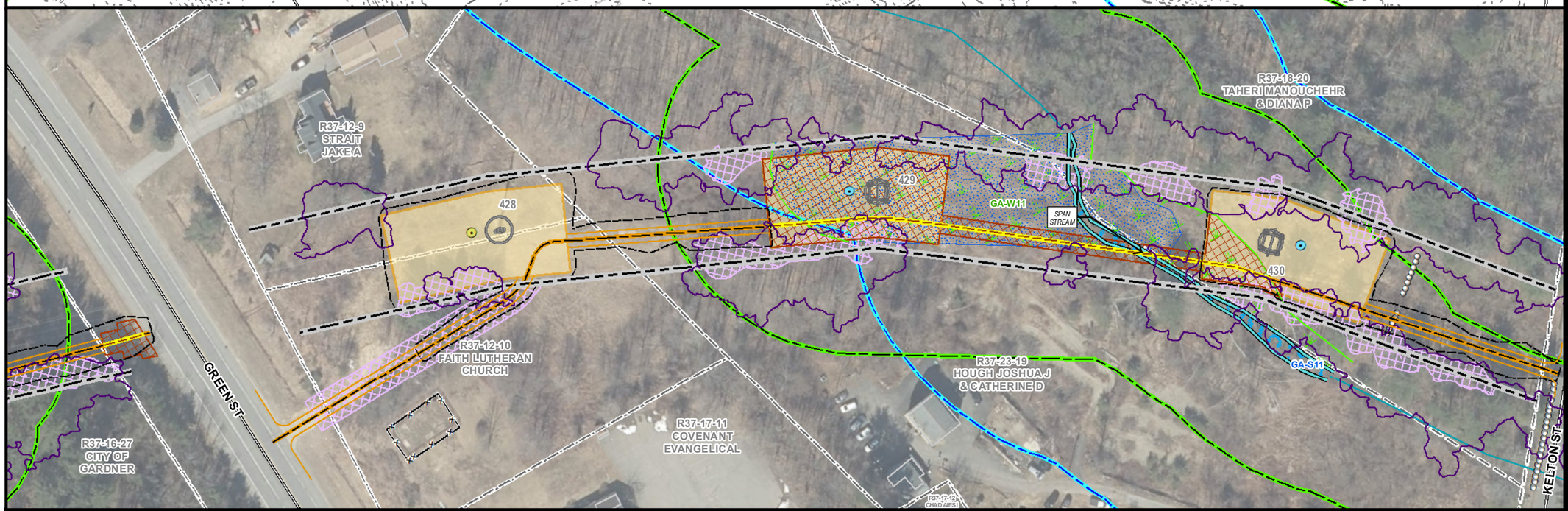
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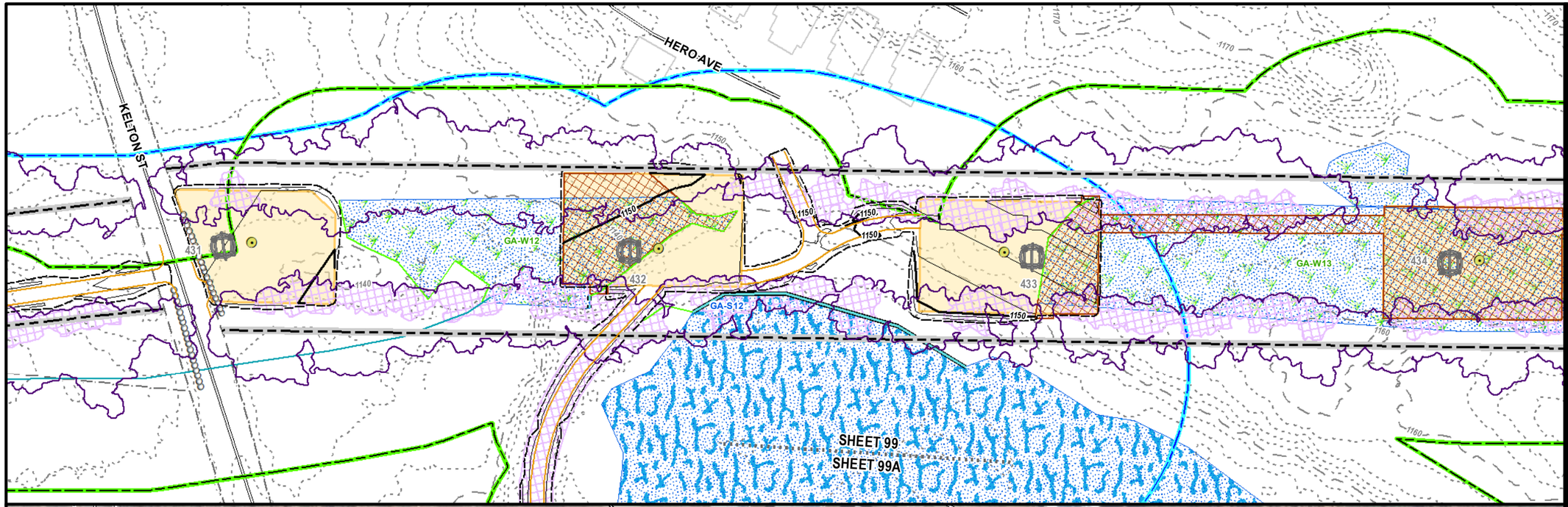
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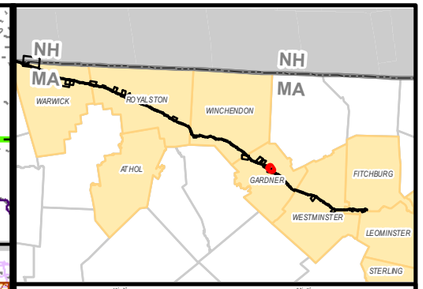
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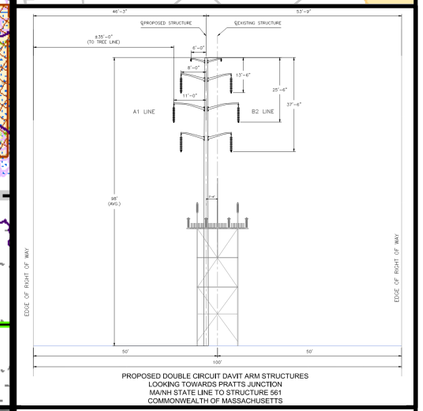
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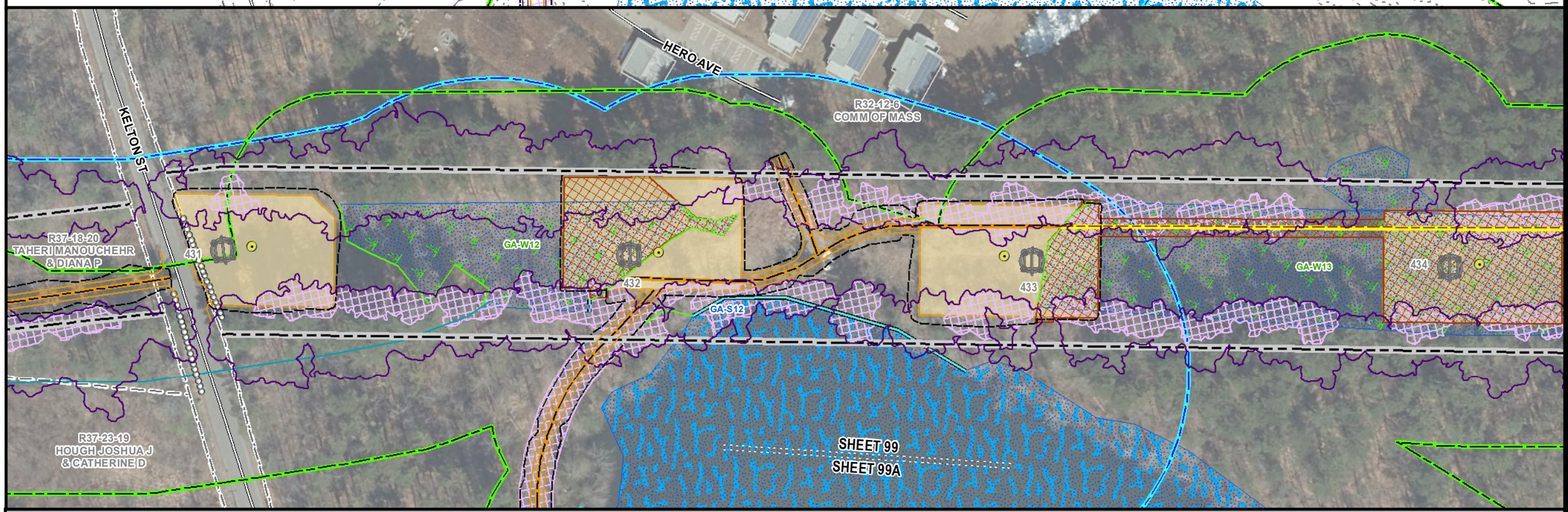
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 99 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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- Edge of ROW
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Article 97 Lands

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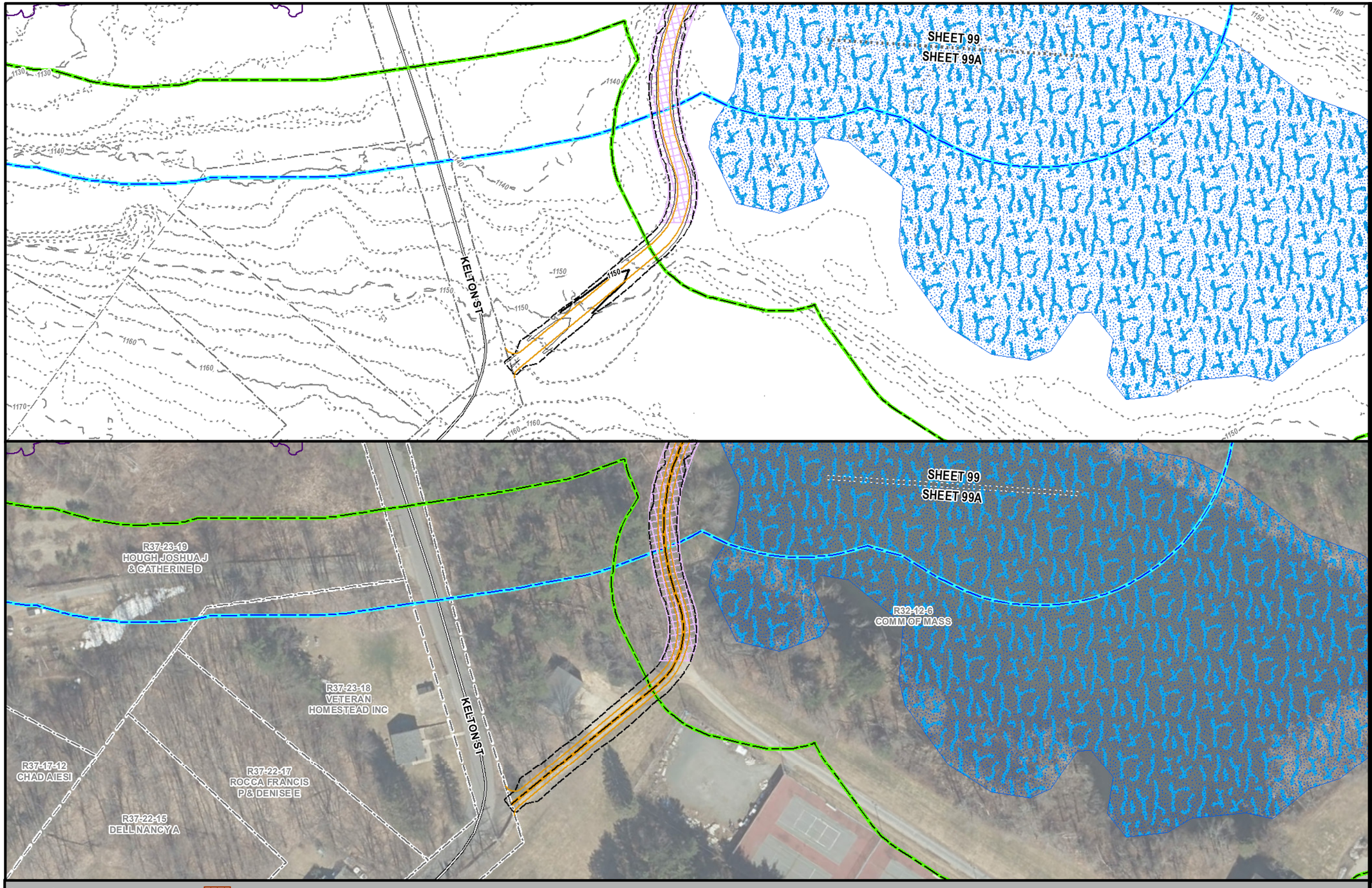
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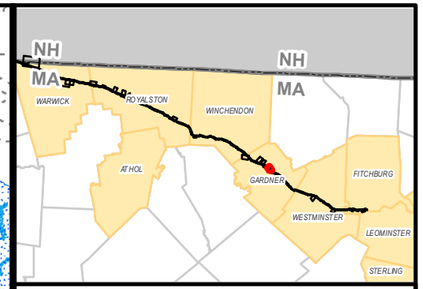
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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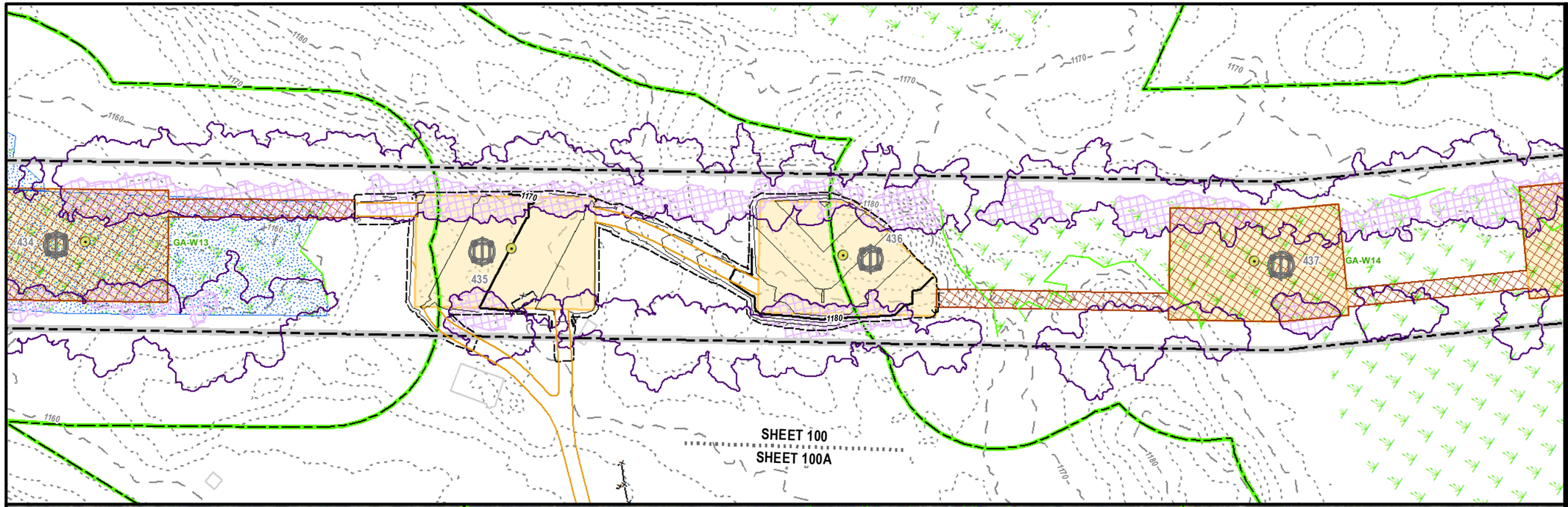
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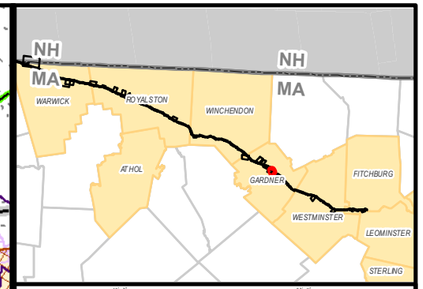
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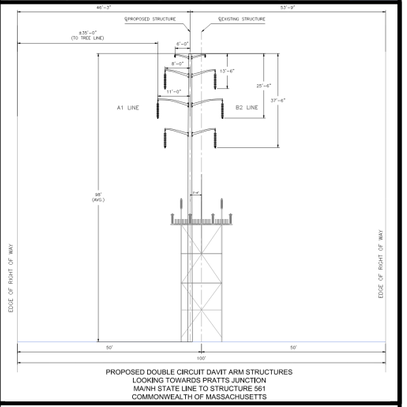
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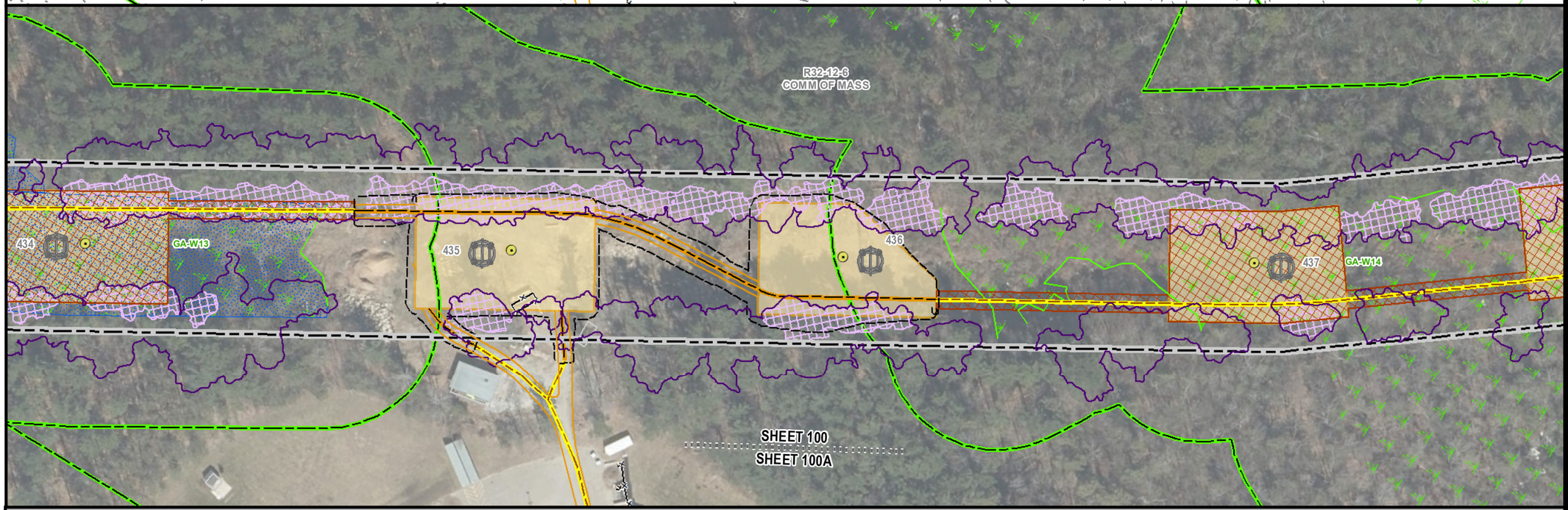
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
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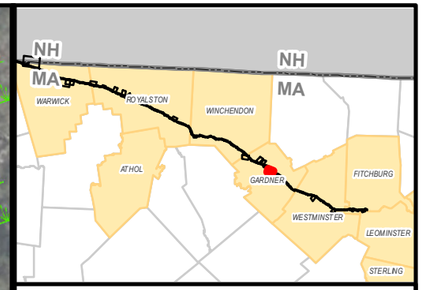
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 100A OF 137

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0 75 150
Feet

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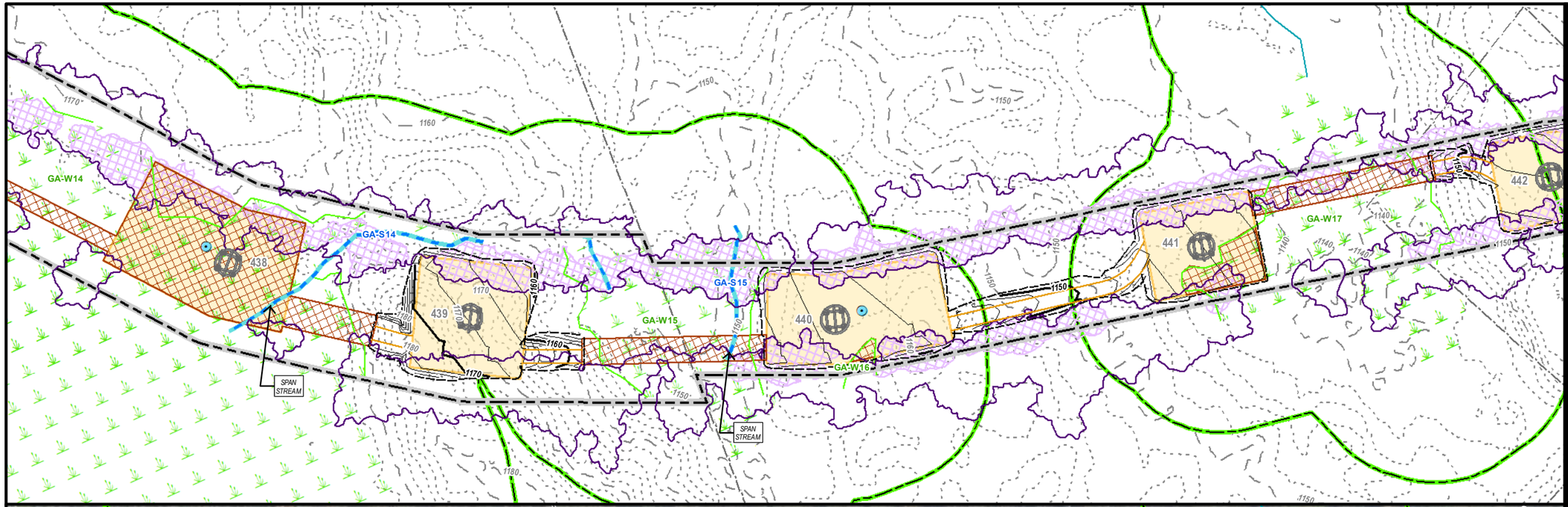
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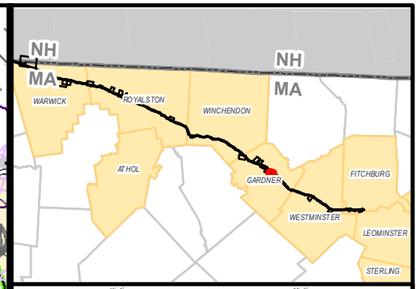
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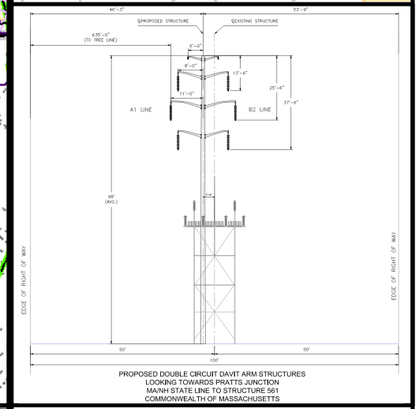
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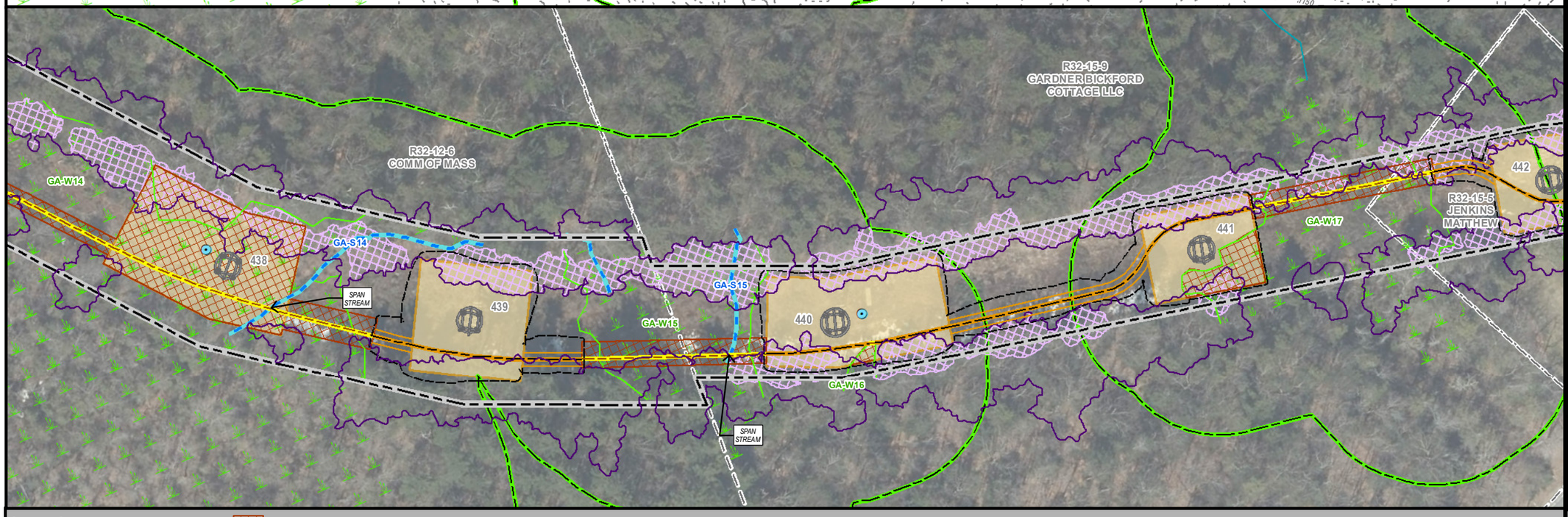
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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GARDNER, MA
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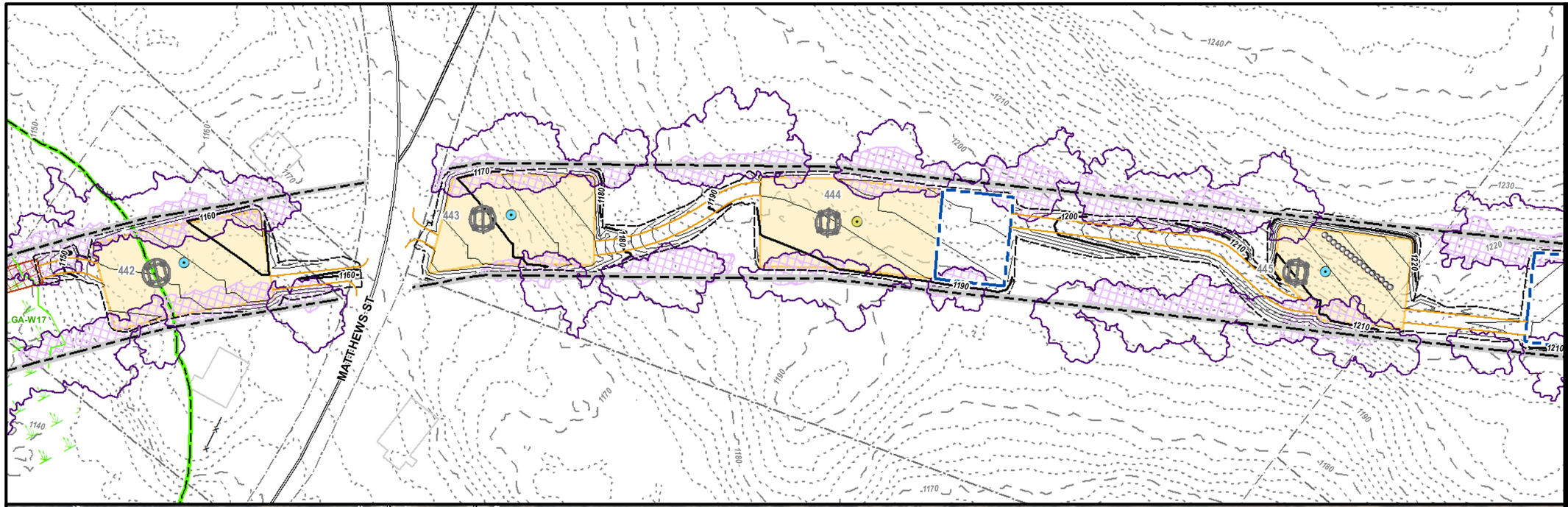
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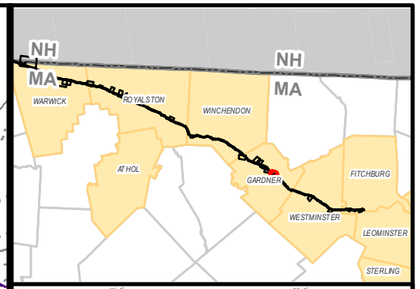
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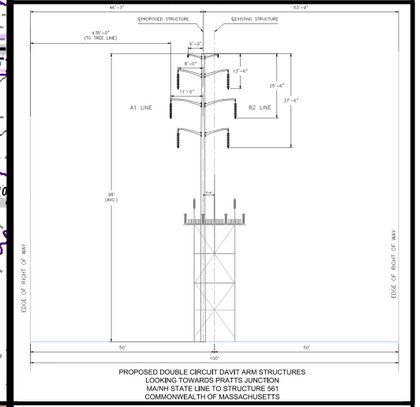
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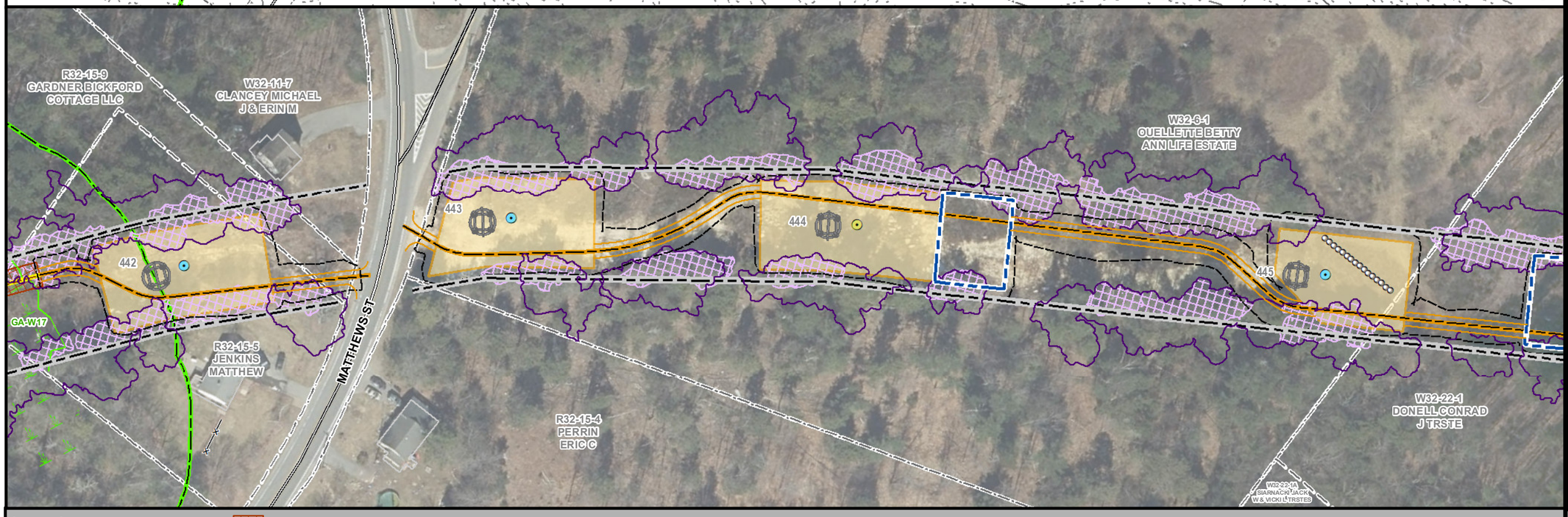
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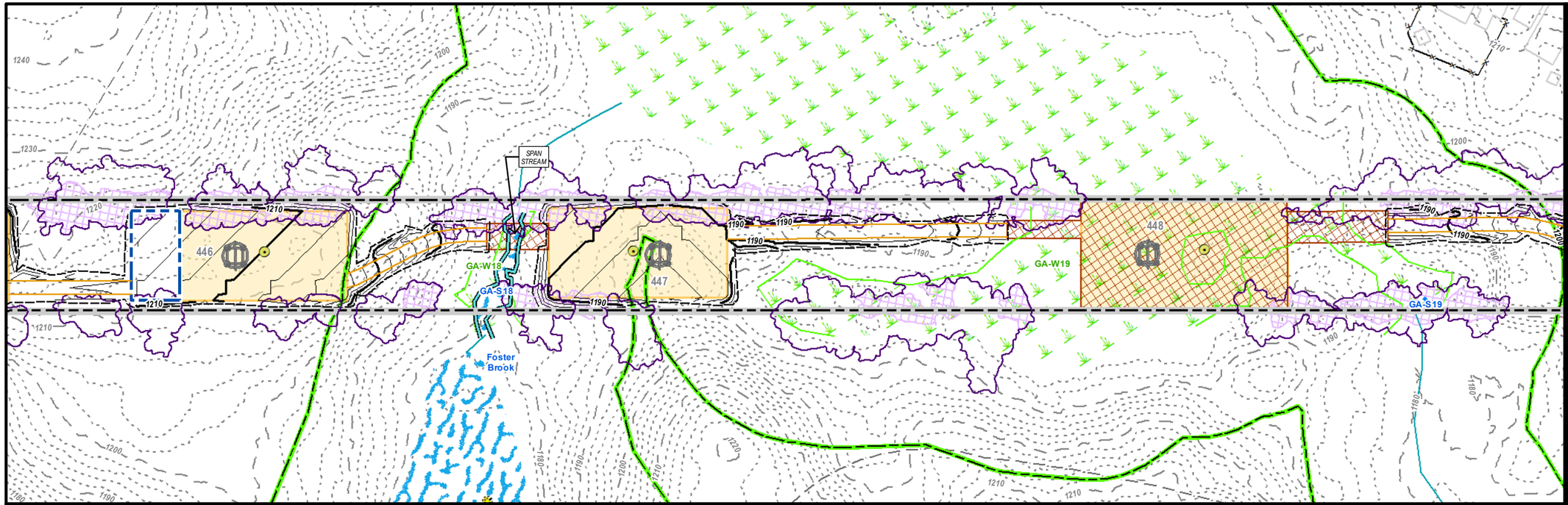
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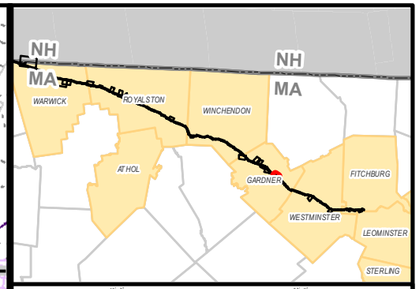
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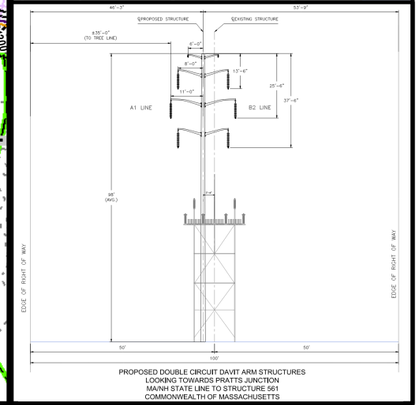
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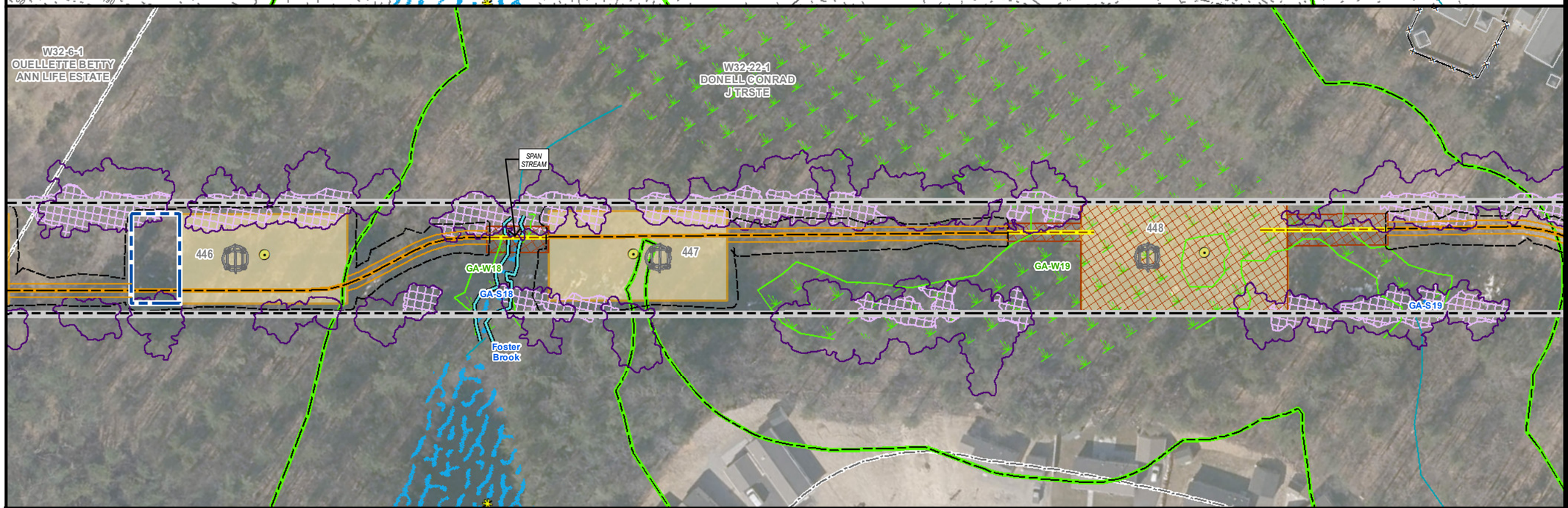
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 103 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
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- Existing Access
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- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
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- Wetland Edge
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Article 97 Lands

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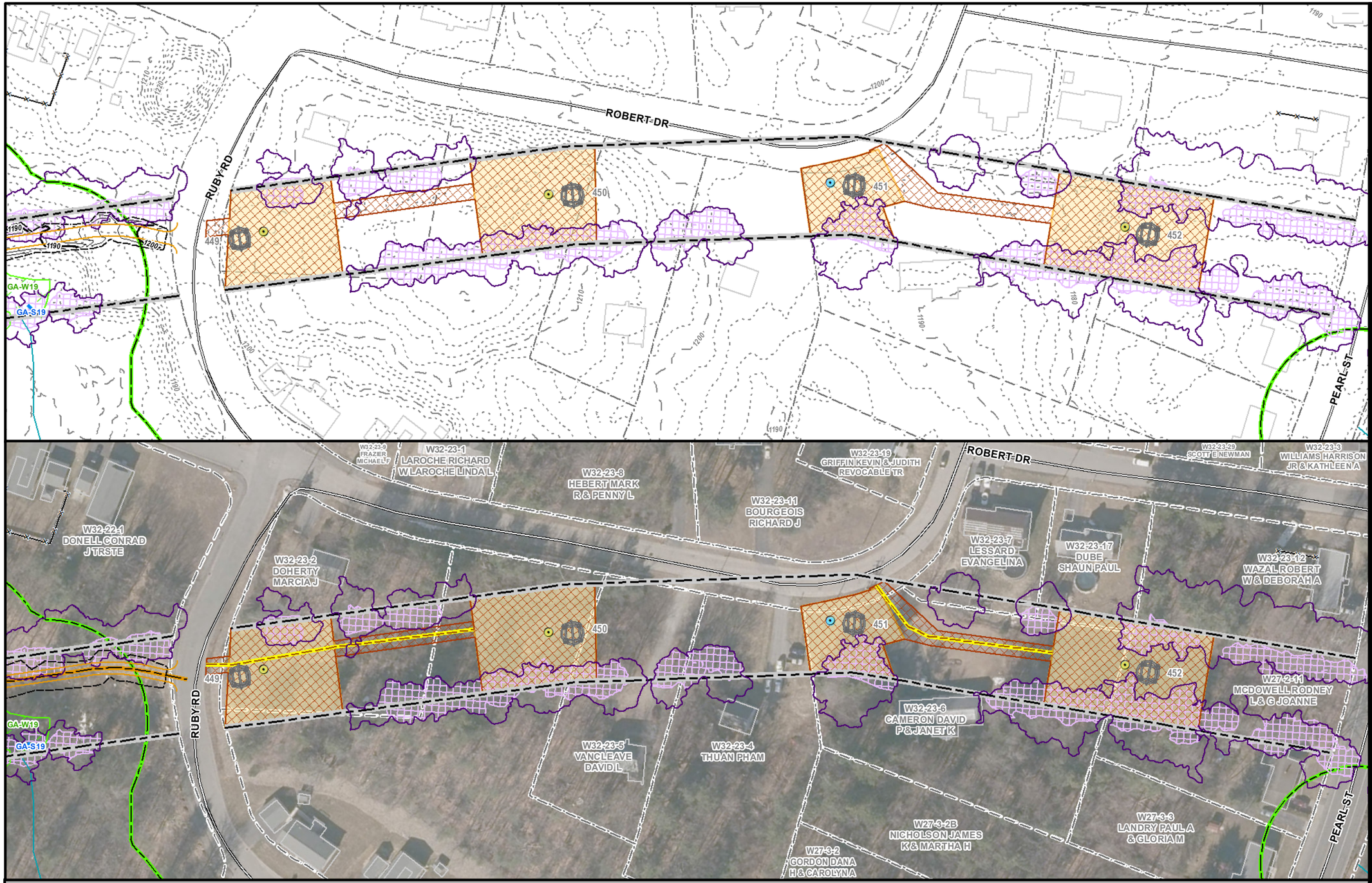
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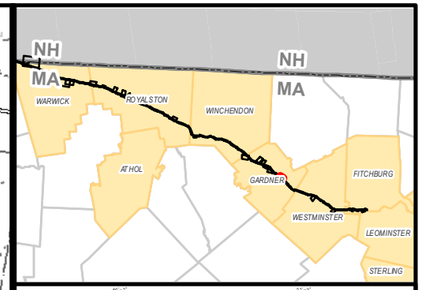
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

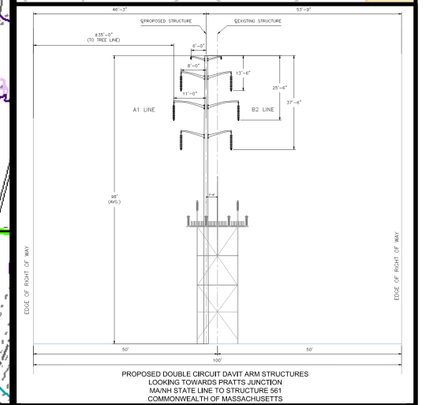
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MA/NH STATE LINE TO STRUCTURE 561
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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GARDNER, MA
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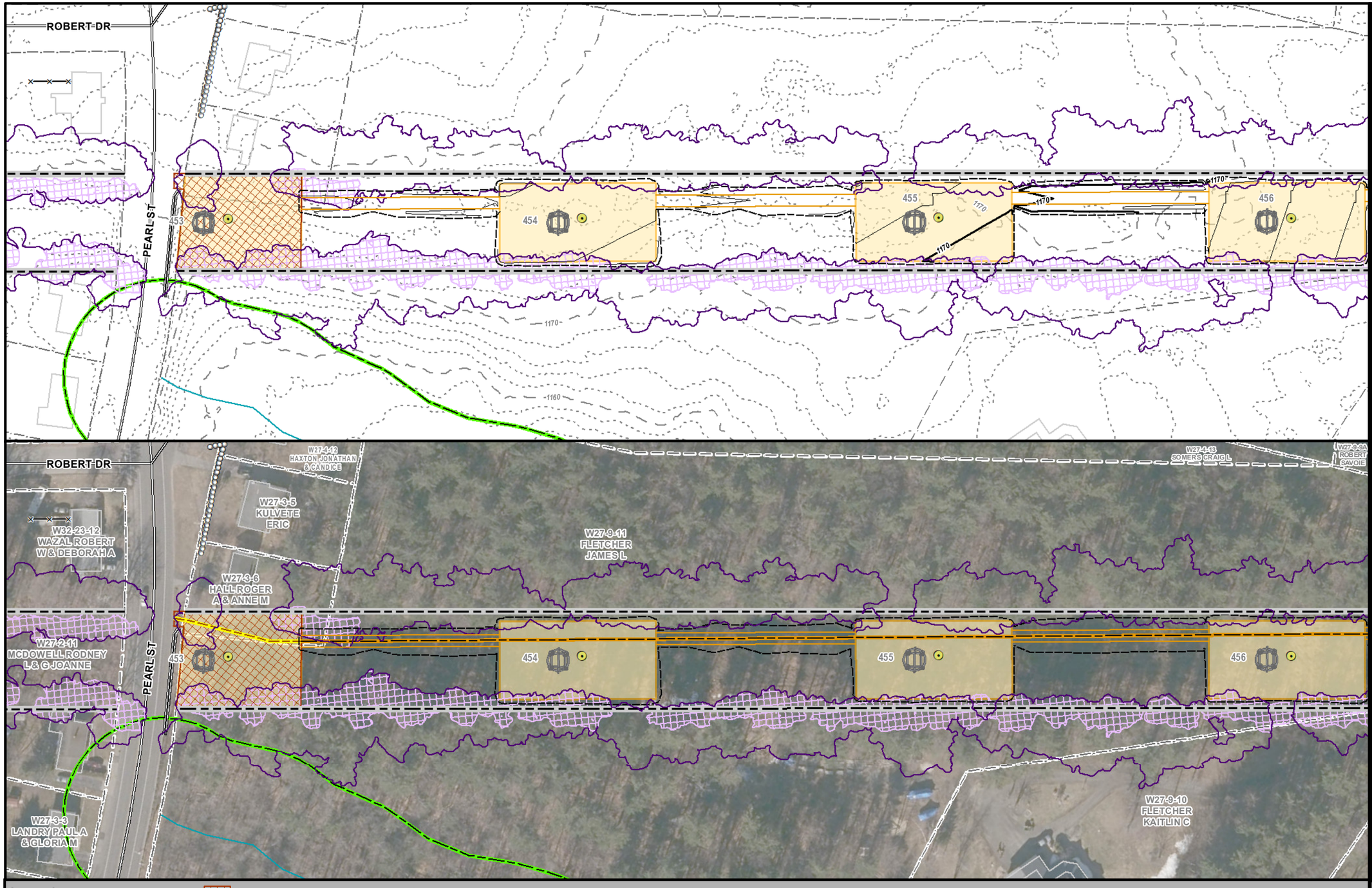
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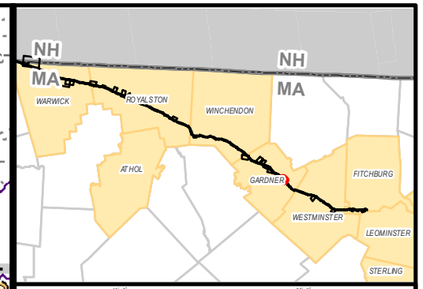
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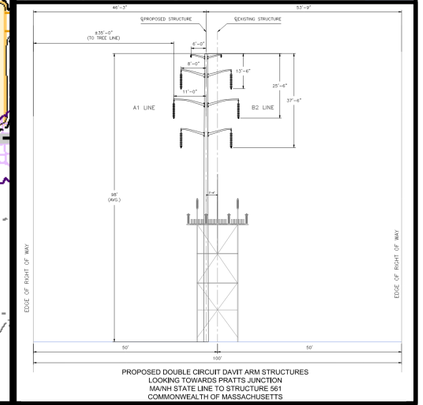
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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GARDNER, MA
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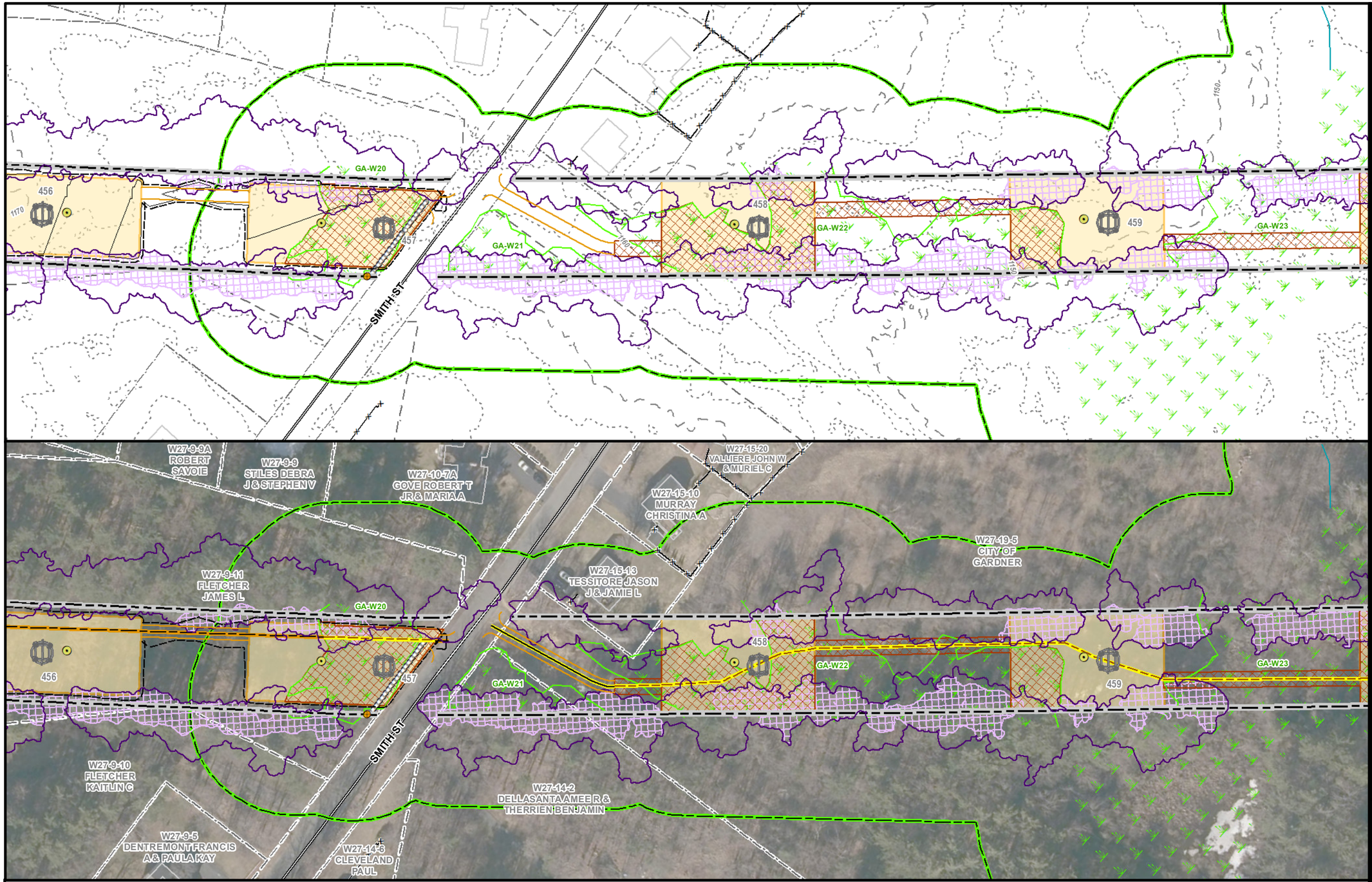
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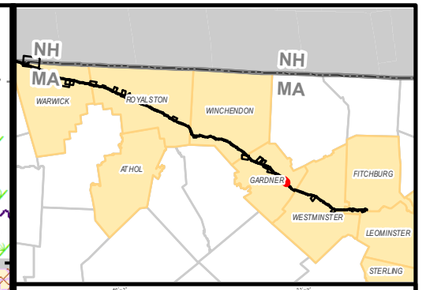
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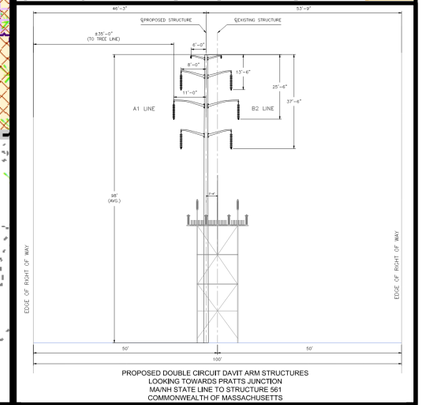
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 106 OF 137

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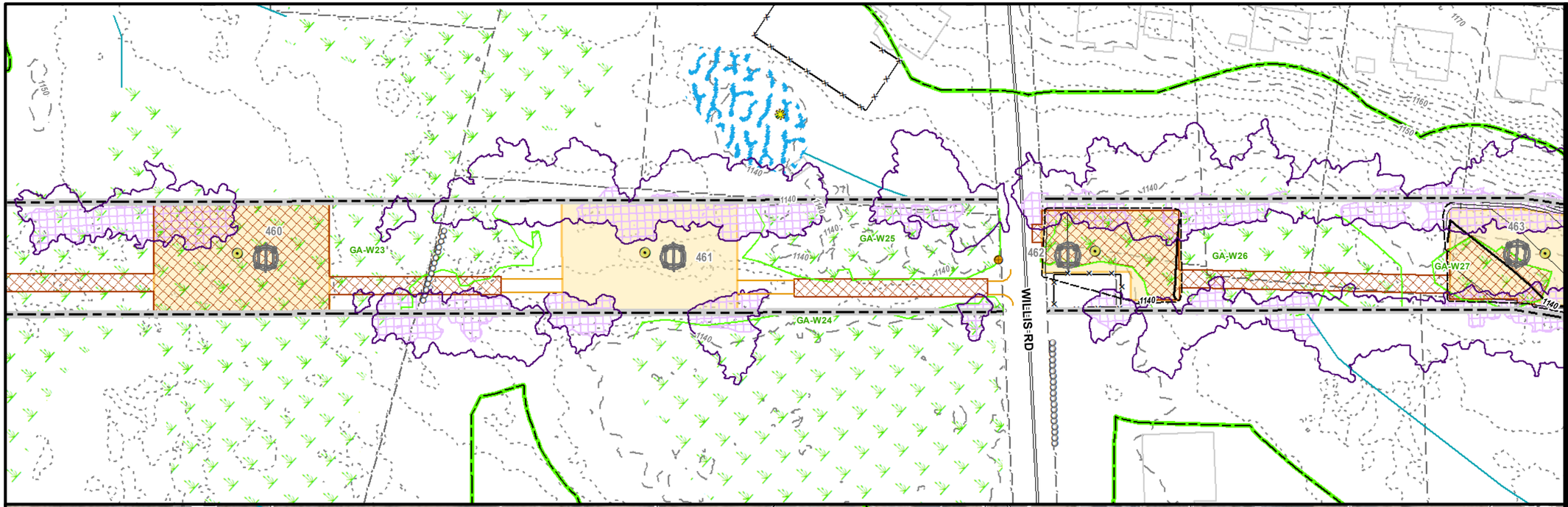
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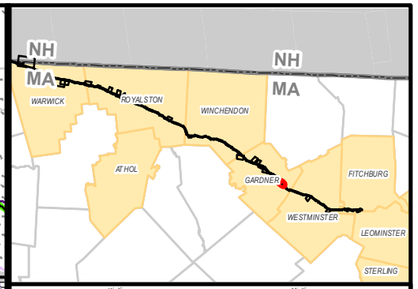
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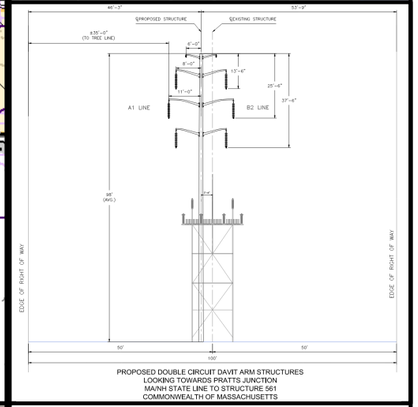
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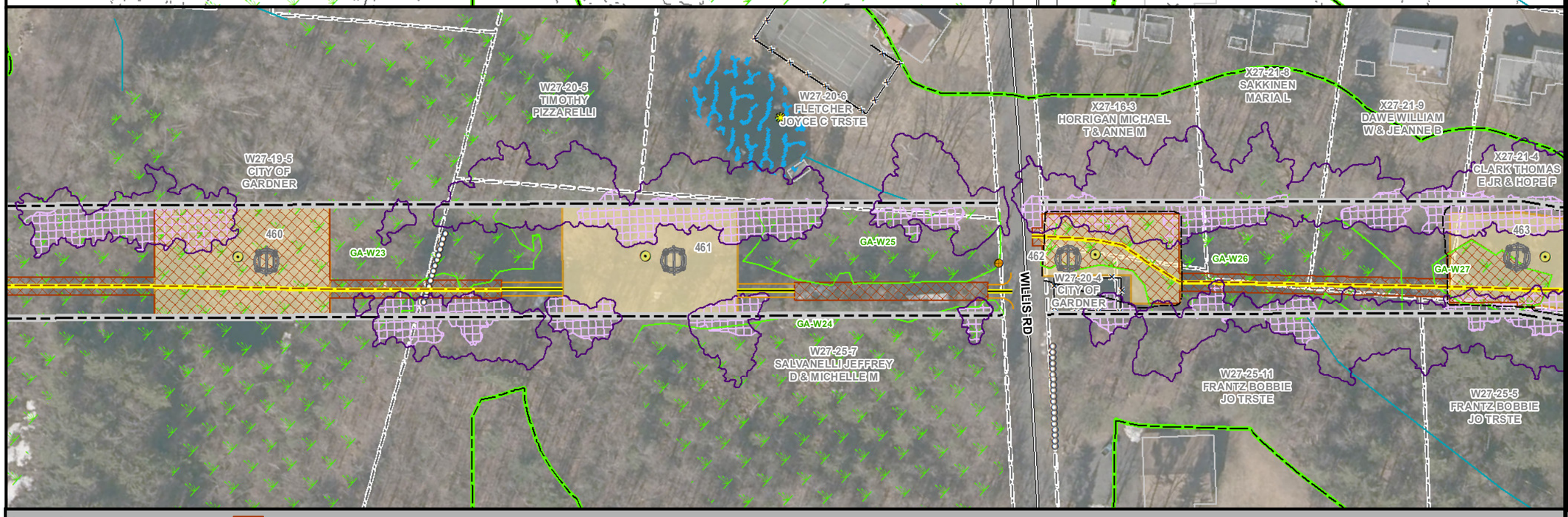
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 107 OF 137

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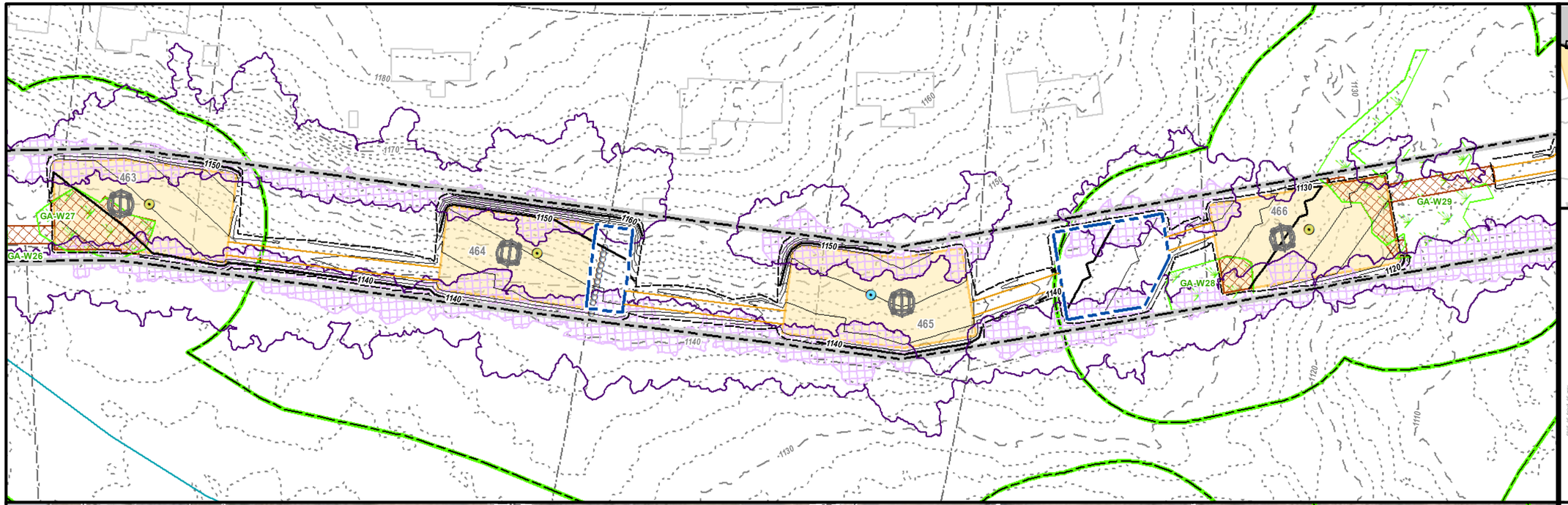
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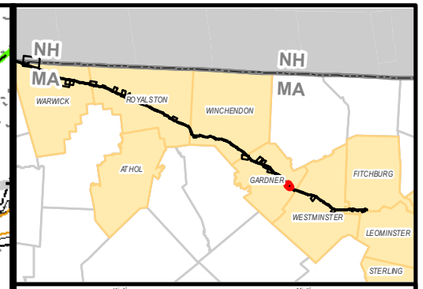
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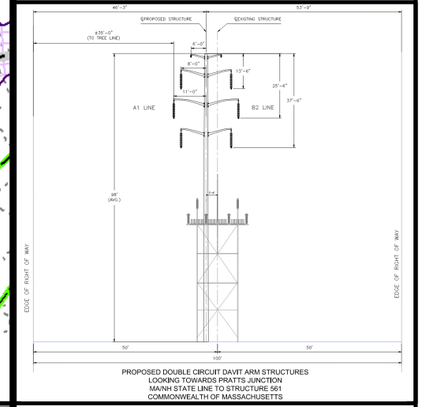
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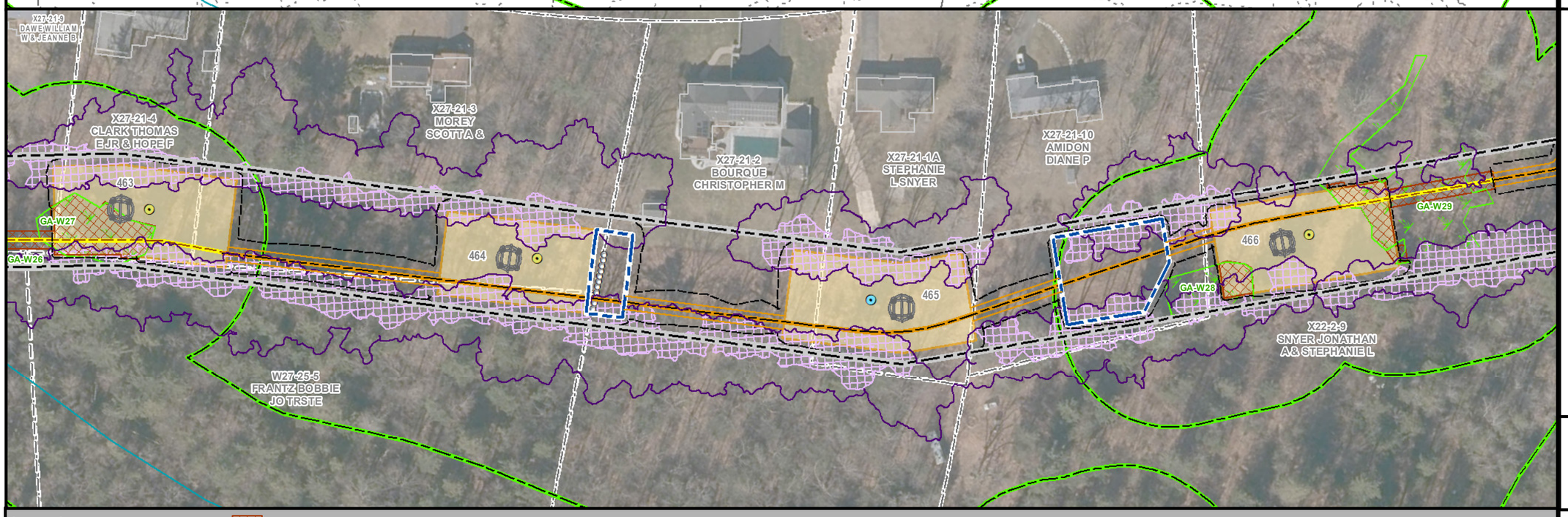
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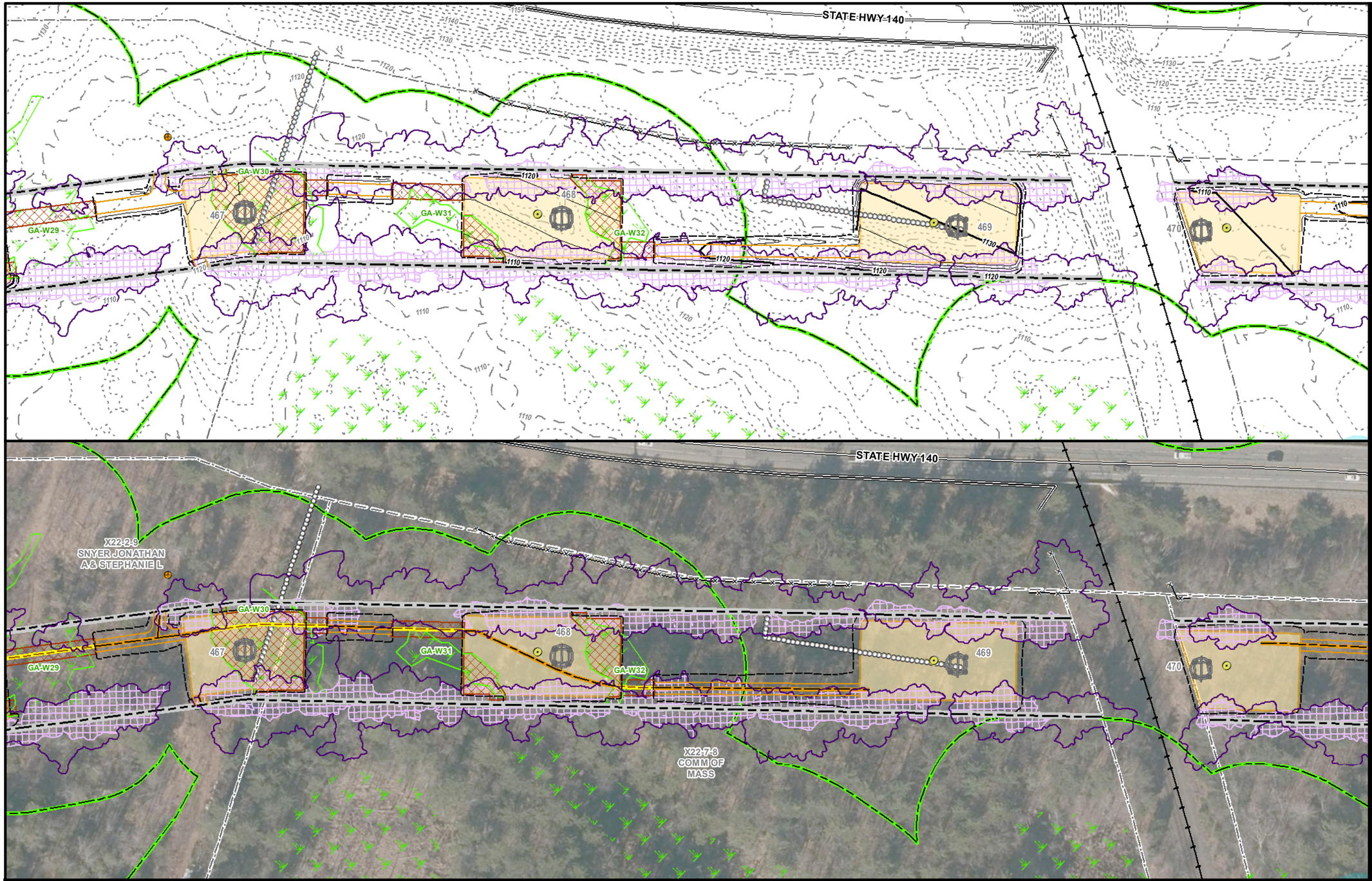
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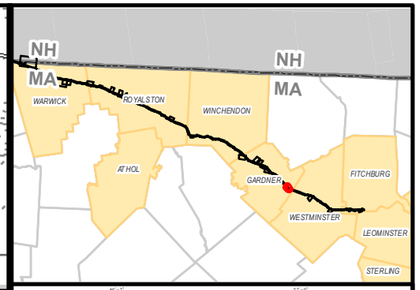
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WALTHAM, MA 02451

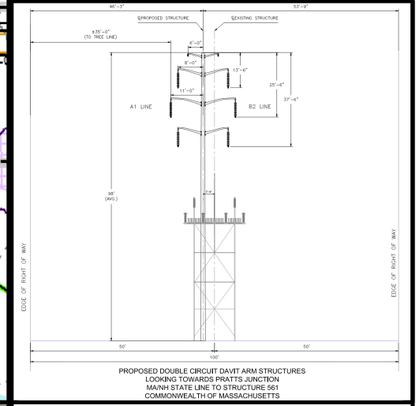
PREPARED BY:
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 109 OF 137

1 inch = 100 feet
0 50 100
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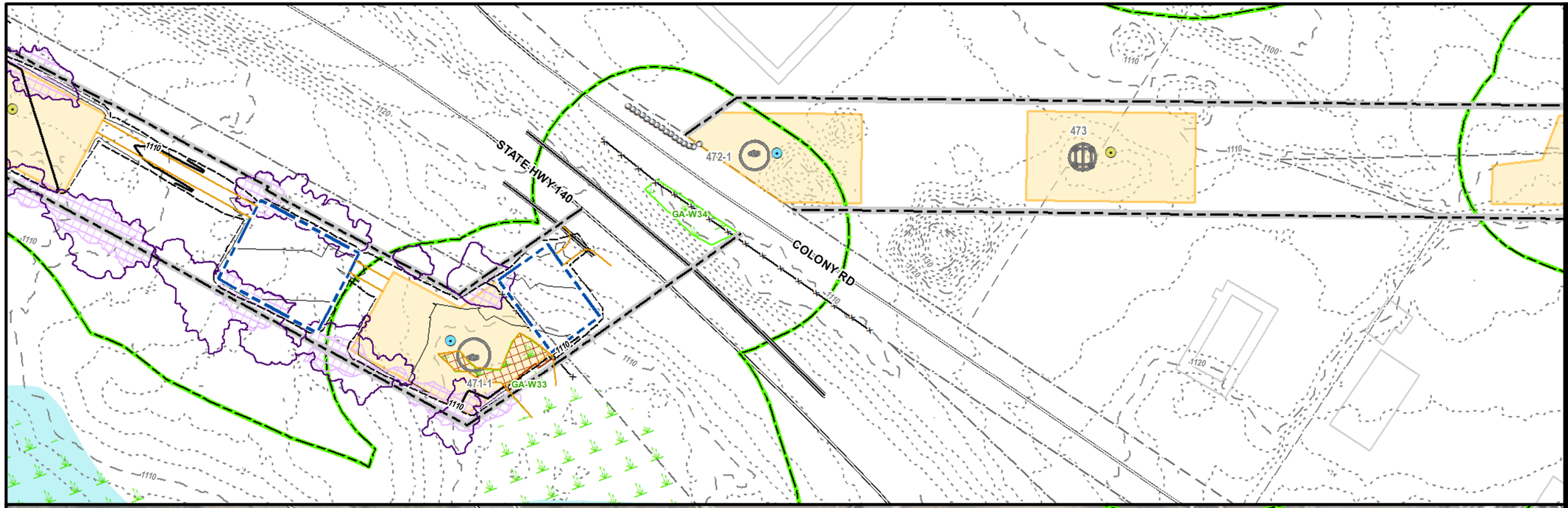
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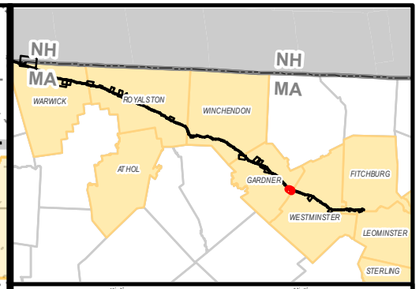
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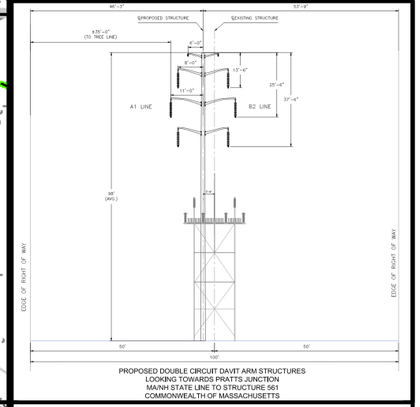
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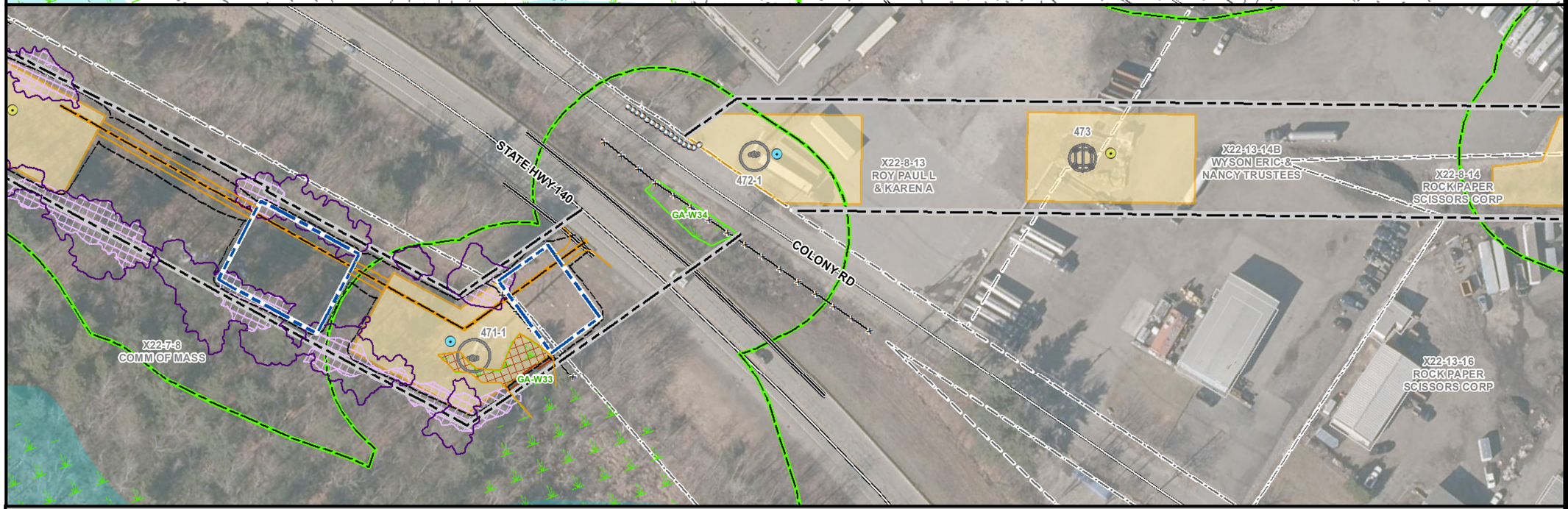
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER, MA
PAGE 110 OF 137

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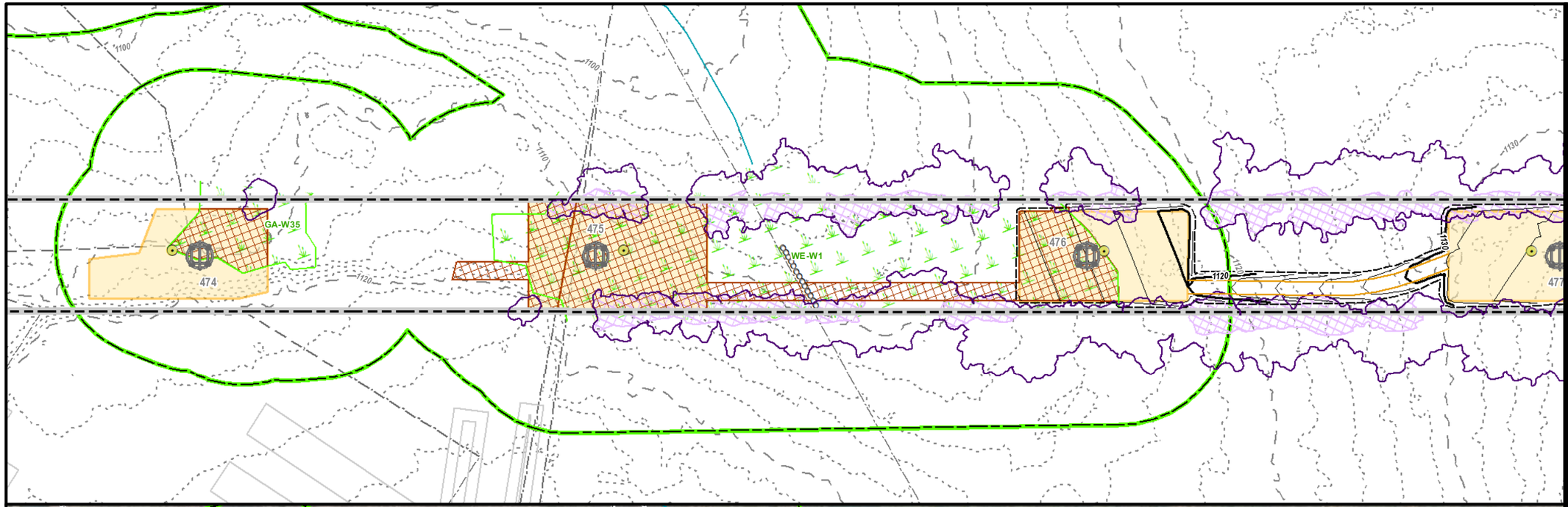
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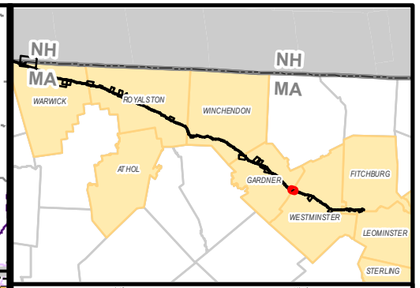
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WALTHAM, MA 02451

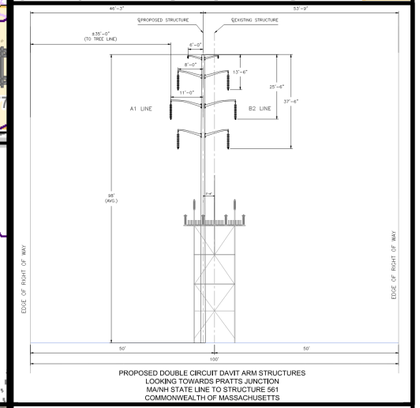
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BSC GROUP
1 MERCANTILE STREET SUITE 601
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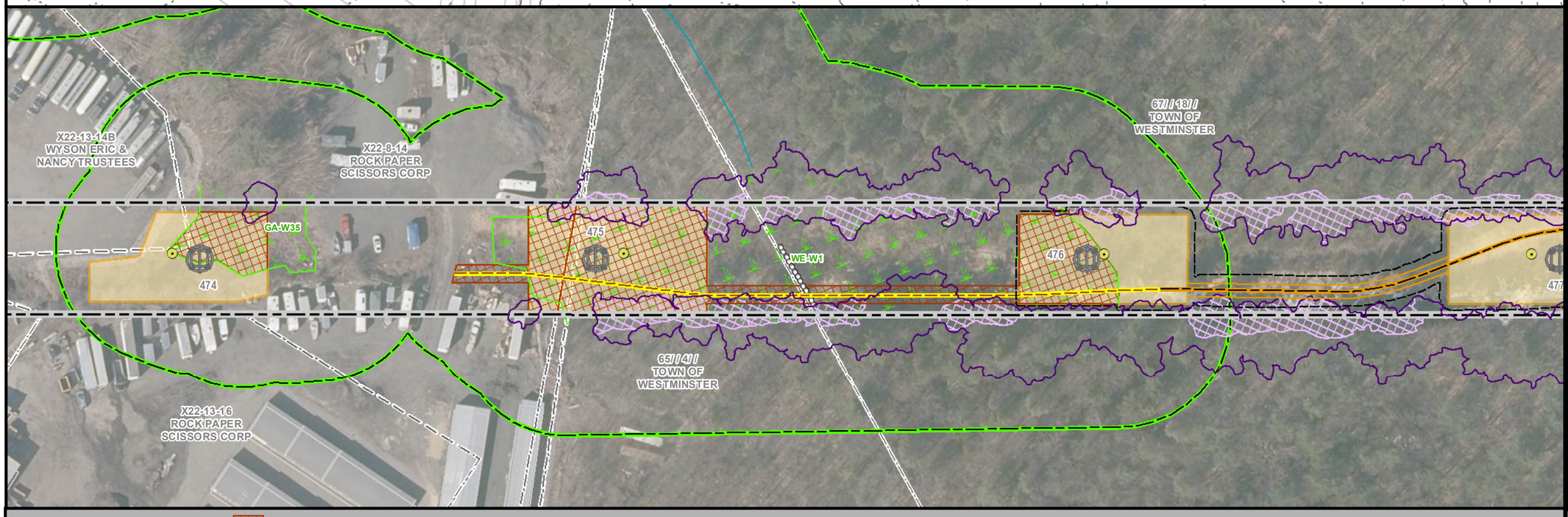
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

GARDNER & WESTMINSTER, MA

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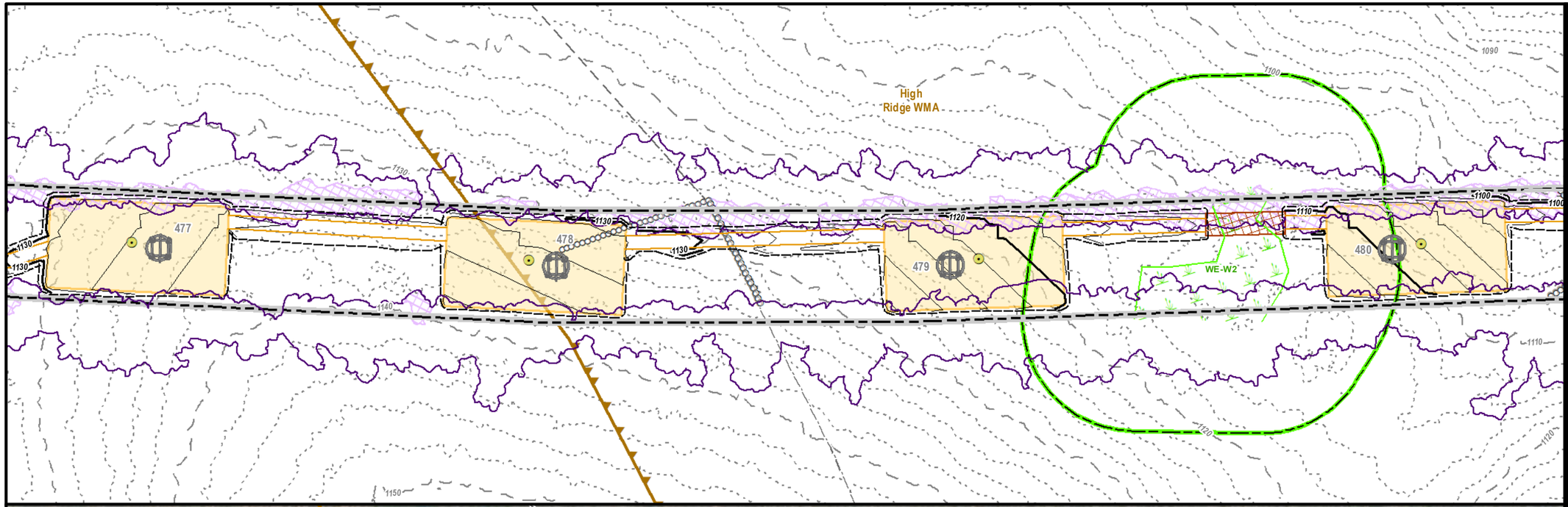
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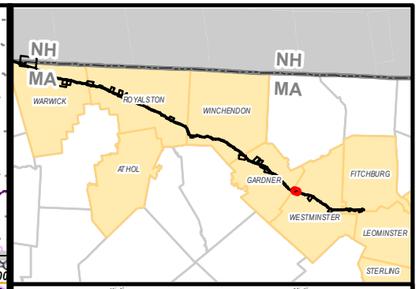
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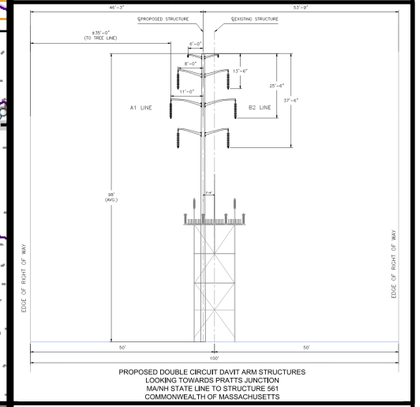
BSC GROUP
1 MERCANTILE STREET SUITE 601
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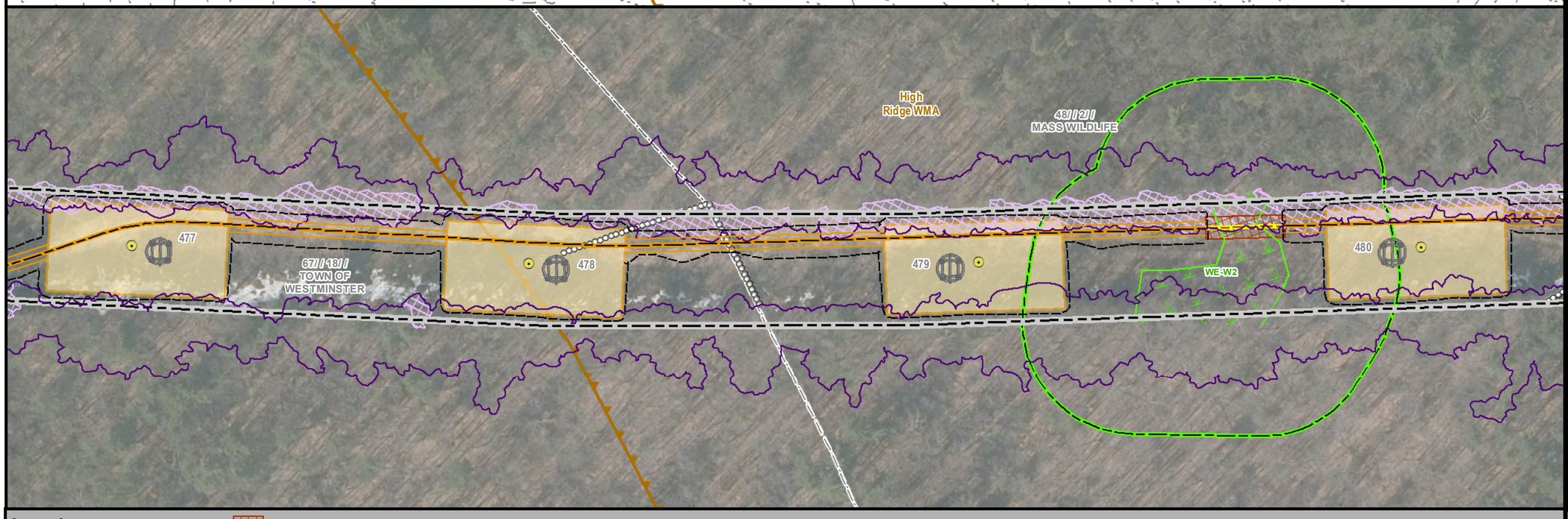
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 112 OF 137

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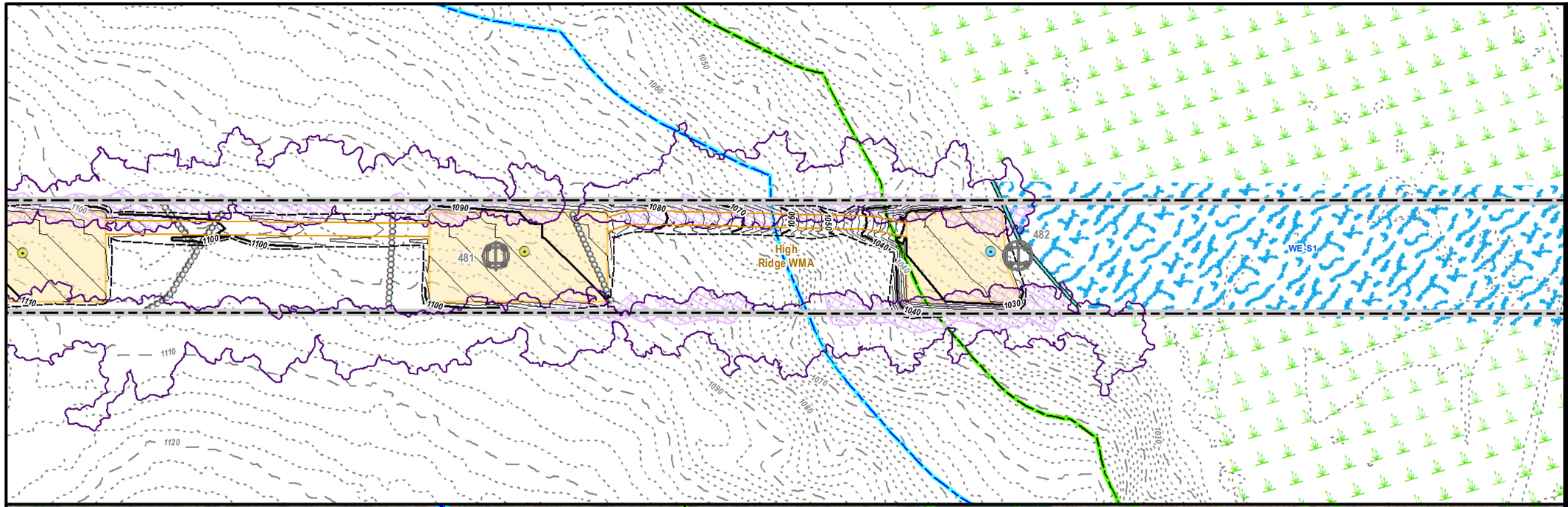
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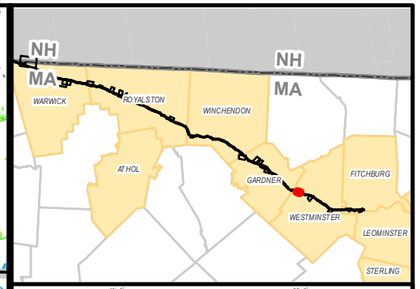
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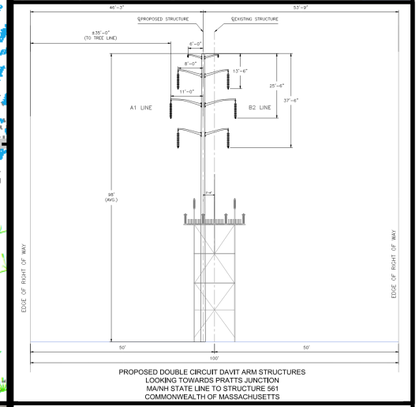
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MEPA General Purpose Plans

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WESTMINSTER, MA
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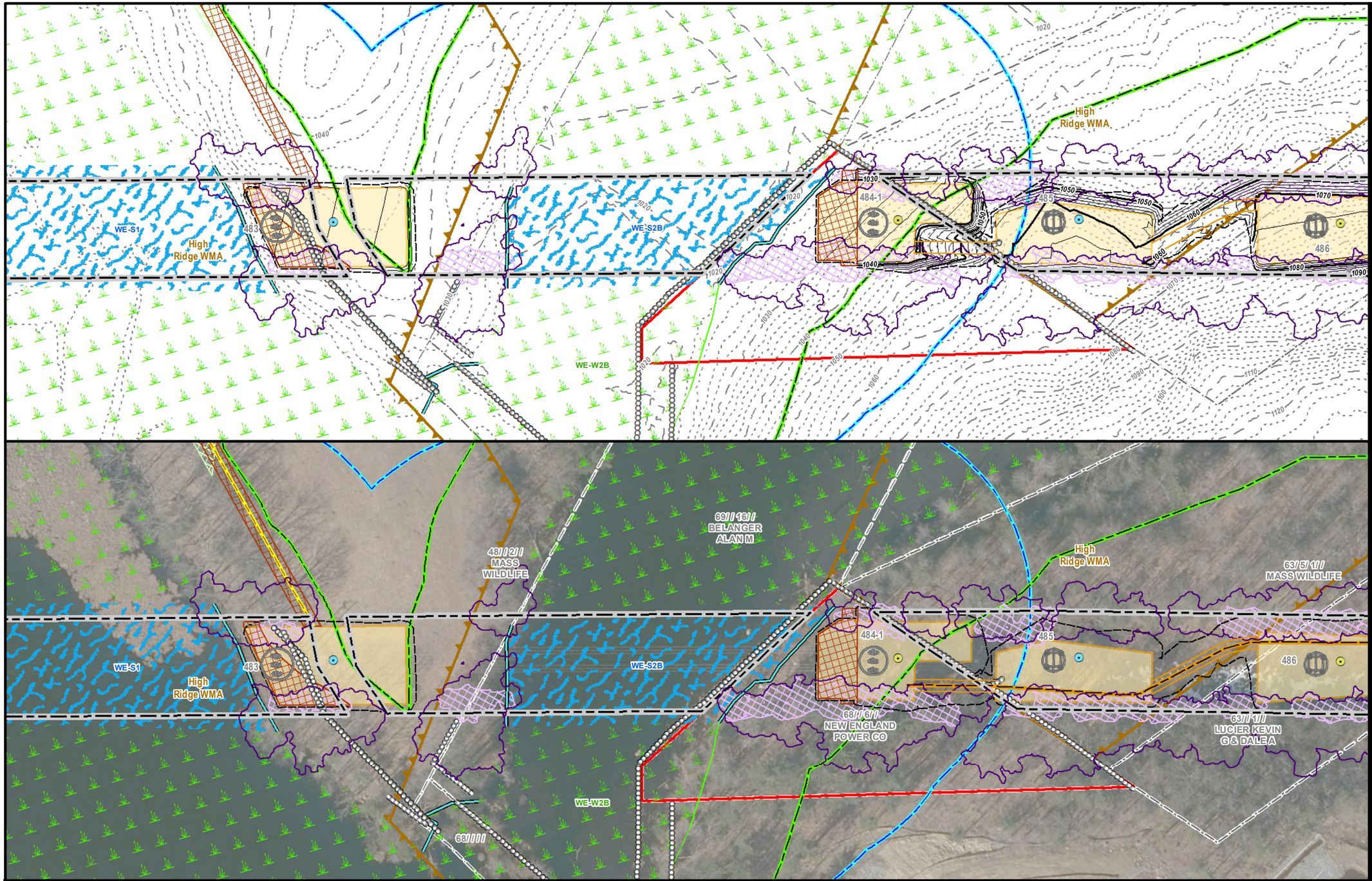
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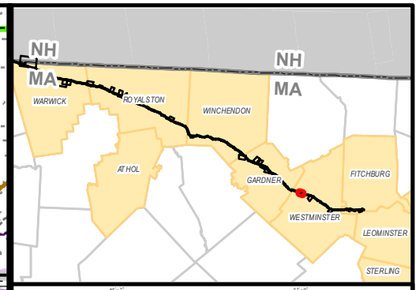
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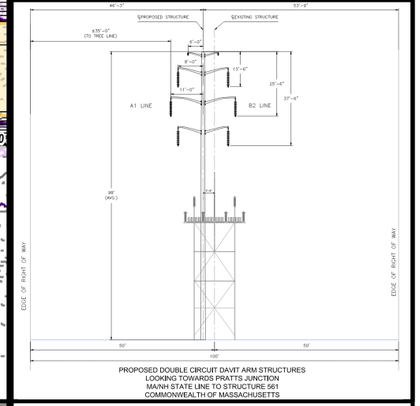
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- DCR Trails
- Hiking Trails
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- Streets
- Town Boundary
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- National Grid Property
- Parcel Boundary
- Existing Tree Line
- Tree Removal
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- Pruning
- Gate
- Culvert
- Fence
- Stonewall
- Guardrail
- Existing Minor Contour
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Article 97 Lands

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- Department of Fish & Game
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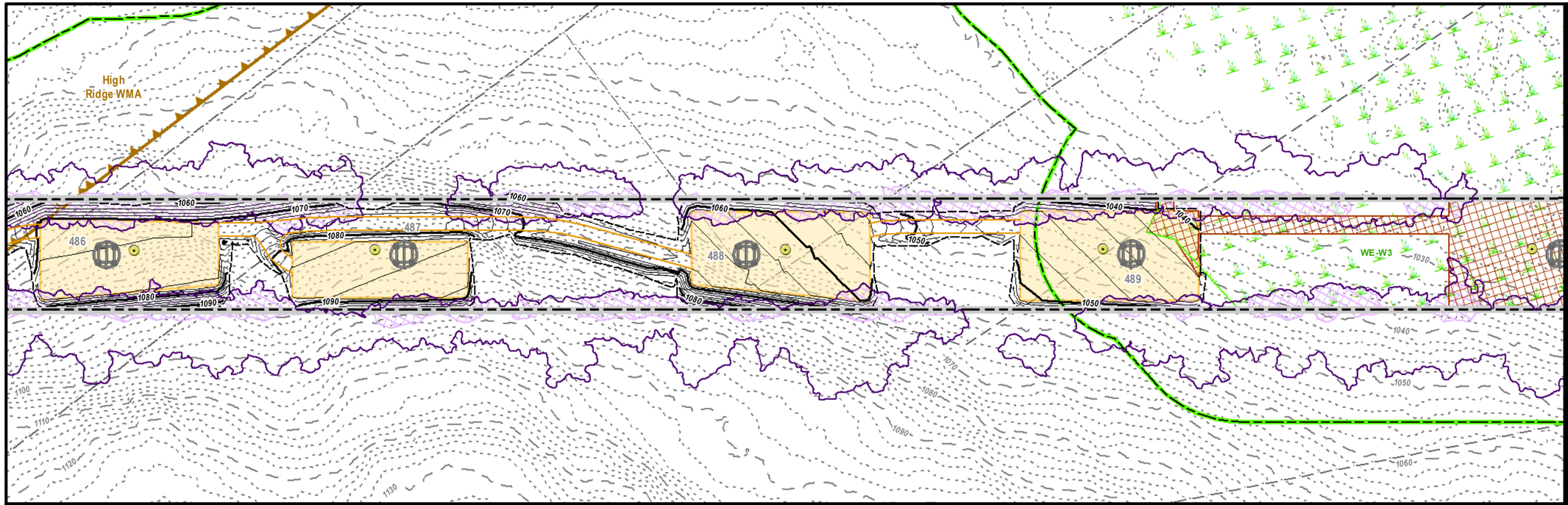
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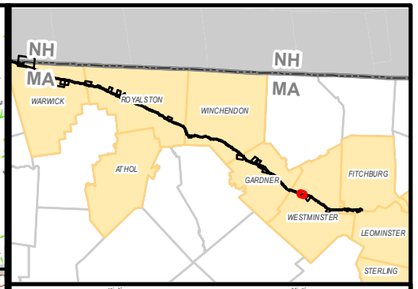
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

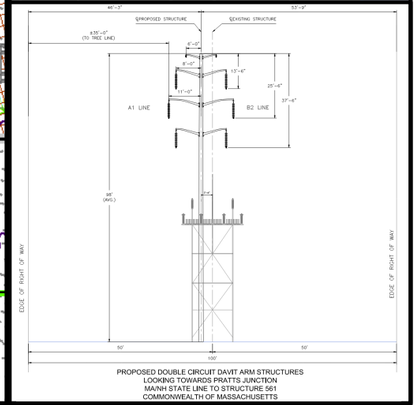
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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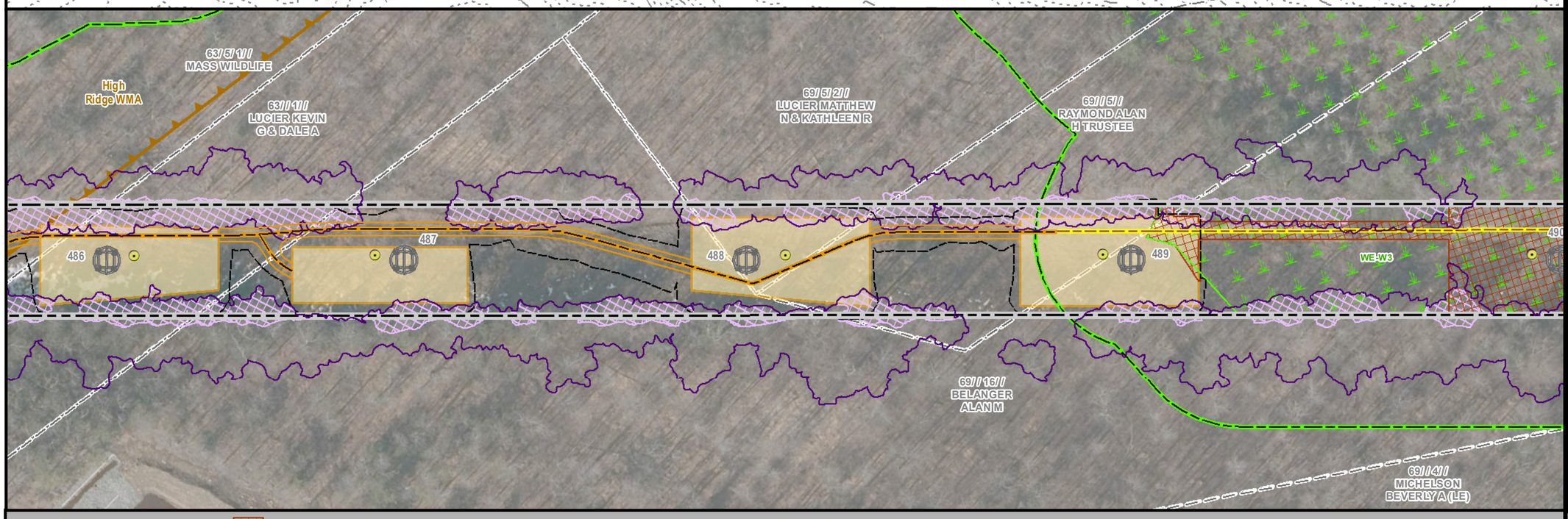
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 115 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
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- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
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- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
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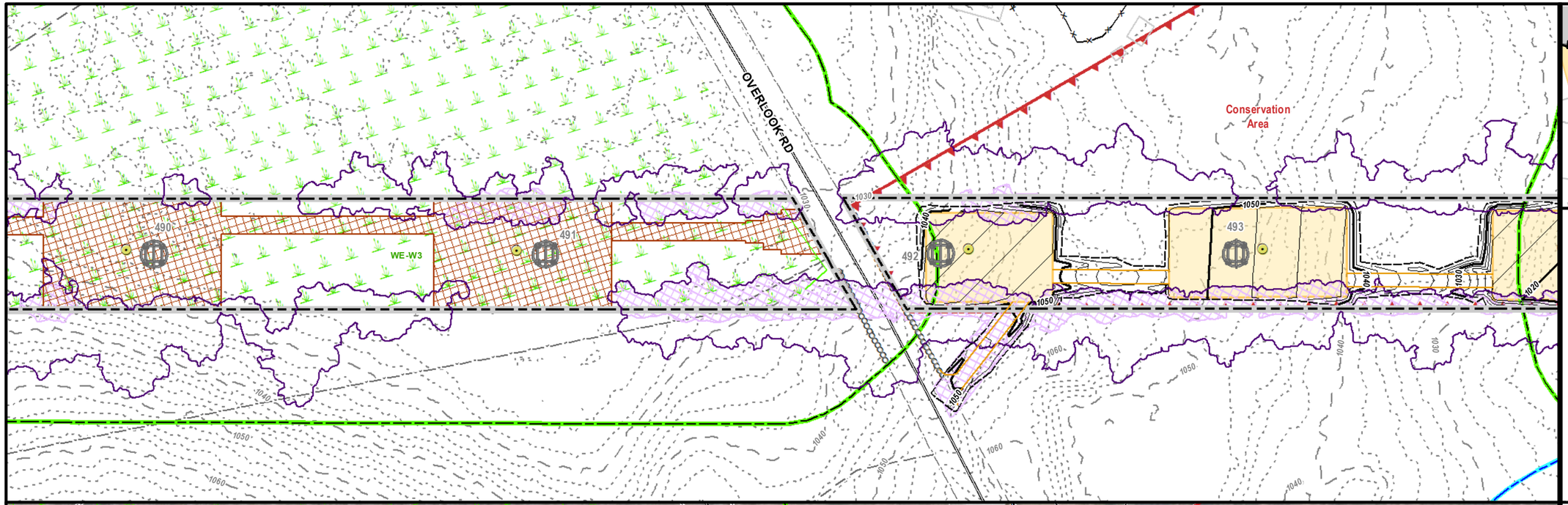
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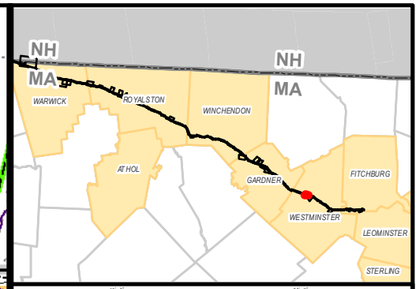
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

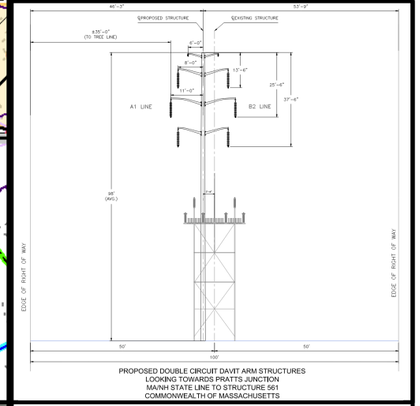
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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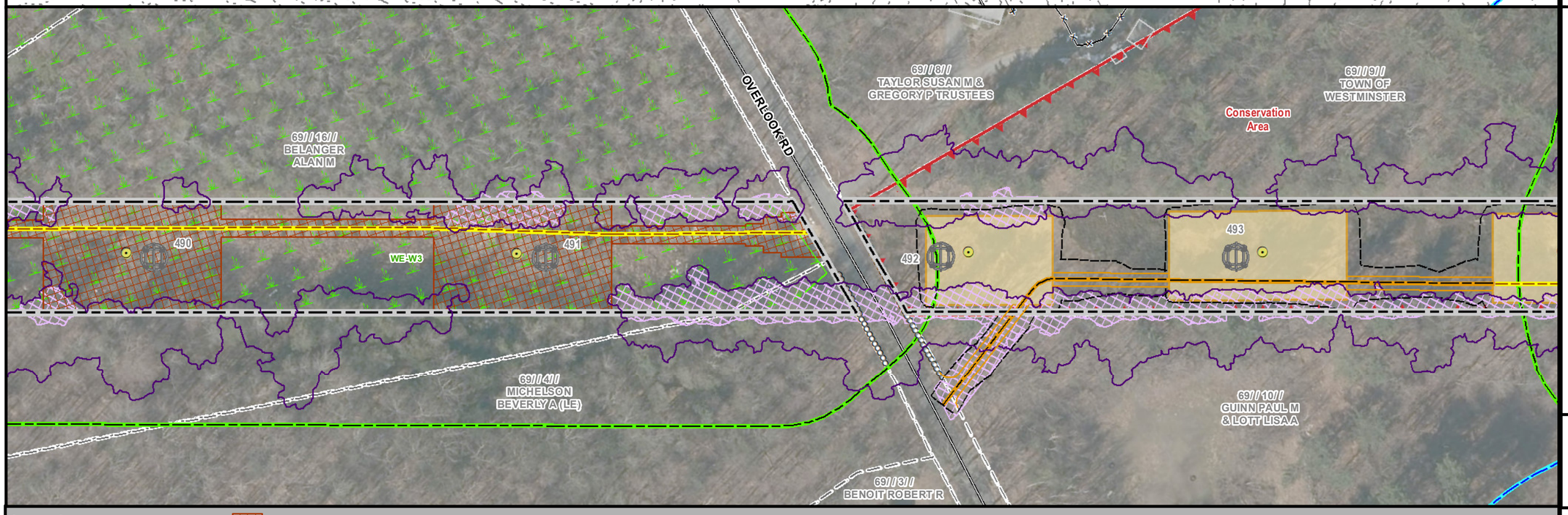
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 116 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

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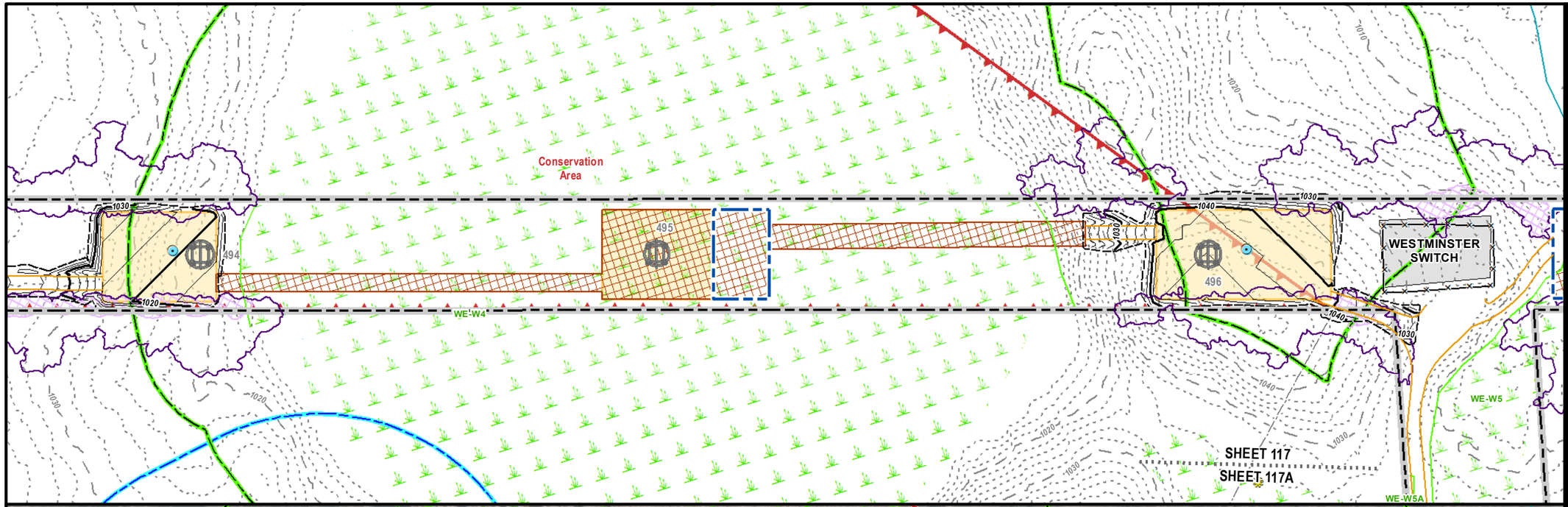
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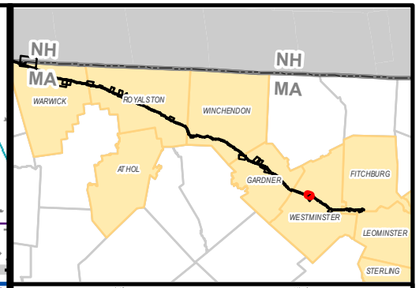
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

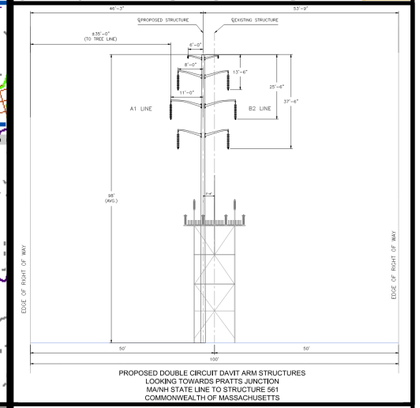
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 117 OF 137

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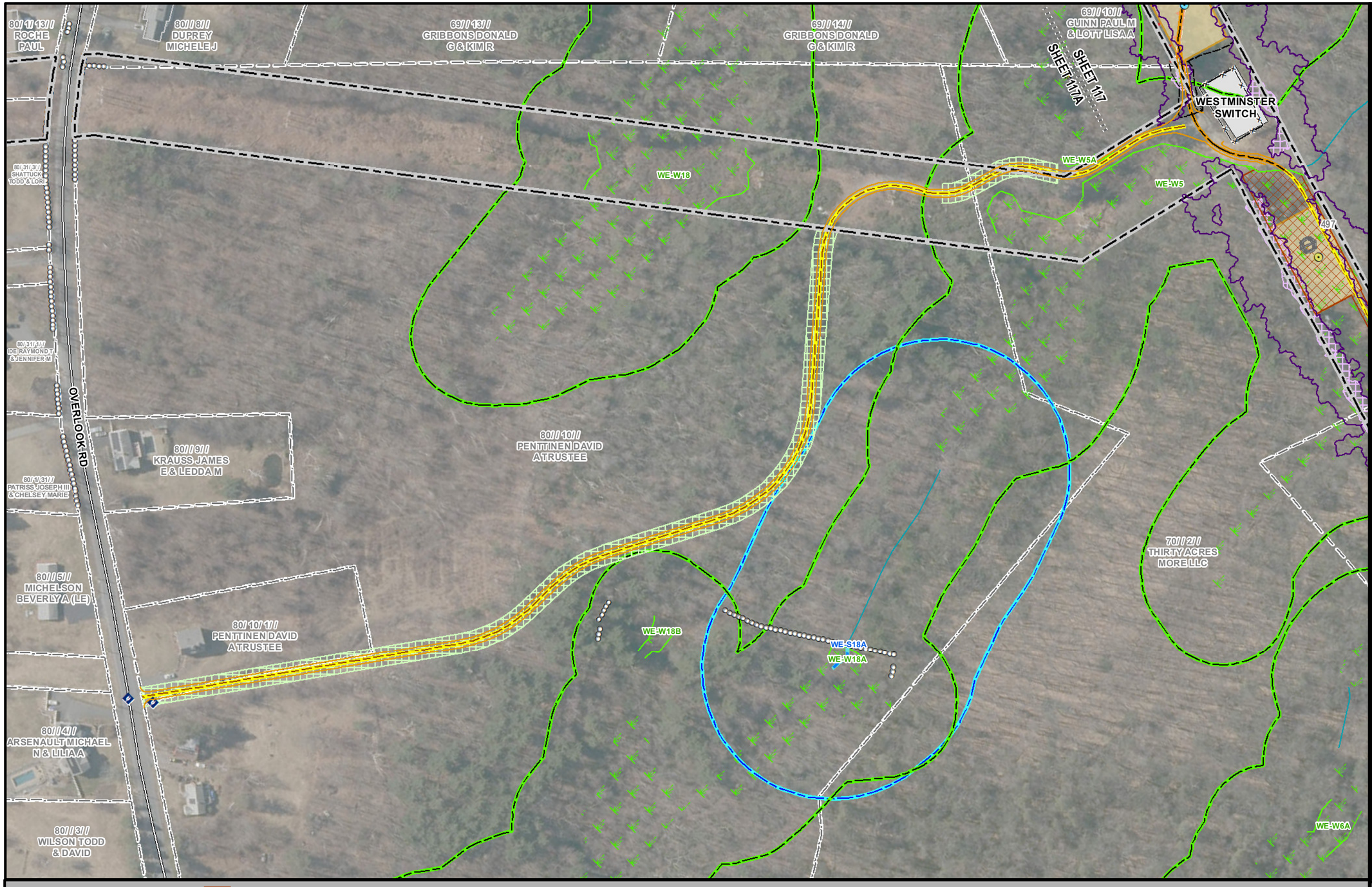
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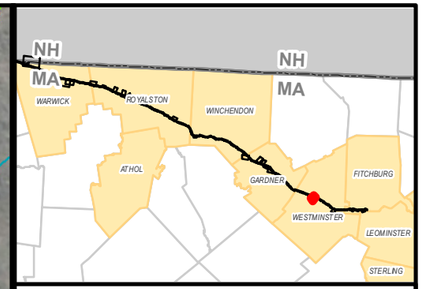
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 117A OF 137

1 inch = 150 feet
0 75 150
Feet

Legend

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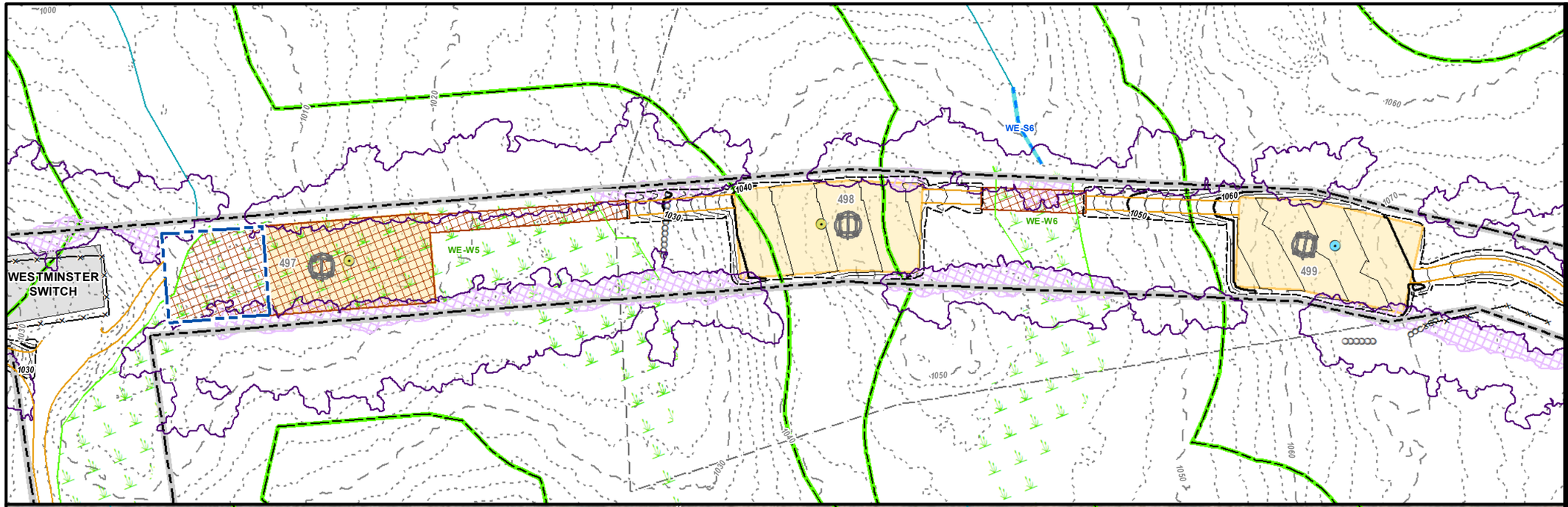
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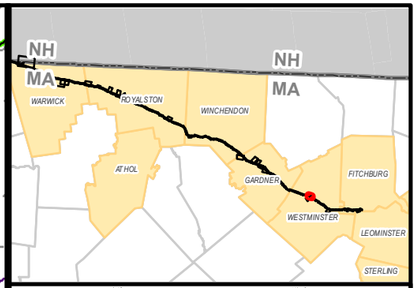
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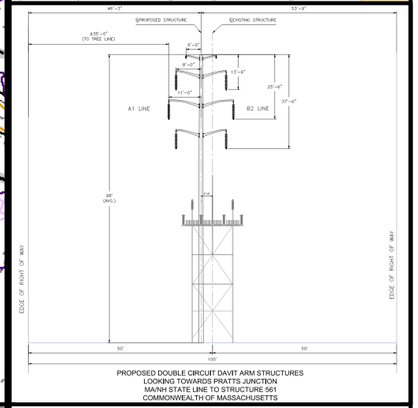
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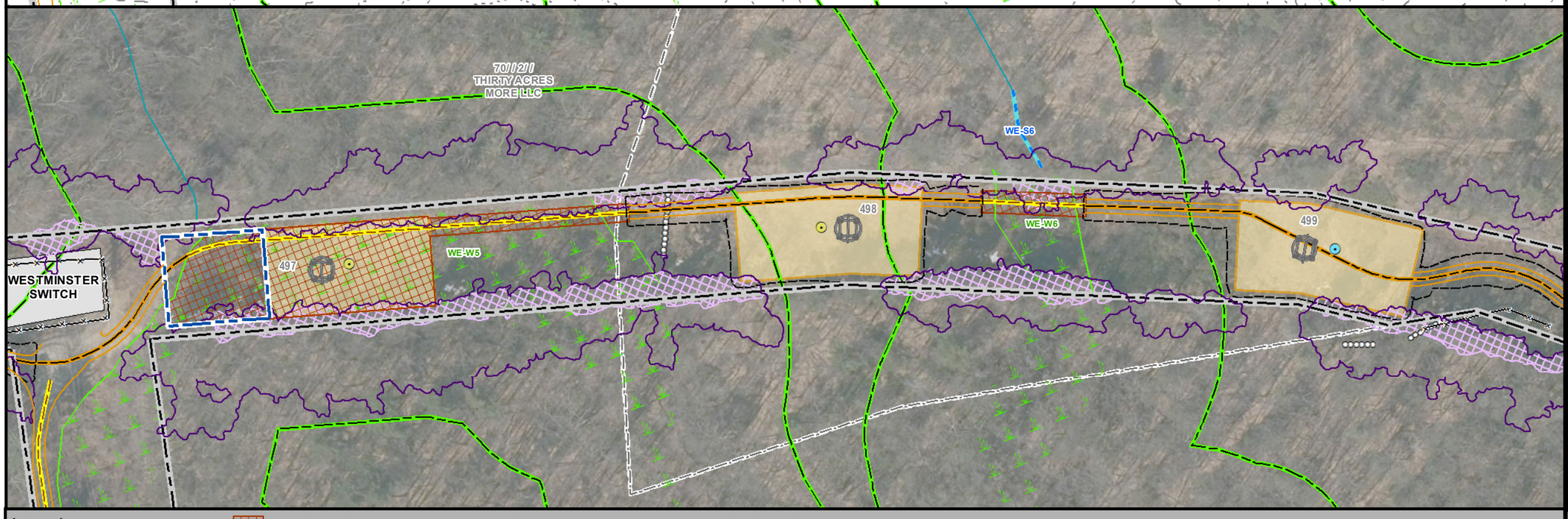
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 118 OF 137

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0 50 100
Feet

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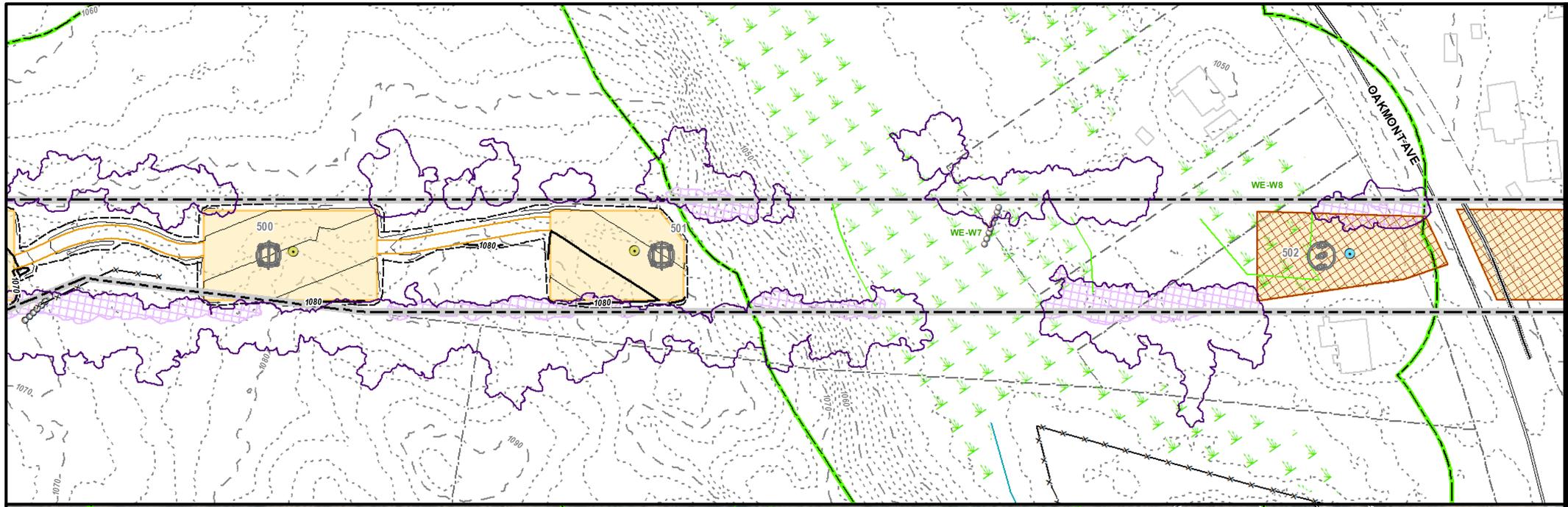
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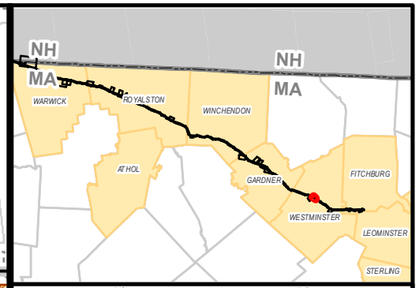
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170 DATA DRIVE
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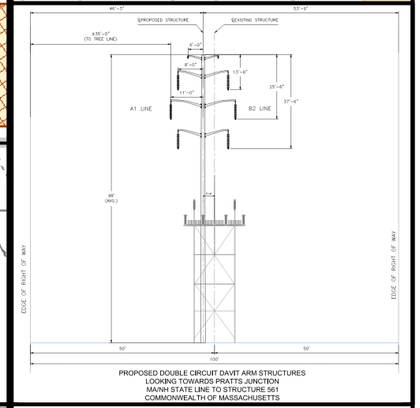
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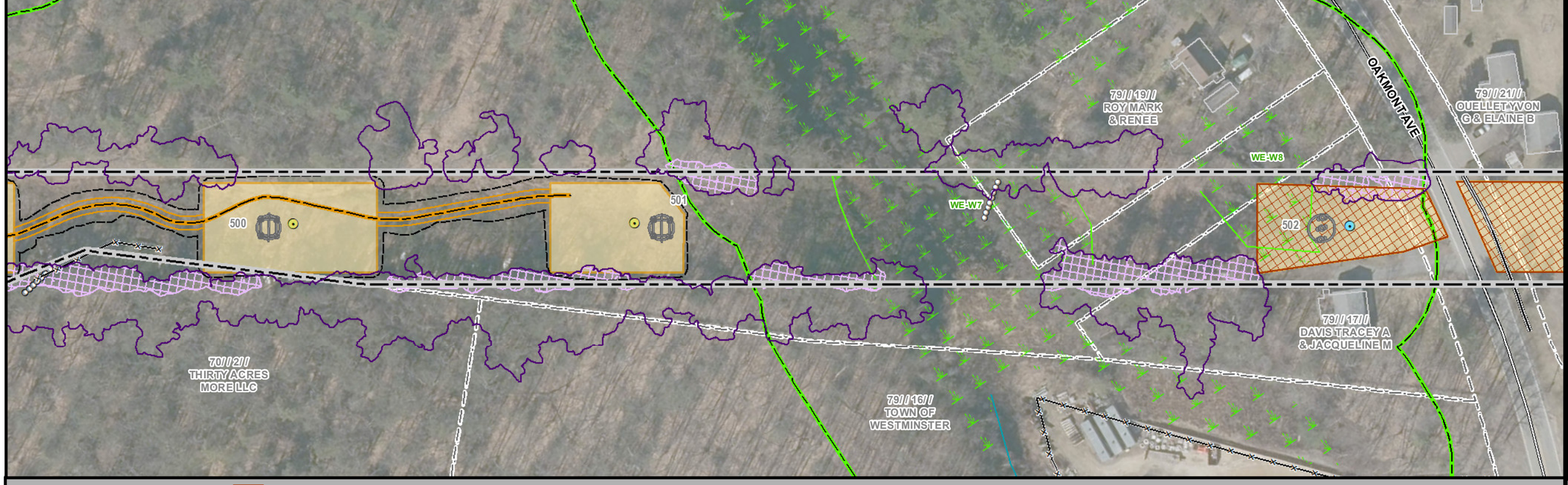
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MEPA General Purpose Plans

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ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 119 OF 137

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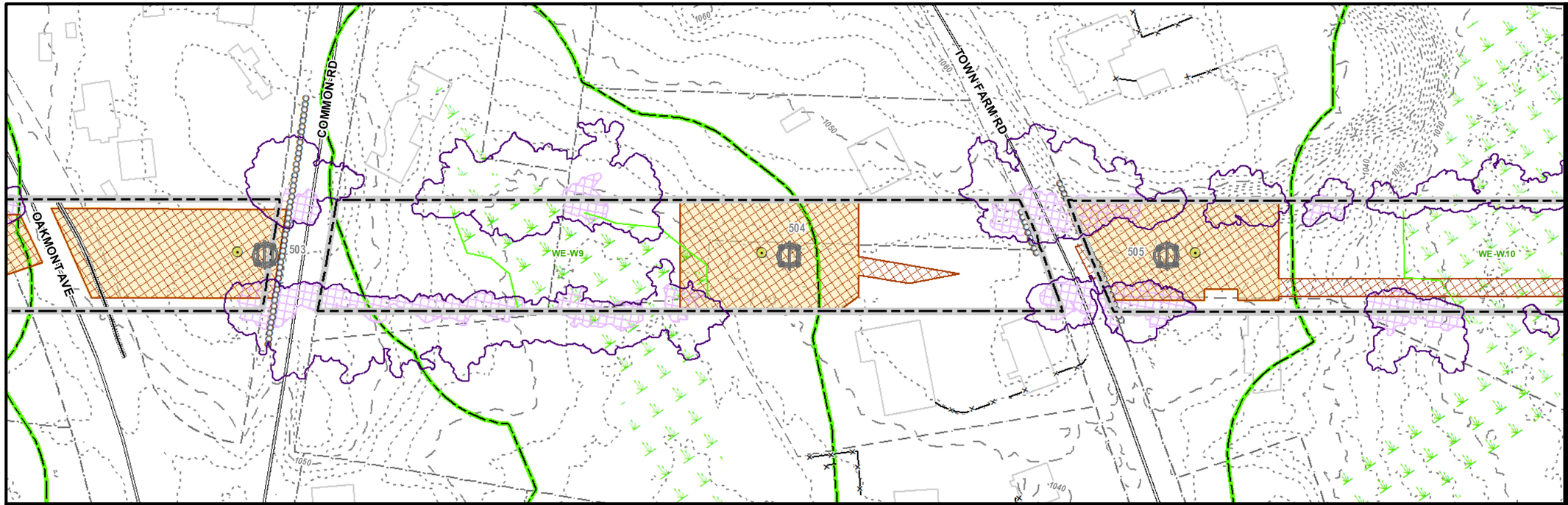
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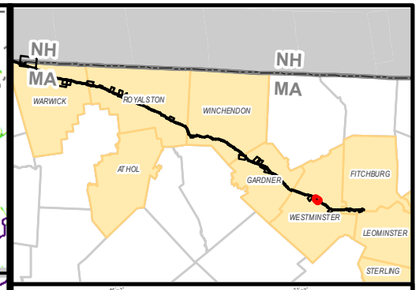
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WALTHAM, MA 02451

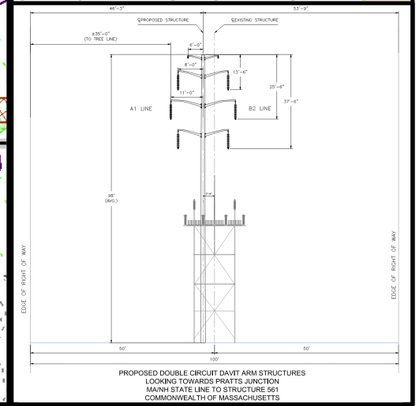
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1 MERCANTILE STREET SUITE 601
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 120 OF 137

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0 50 100
Feet

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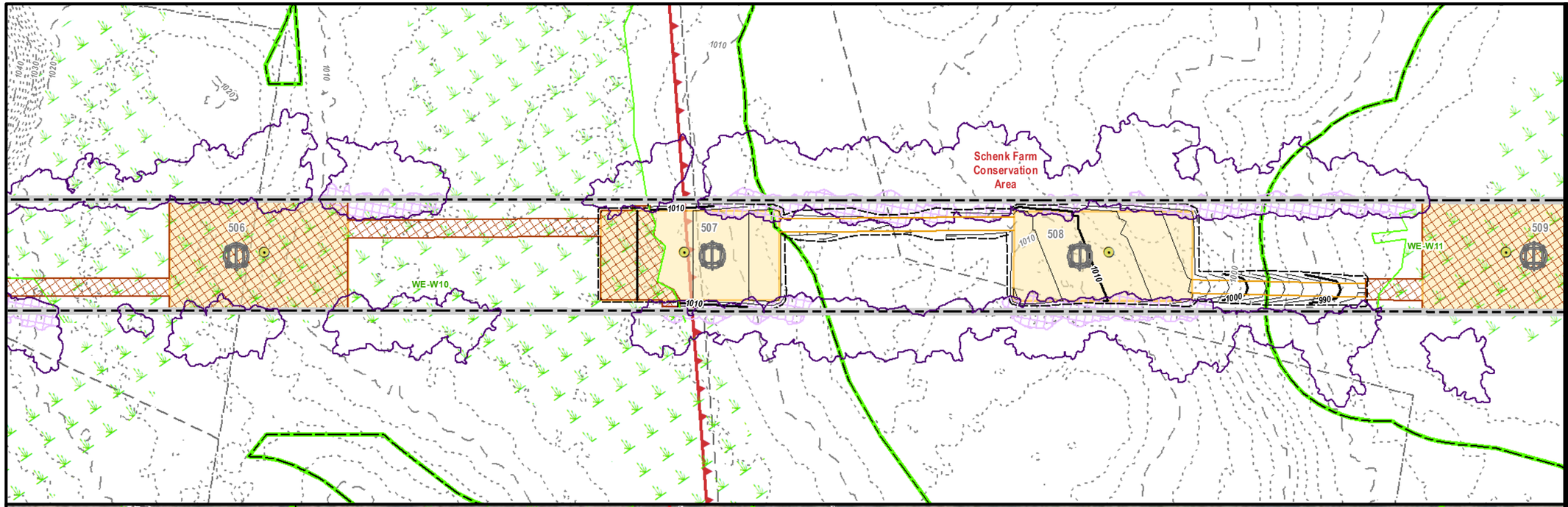
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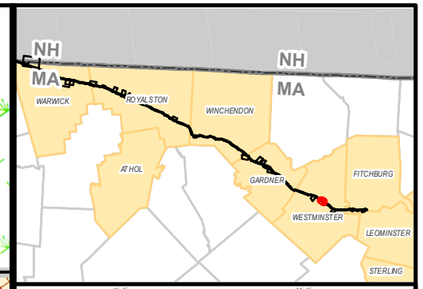
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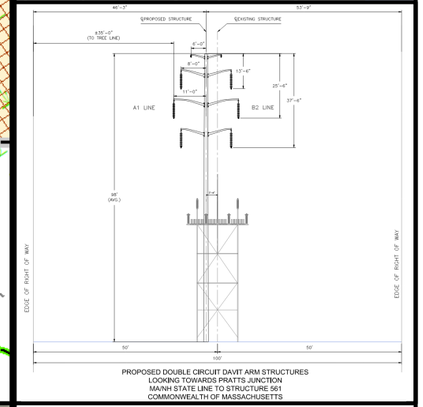
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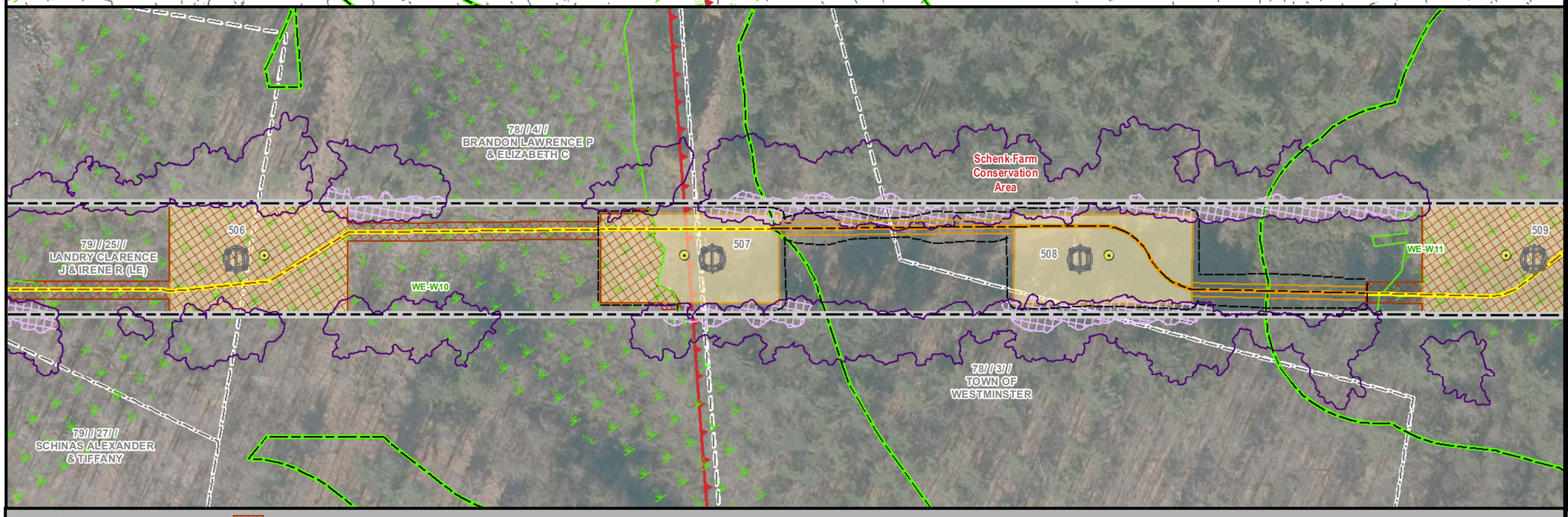
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 121 OF 137

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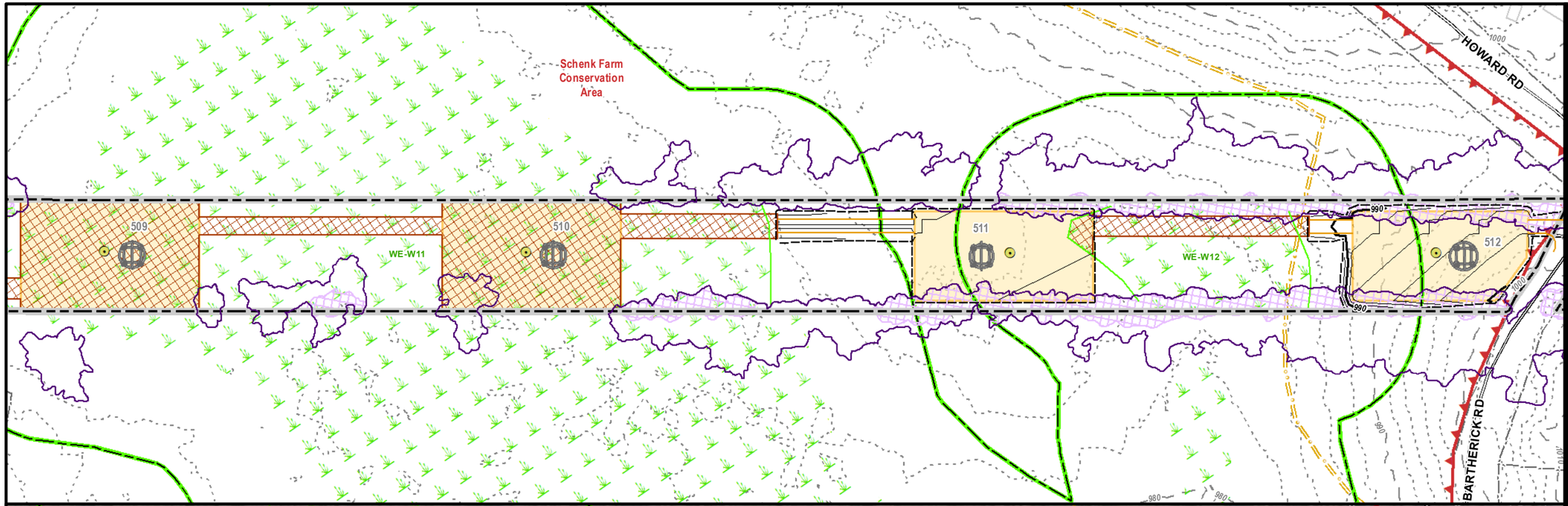
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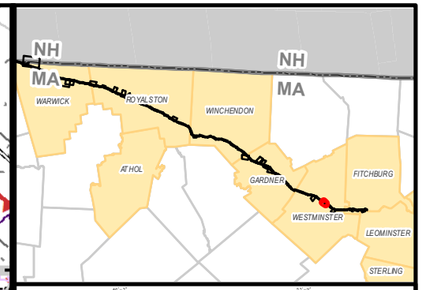
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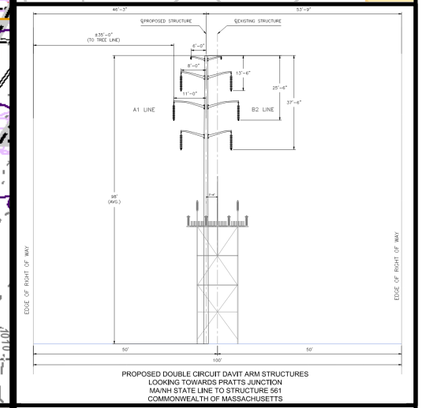
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BSC GROUP
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WORCESTER, MA 01608

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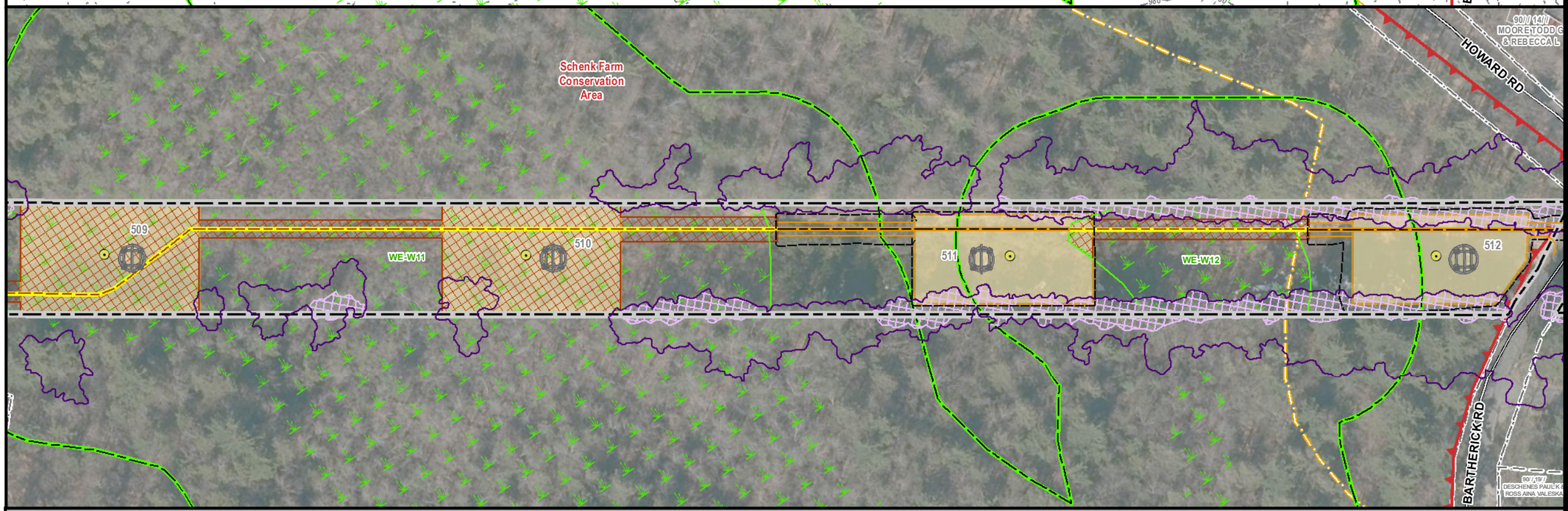
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 122 OF 137

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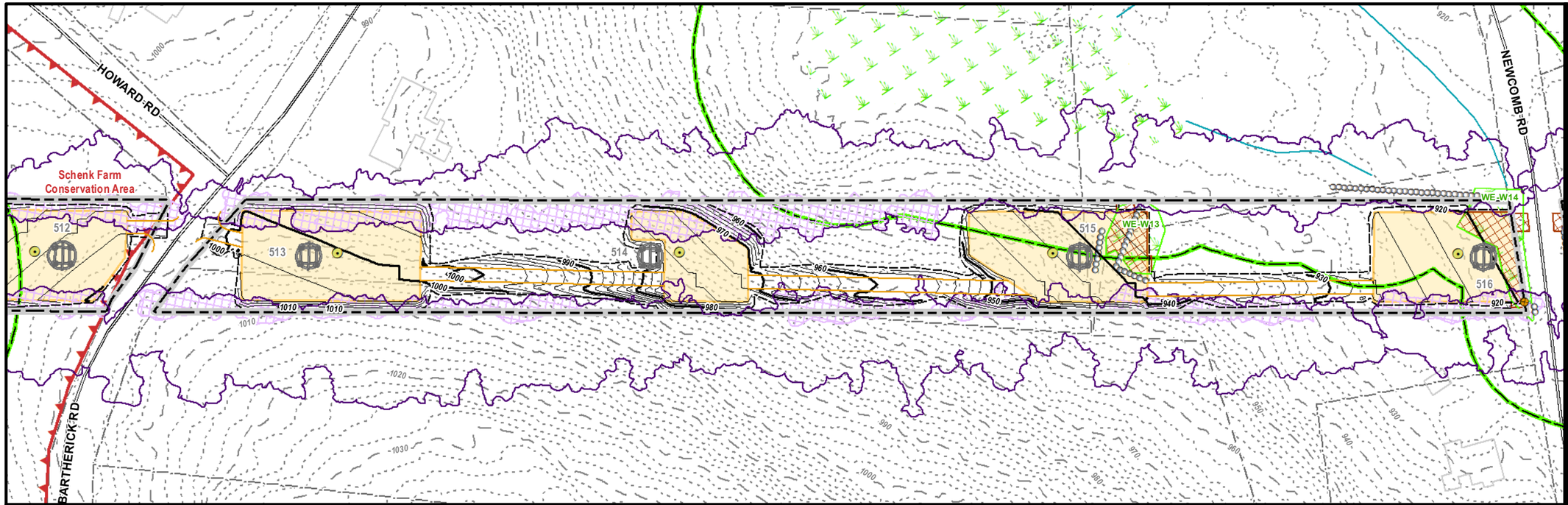
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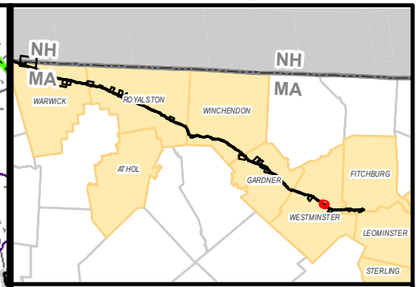
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170 DATA DRIVE
WALTHAM, MA 02451

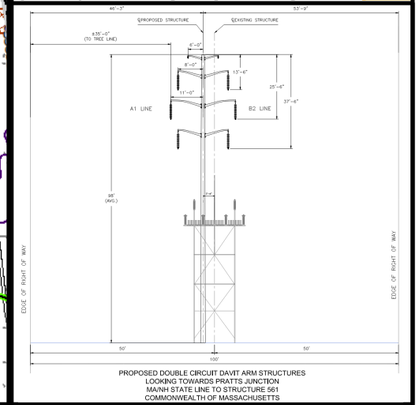
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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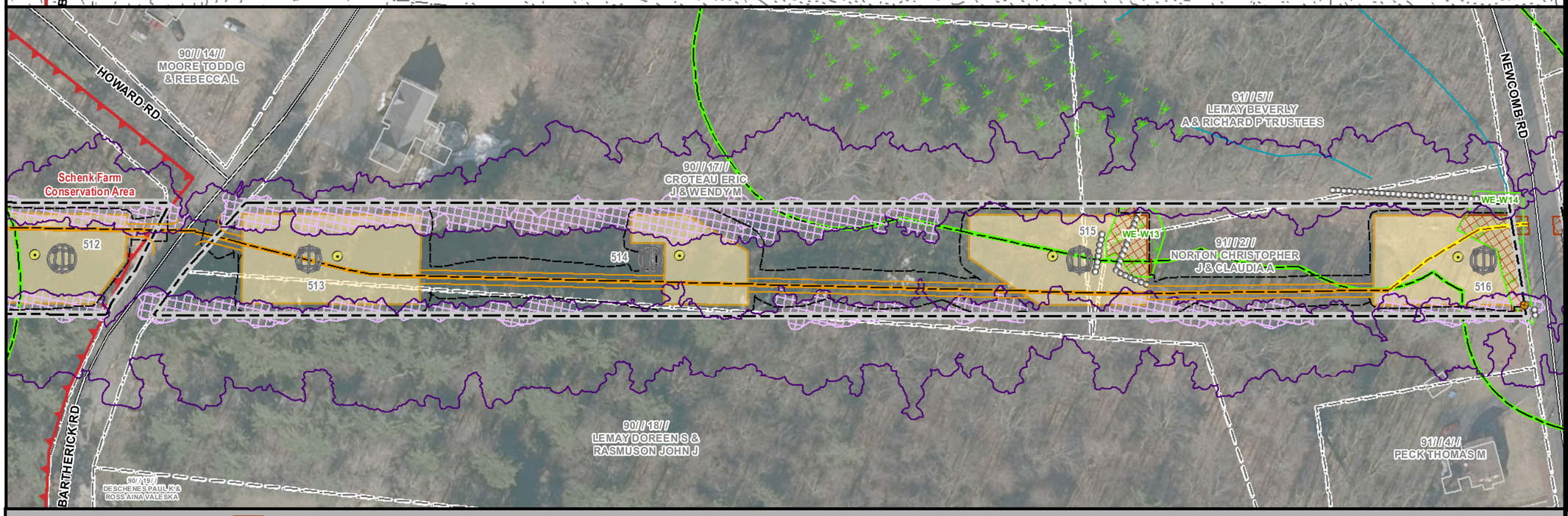
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WESTMINSTER, MA

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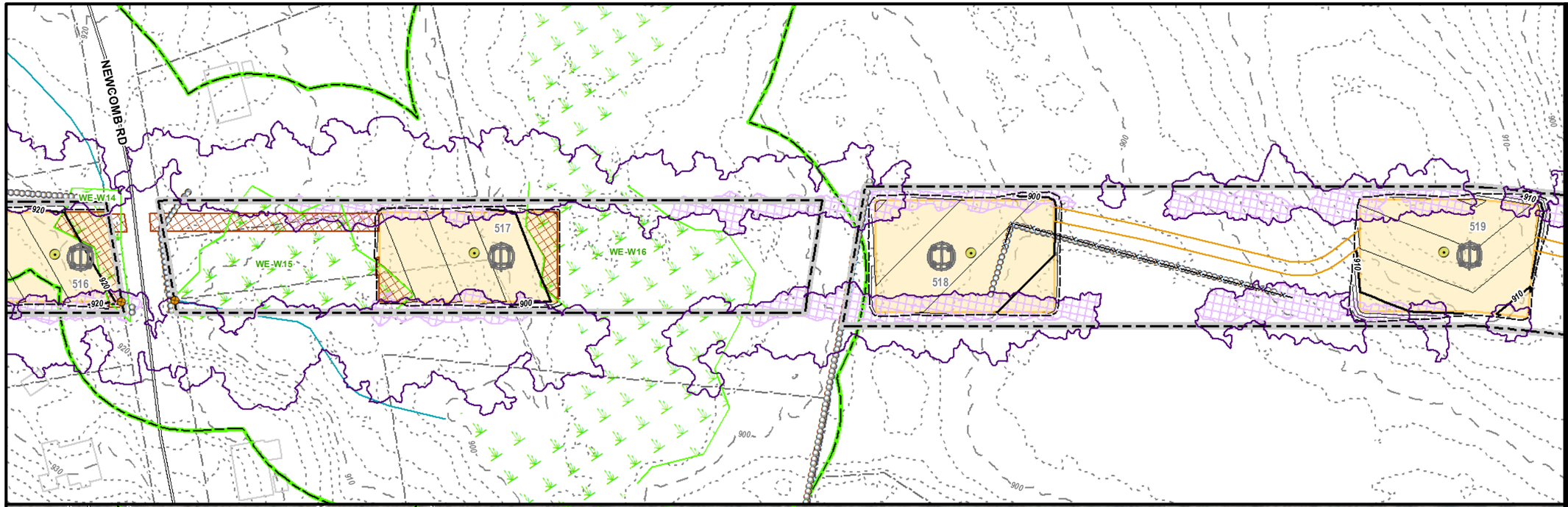
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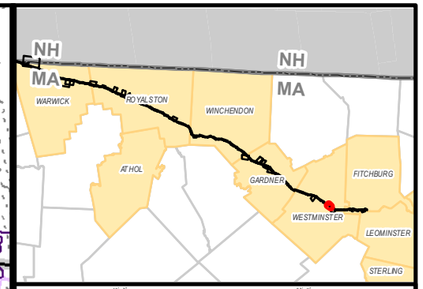
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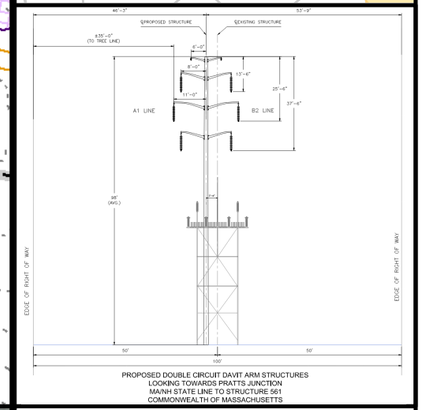
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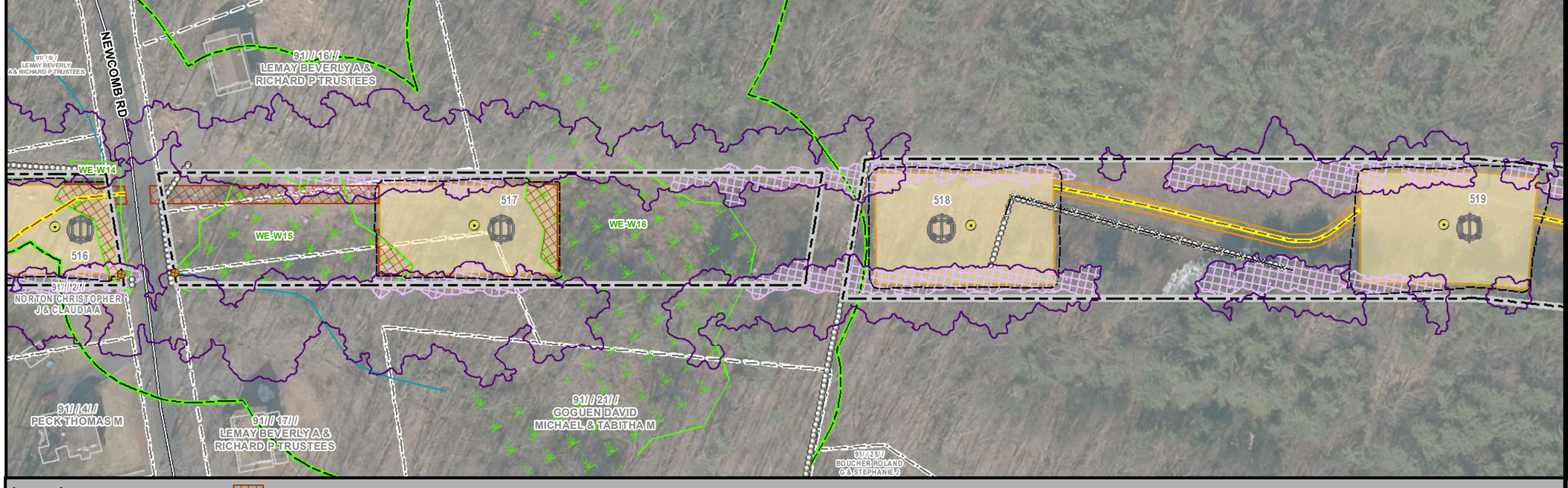
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MEPA General Purpose Plans

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ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 124 OF 137

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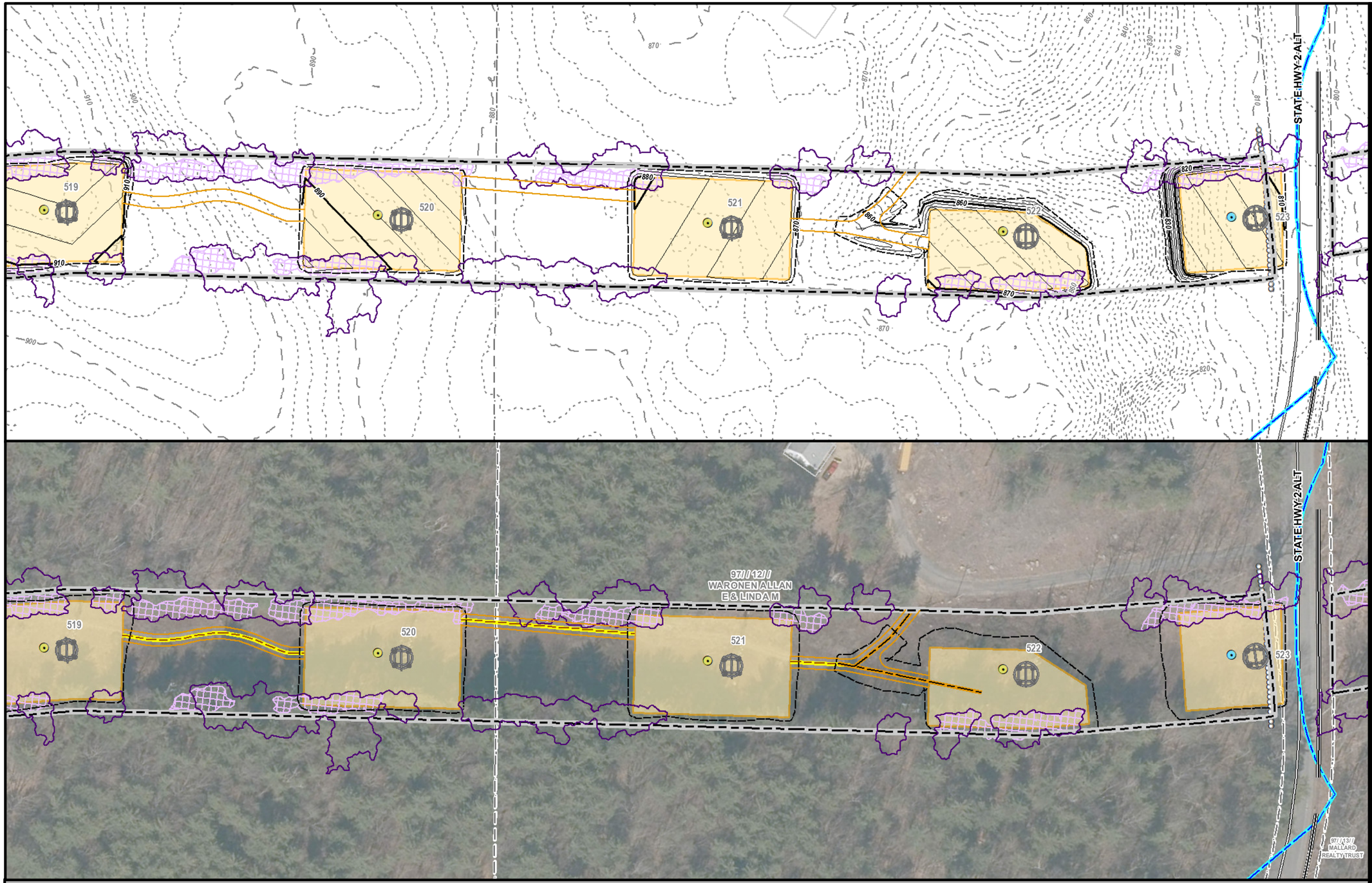
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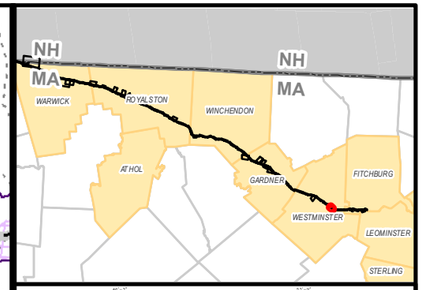
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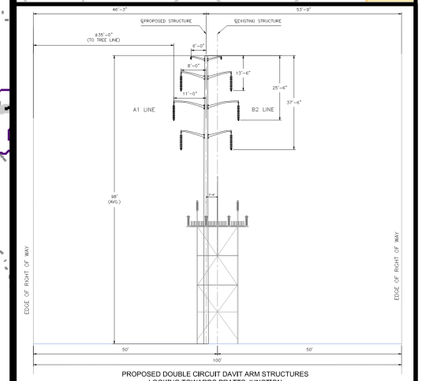
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WORCESTER, MA 01608

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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 125 OF 137

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
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Article 97 Lands

- DCR-State Parks & Recreation
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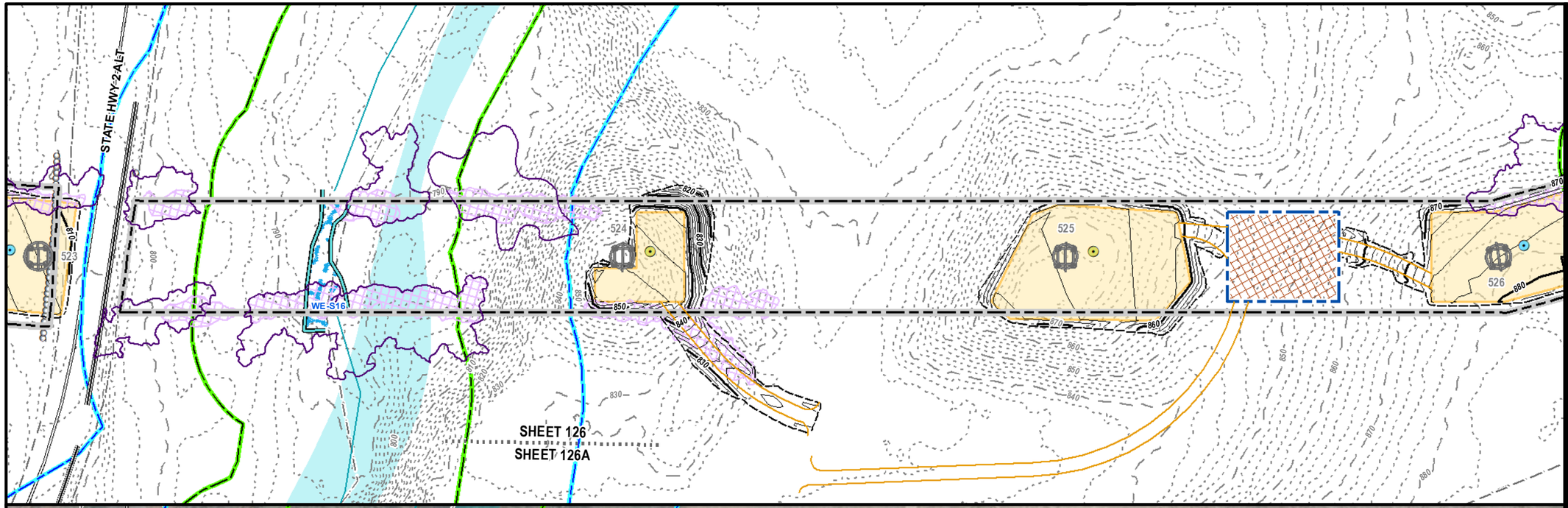
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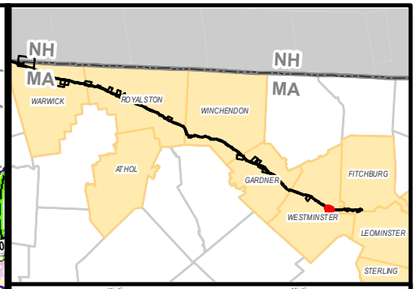
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nationalgrid
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WALTHAM, MA 02451

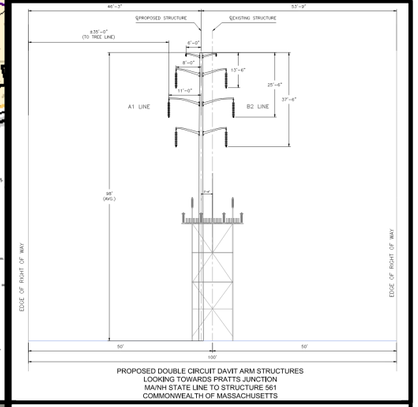
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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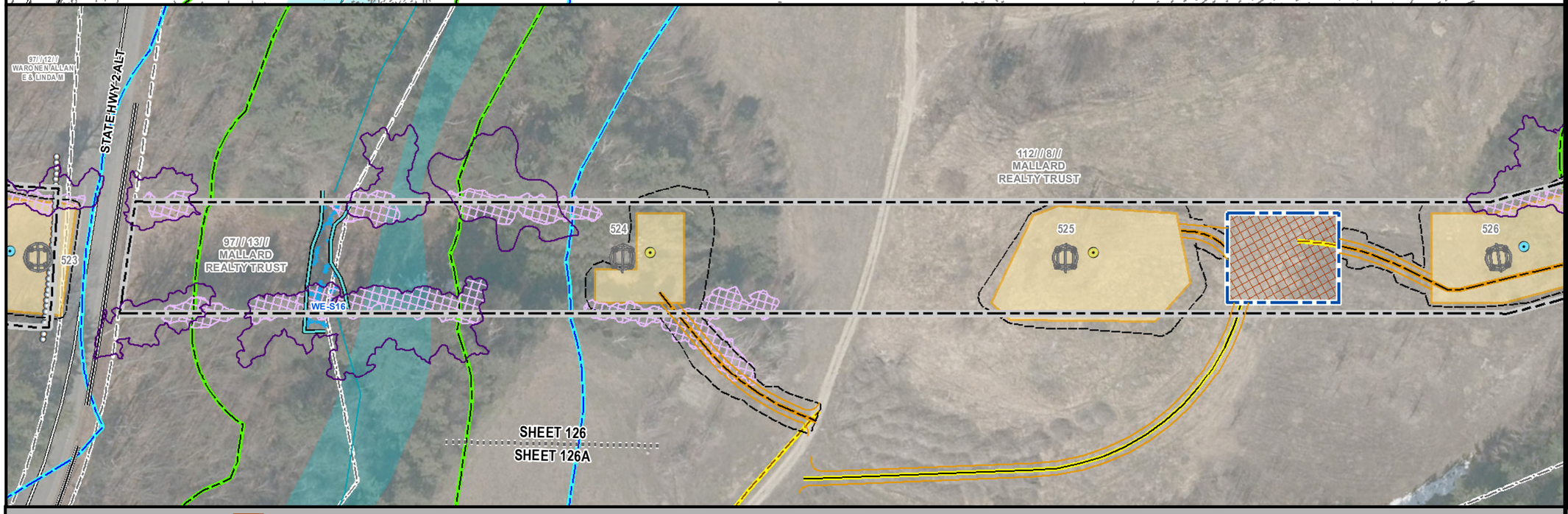
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 126 OF 137

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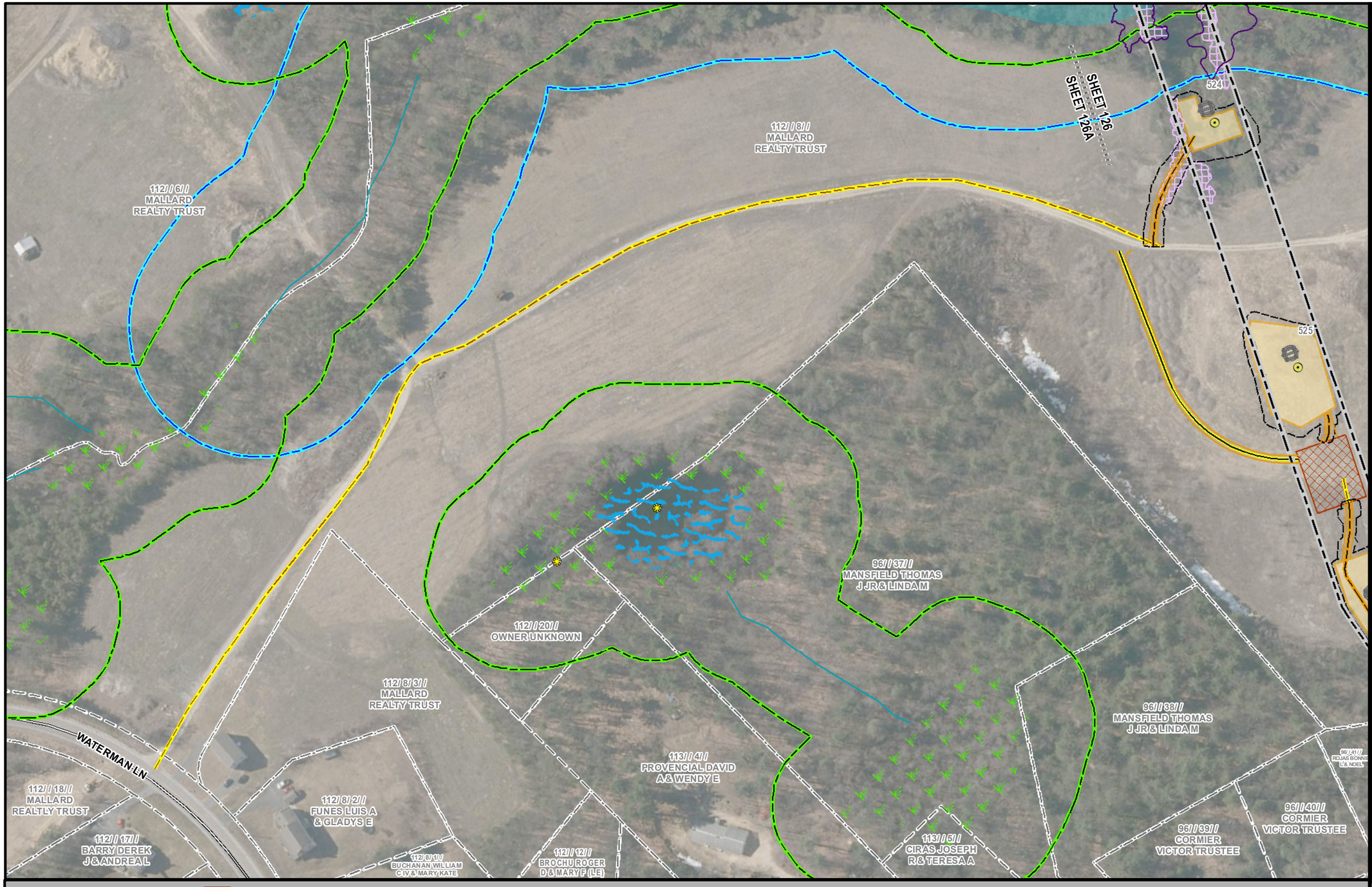
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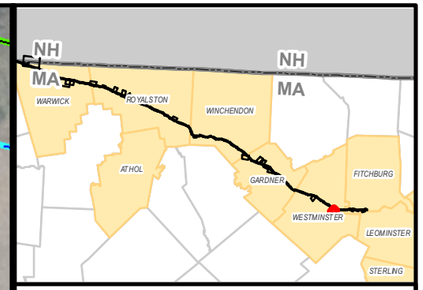
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170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 126A OF 137

1 inch = 150 feet
0 75 150
Feet

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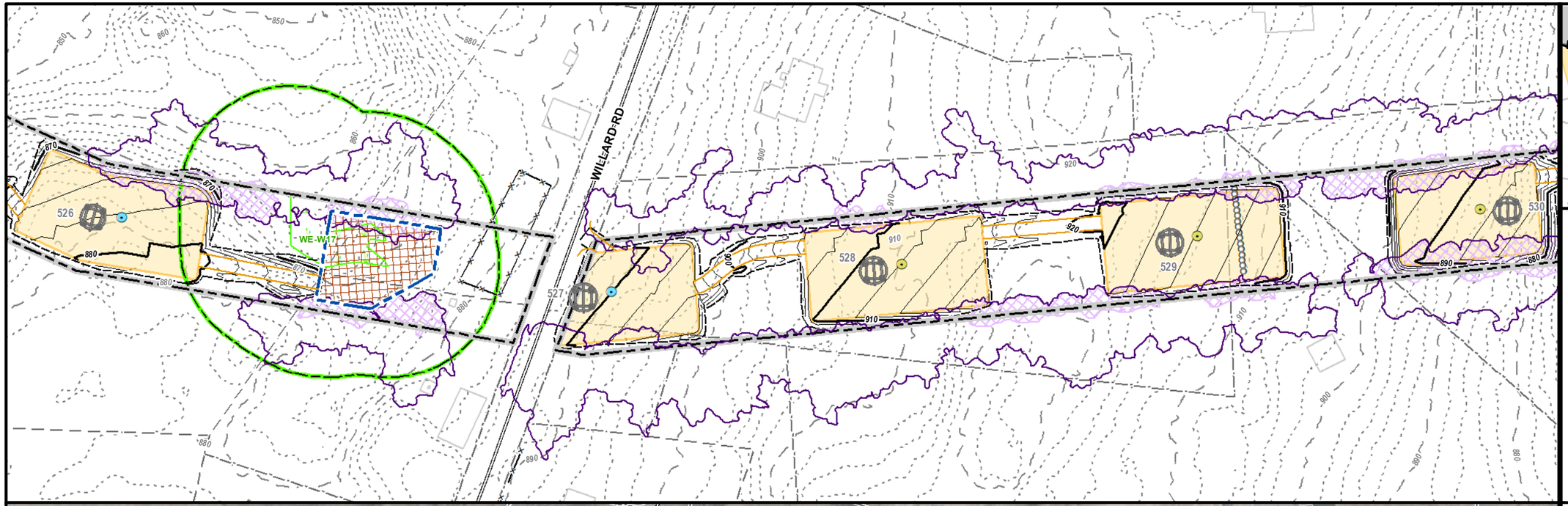
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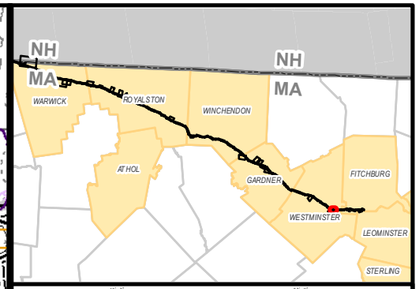
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nationalgrid
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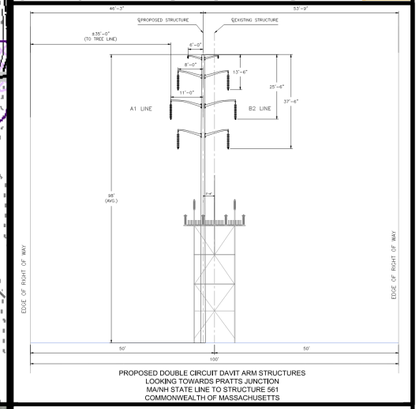
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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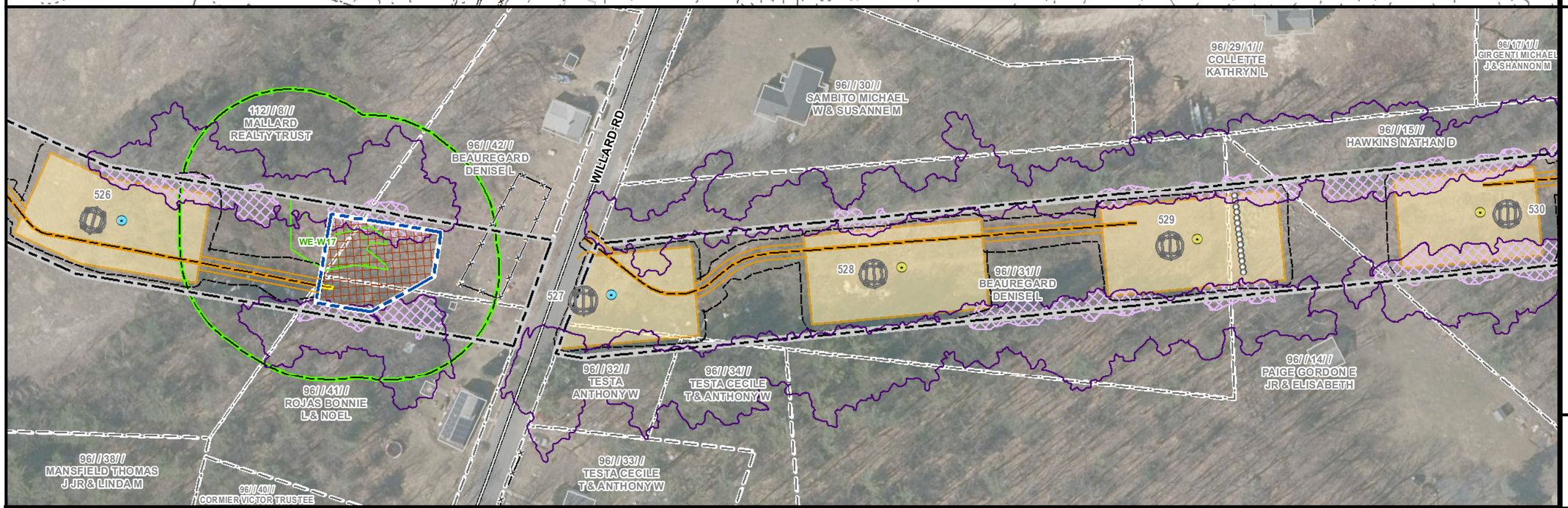
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA

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0 50 100
Feet

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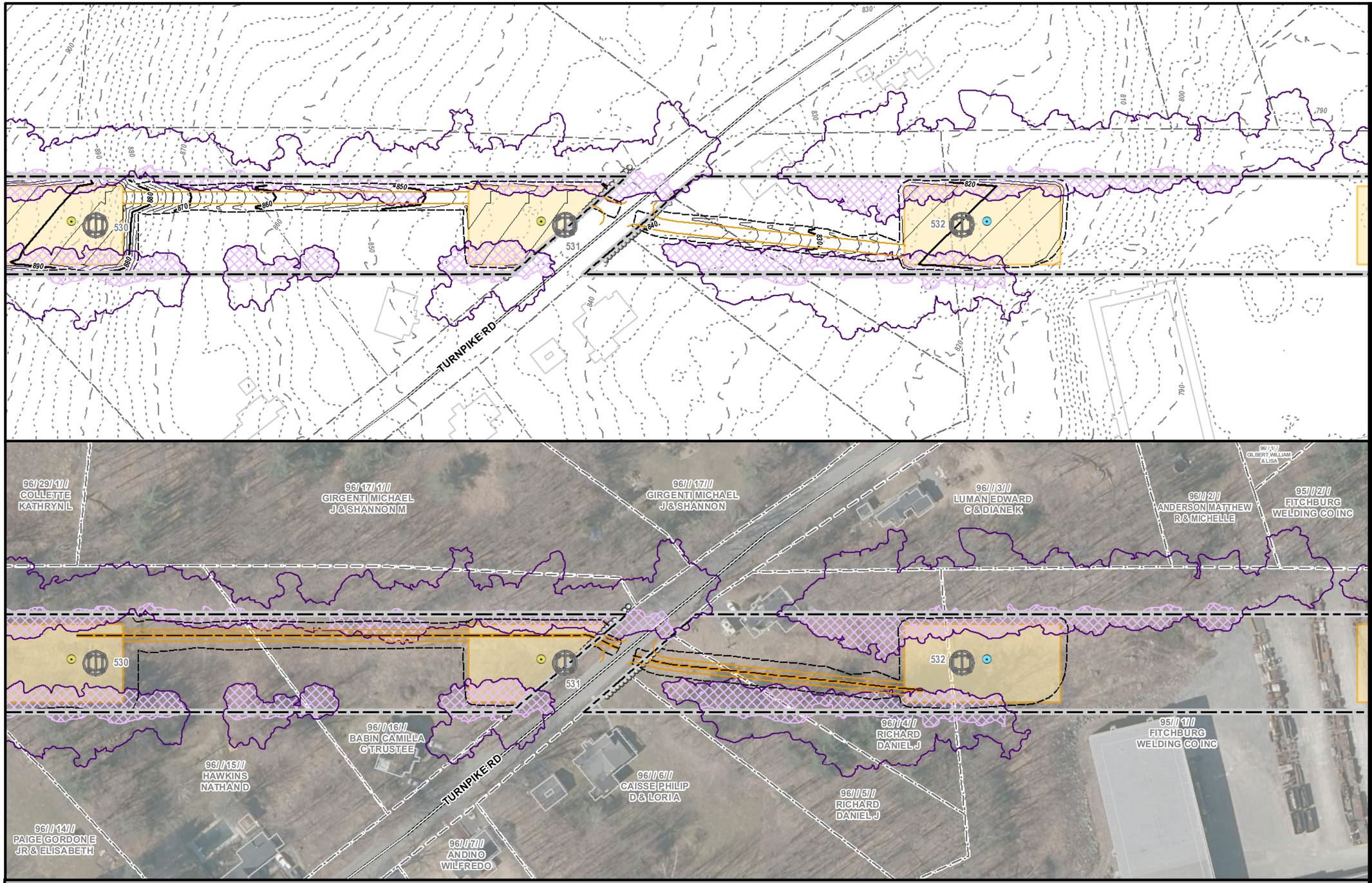
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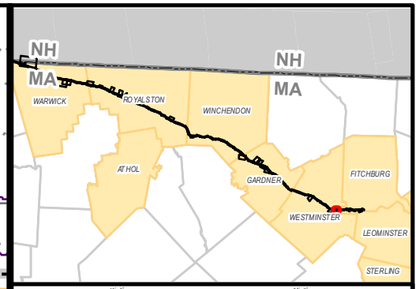
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

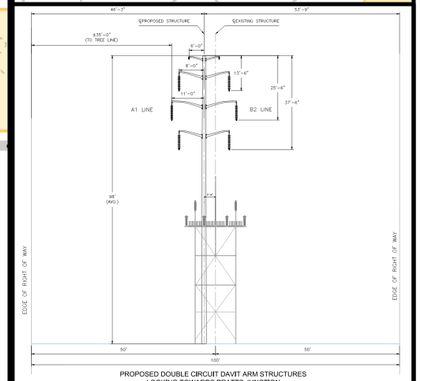
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1 MERCANTILE STREET SUITE 601
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER, MA
PAGE 128 OF 137

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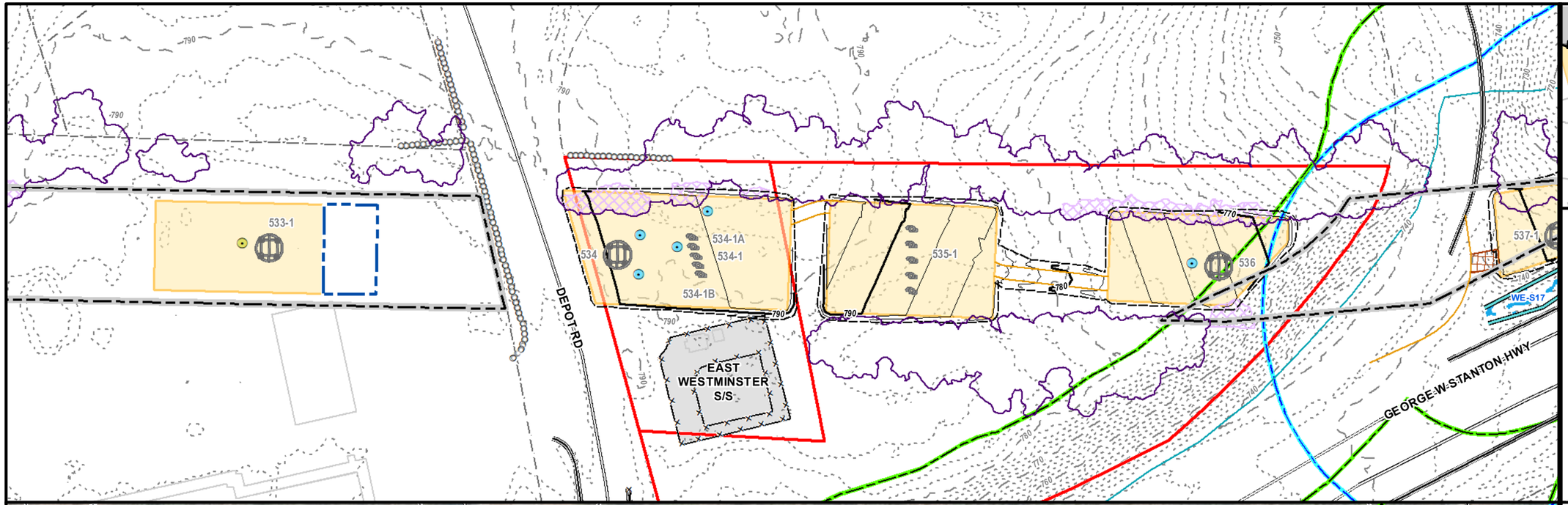
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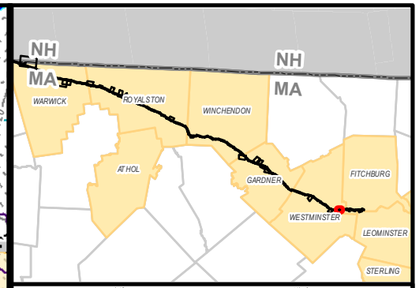
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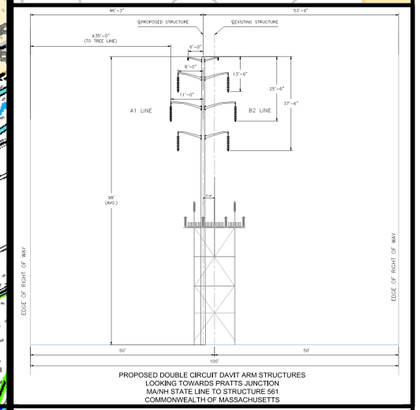
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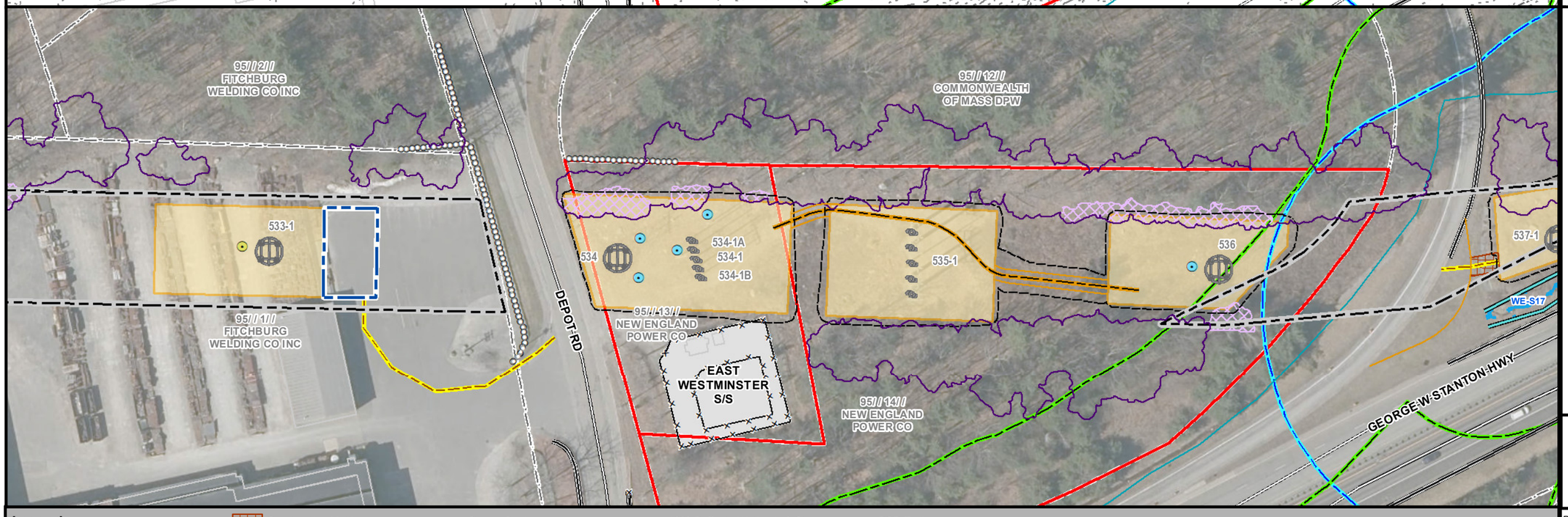
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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WESTMINSTER, MA
PAGE 129 OF 137

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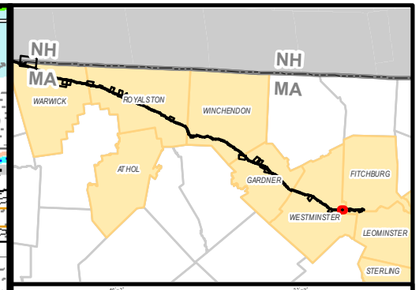
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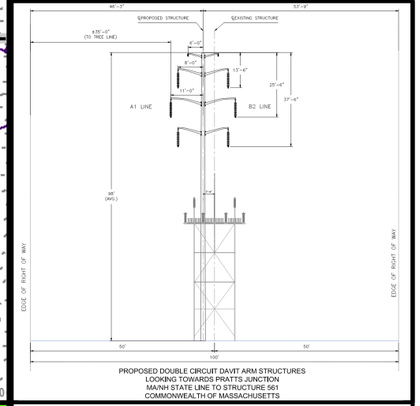
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LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

WESTMINSTER & FITCHBURG, MA
PAGE 130 OF 137

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Feet

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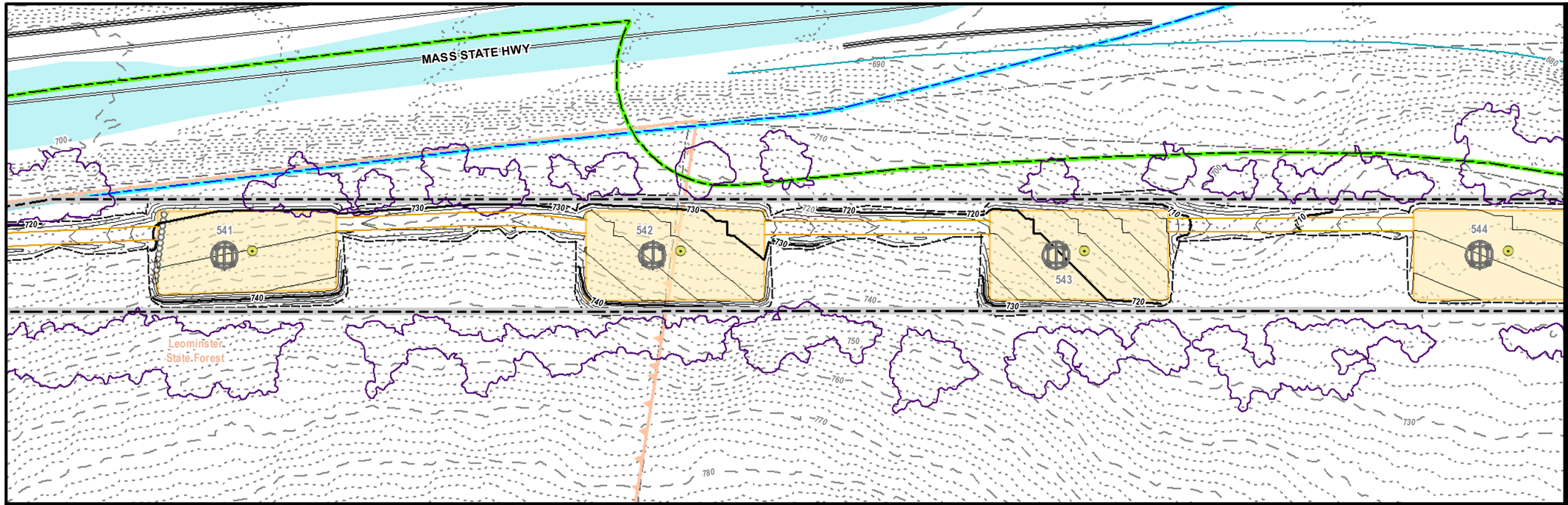
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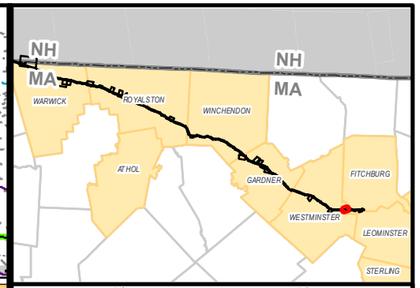
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nationalgrid
170 DATA DRIVE
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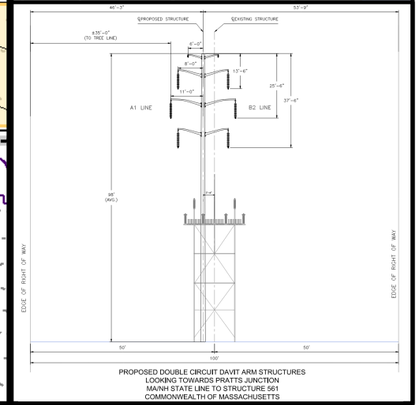
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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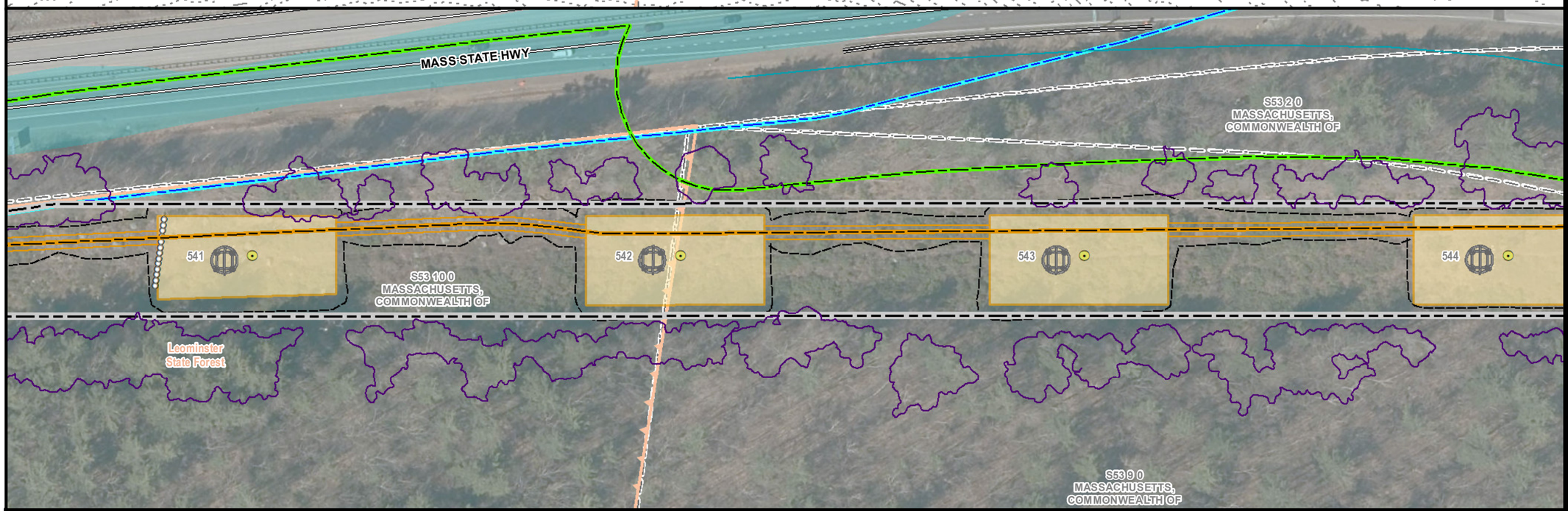
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MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

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FITCHBURG, MA
PAGE 131 OF 137

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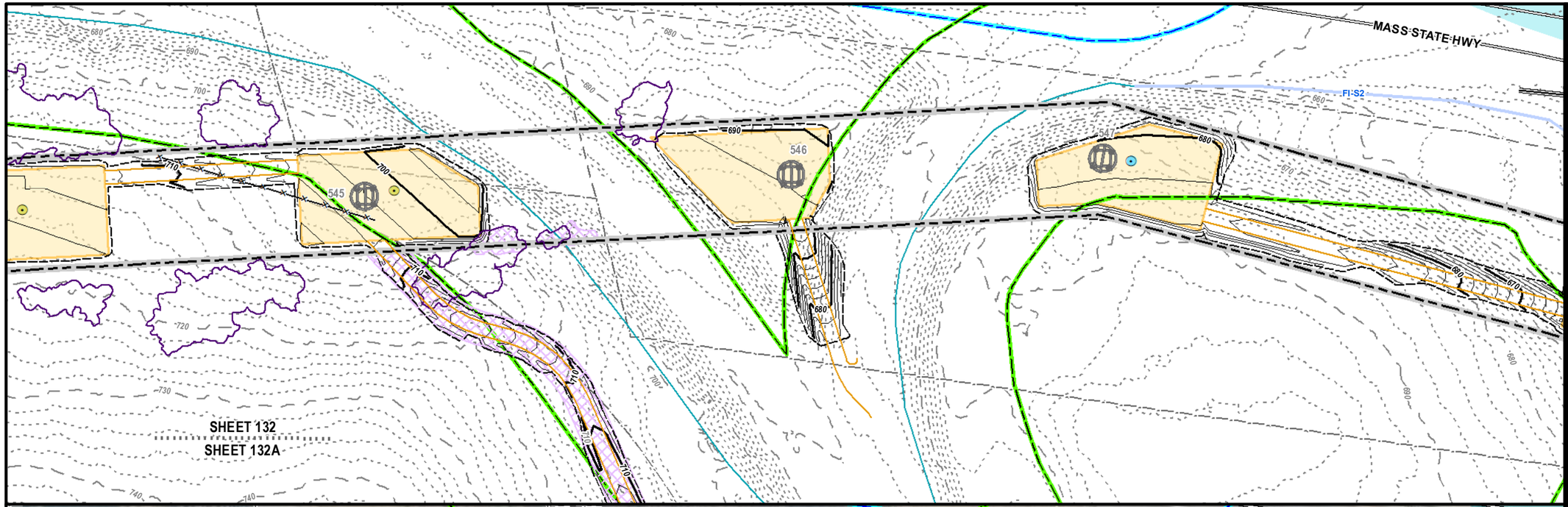
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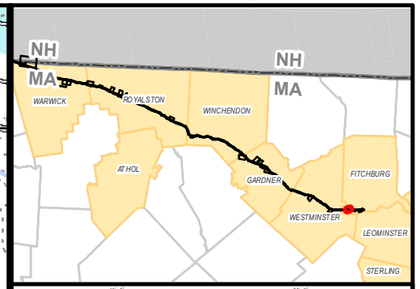
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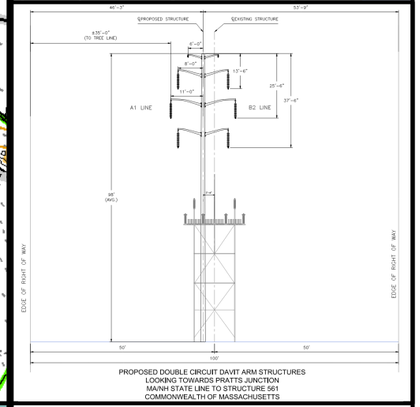
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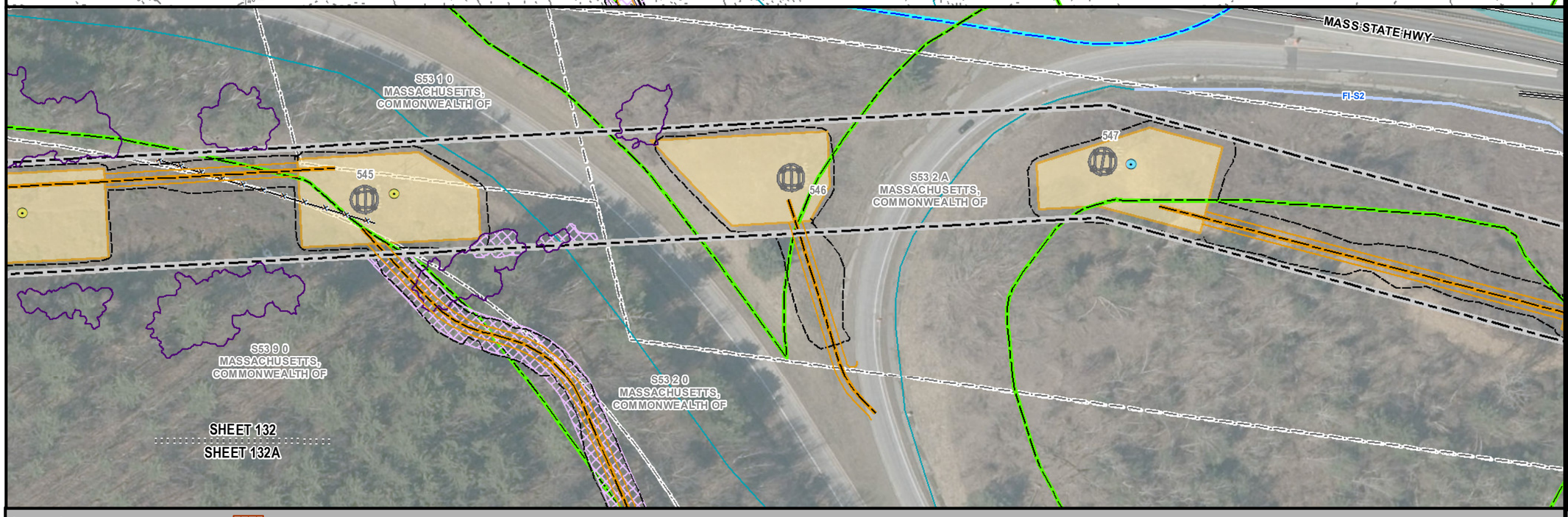
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

FITCHBURG, MA
PAGE 132 OF 137

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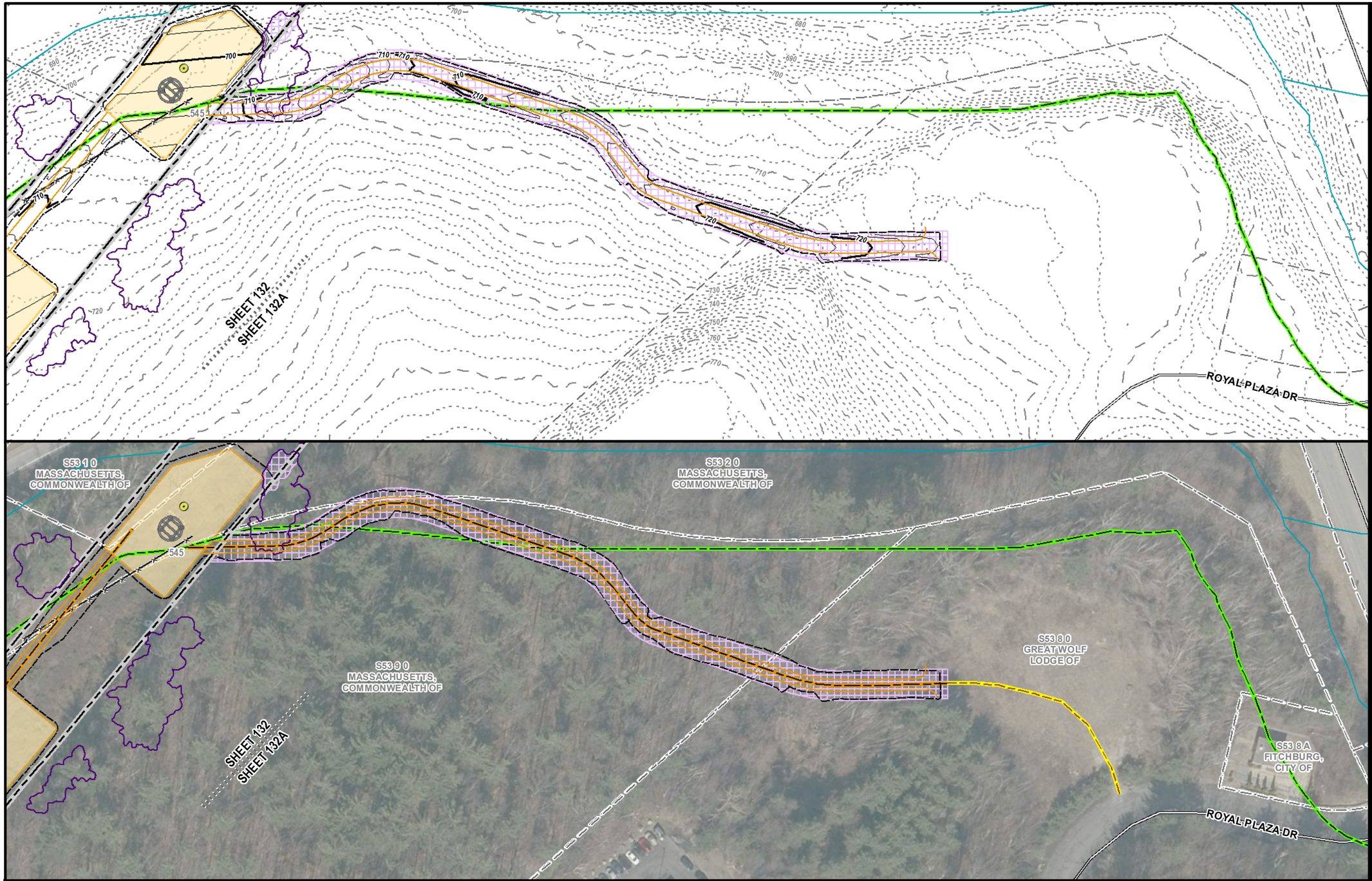
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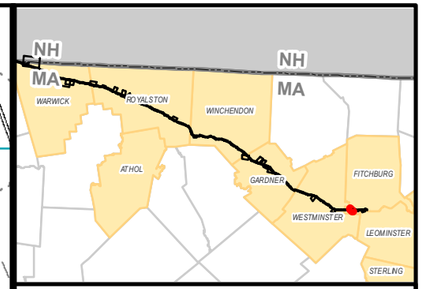
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MEPA General Purpose Plans

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FITCHBURG, MA
PAGE 132A OF 137

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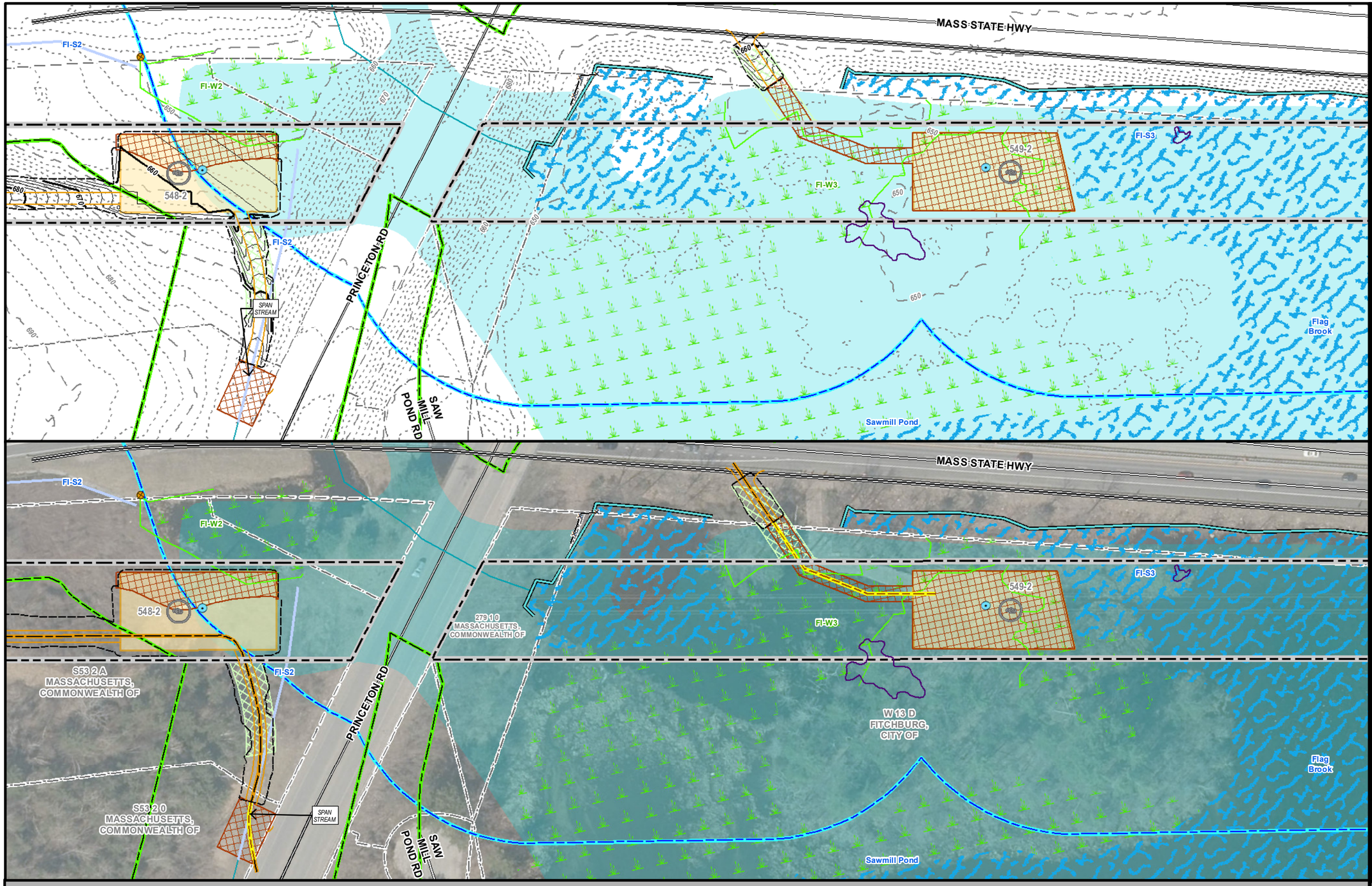
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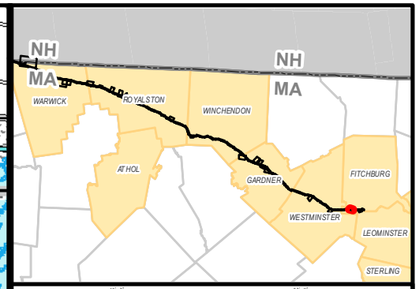
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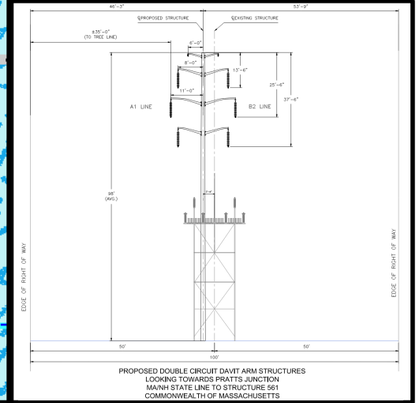
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FITCHBURG, MA
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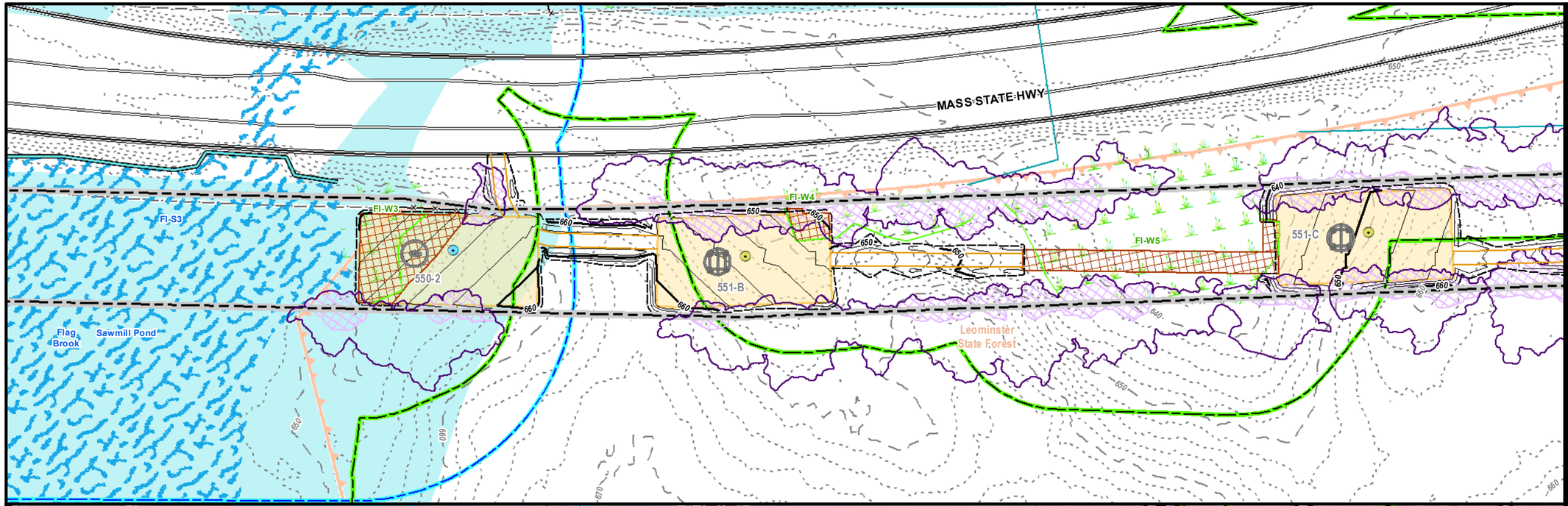
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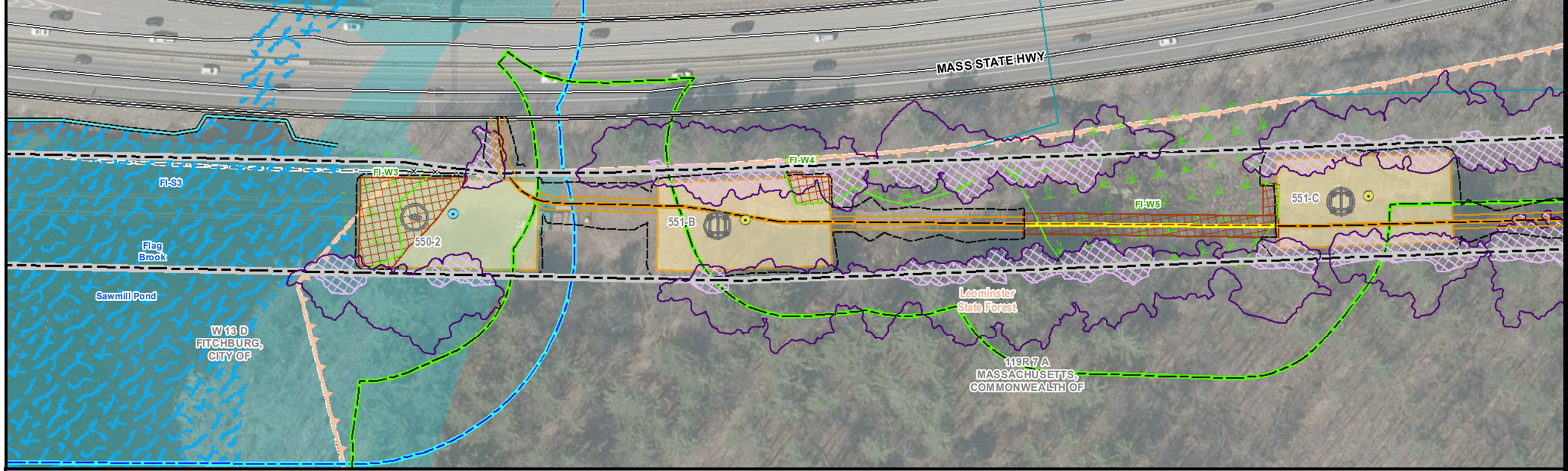
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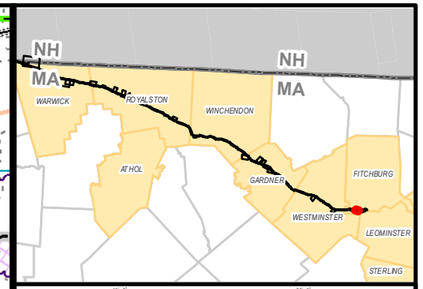
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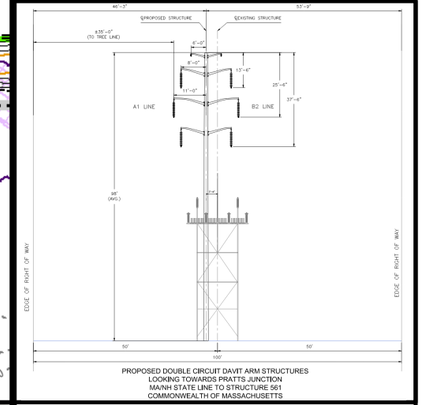
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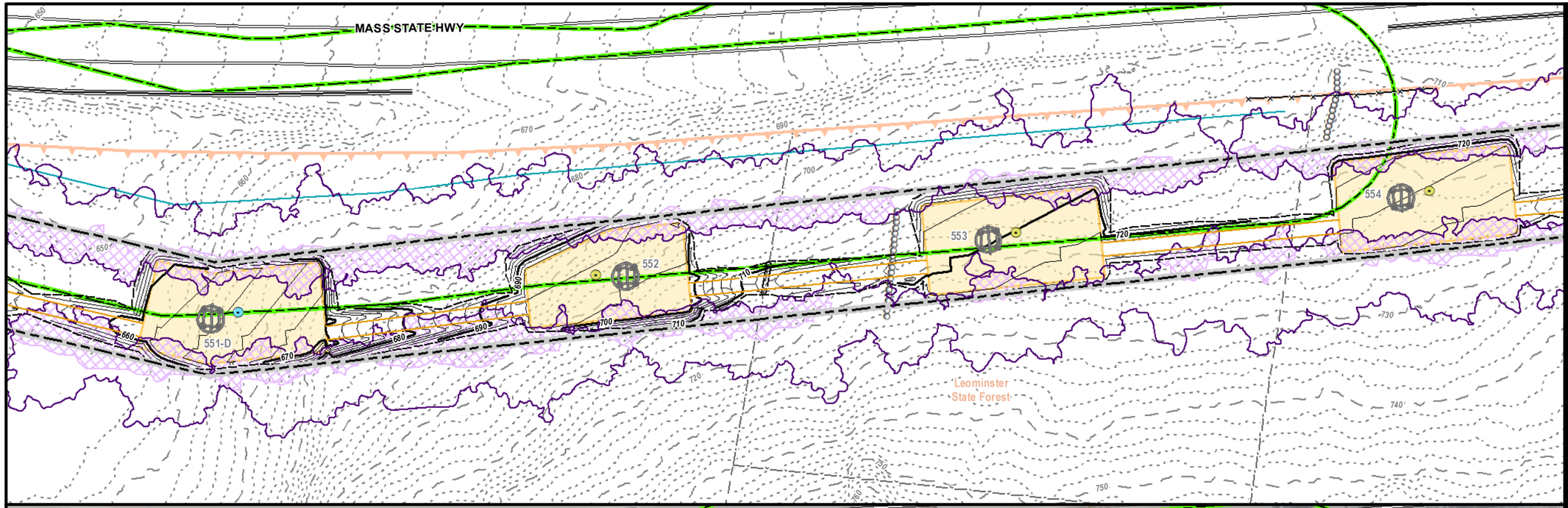
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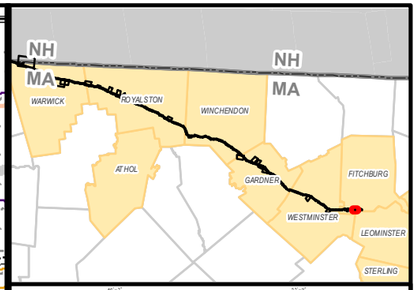
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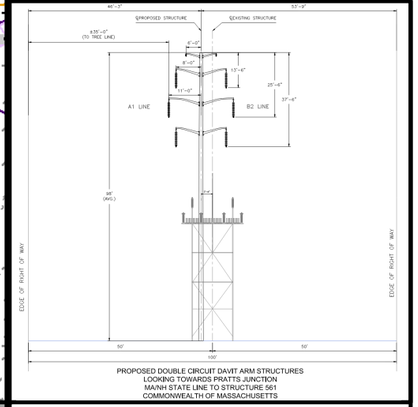
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; Certified Vernal Pools; Potential Vernal Pools; NHESP Priority Habitats; NHESP Estimated Habitats; NHESP Restricted Data; Hydrography; MADEP Hydrologic Connections; MADEP Wetlands; FEMA 100yr Floodplain; Public Water Supply; Zone II Wellhead Protection Area; Interim Wellhead Protection Area; Surface Water Protection Zone; Outstanding Resource Water; Areas of Critical Environmental Concern; Watershed Protection Act Zones; Ch. 91 Tidelands Jurisdiction; Article 97 Land; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed)

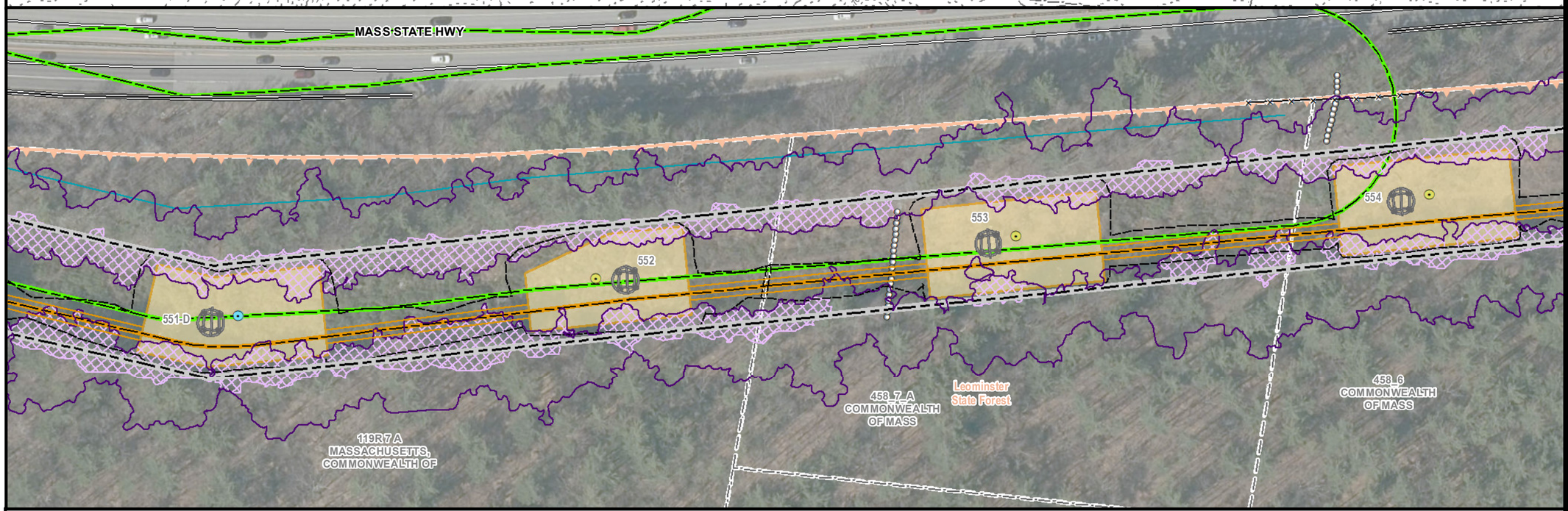
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS PRATTS JUNCTION
MA/NH STATE LINE TO STRUCTURE 561
COMMONWEALTH OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

FITCHBURG & LEOMINSTER, MA

1 inch = 100 feet

0 50 100

Feet

Legend

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Article 97 Lands

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**Indicates Layers Set to Transparency*

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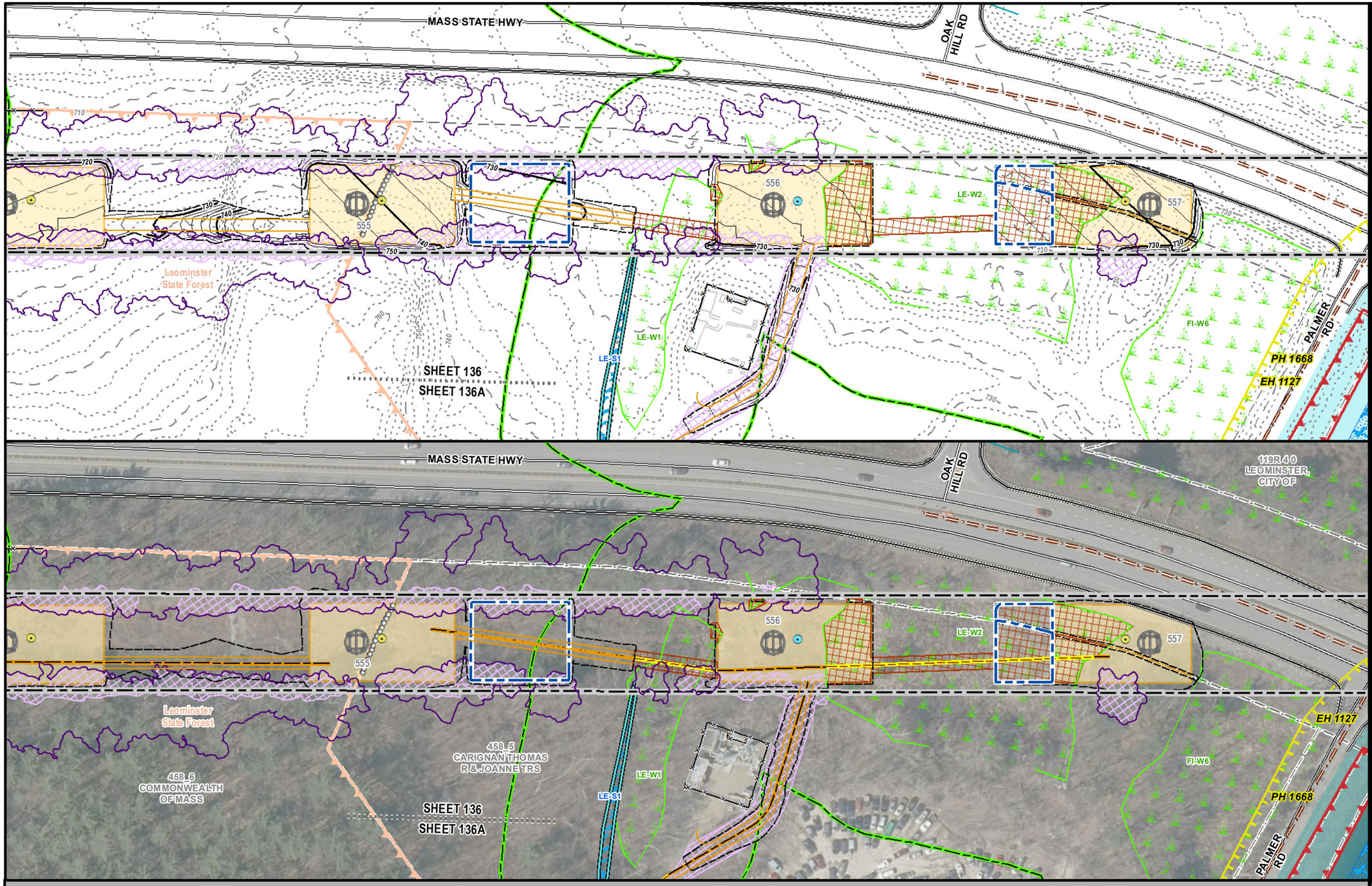
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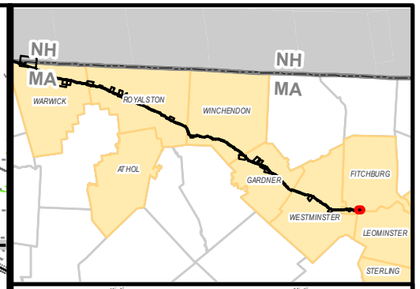
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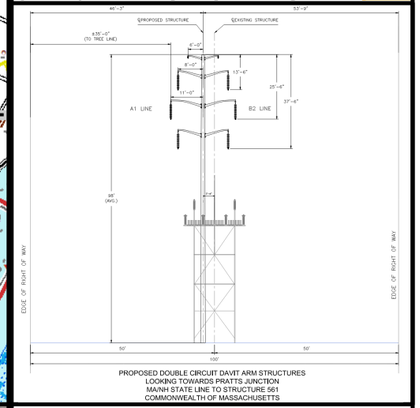
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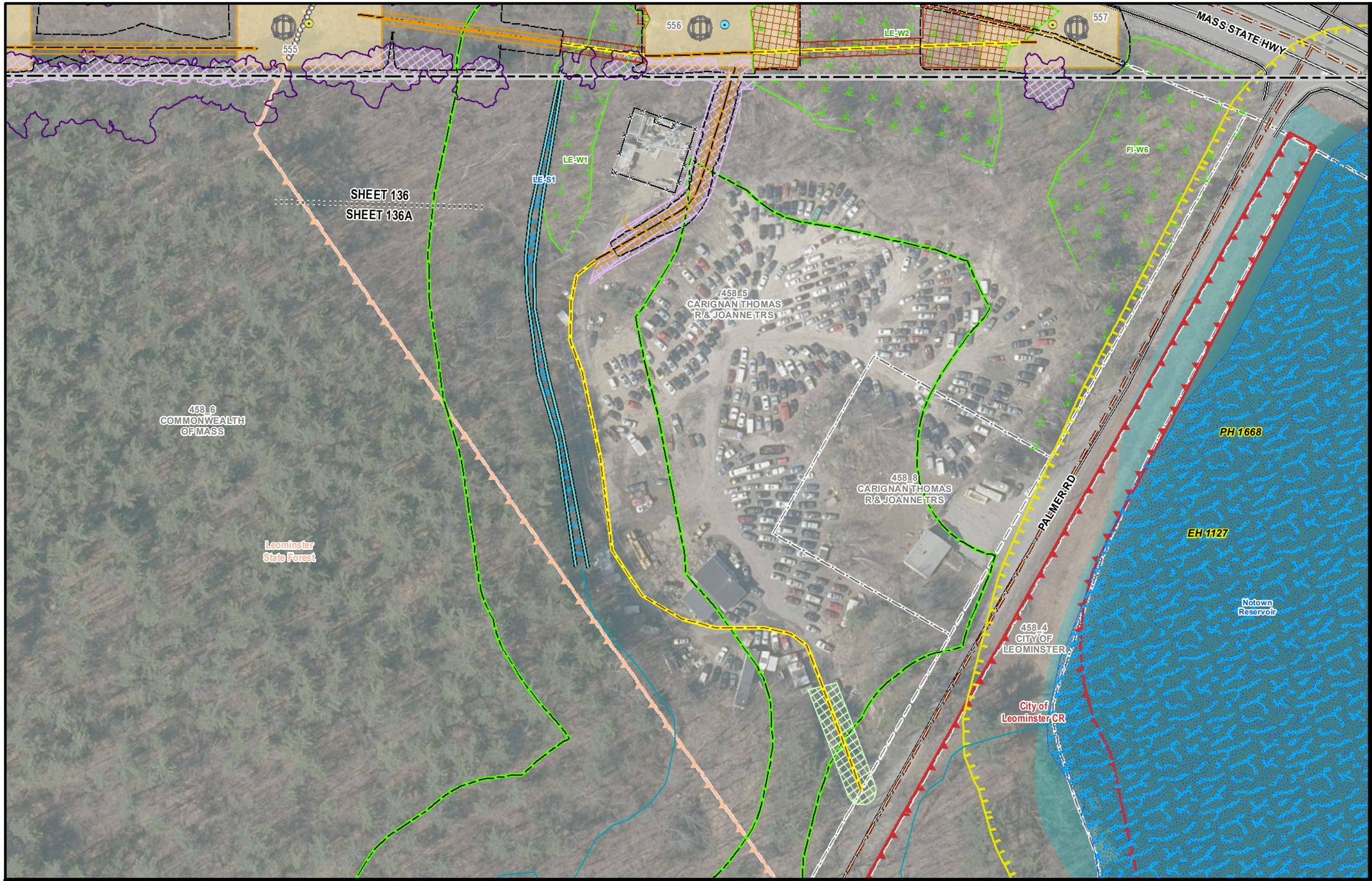
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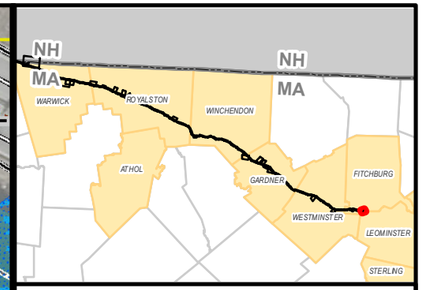
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

LEOMINSTER & FITCHBURG, MA
PAGE 136A OF 137

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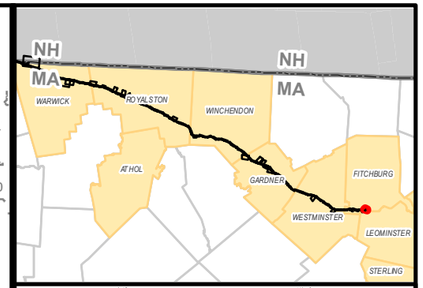
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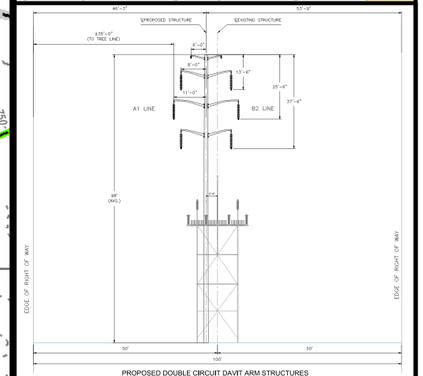
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE

FITCHBURG & LEOMINSTER, MA
PAGE 137 OF 137

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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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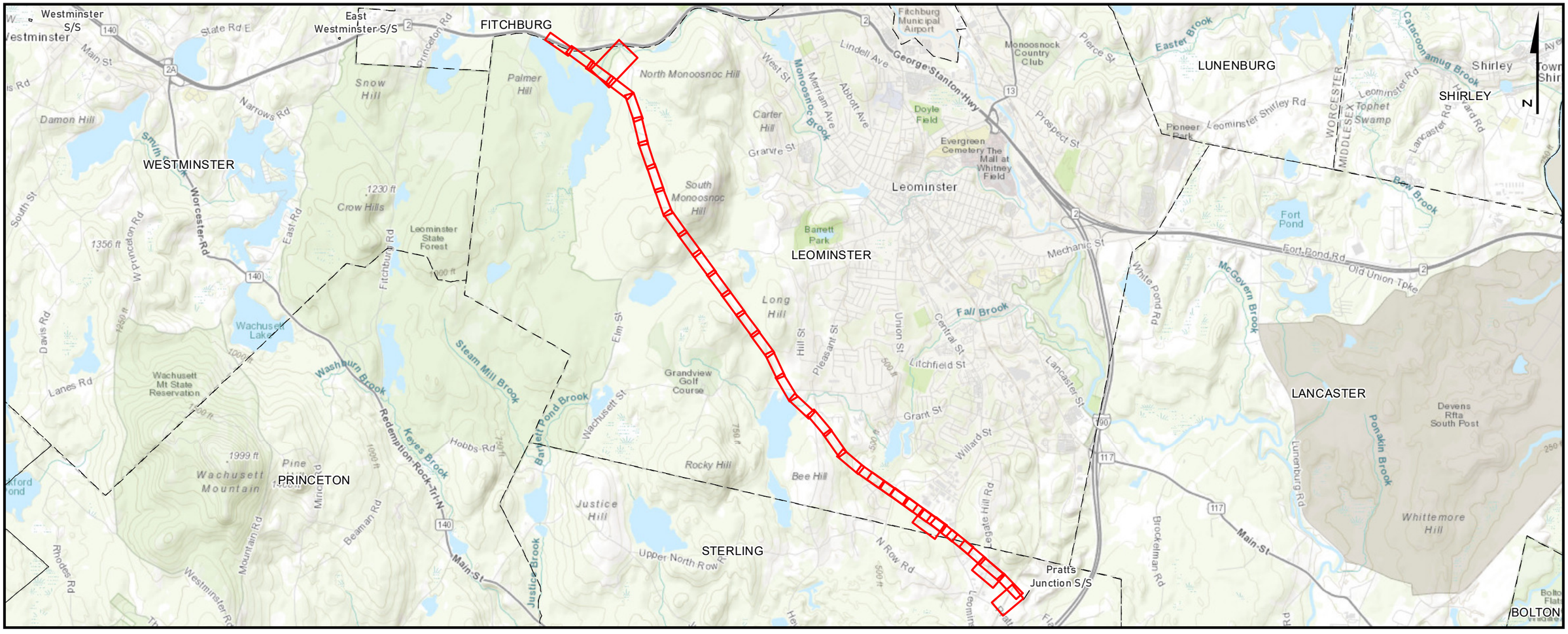
BSC Project Number: 89620.66

Asset Condition Refurbishment (ACR) Project - A1/B2 Mainline Centerline Change

Fitchburg, Leominster, & Sterling, MA

MEPA General Purpose Plans - 75% Design

July 17, 2024



PREPARED FOR:

nationalgrid

170 Data Drive
Waltham, MA 02451

INDEX OF FIGURES

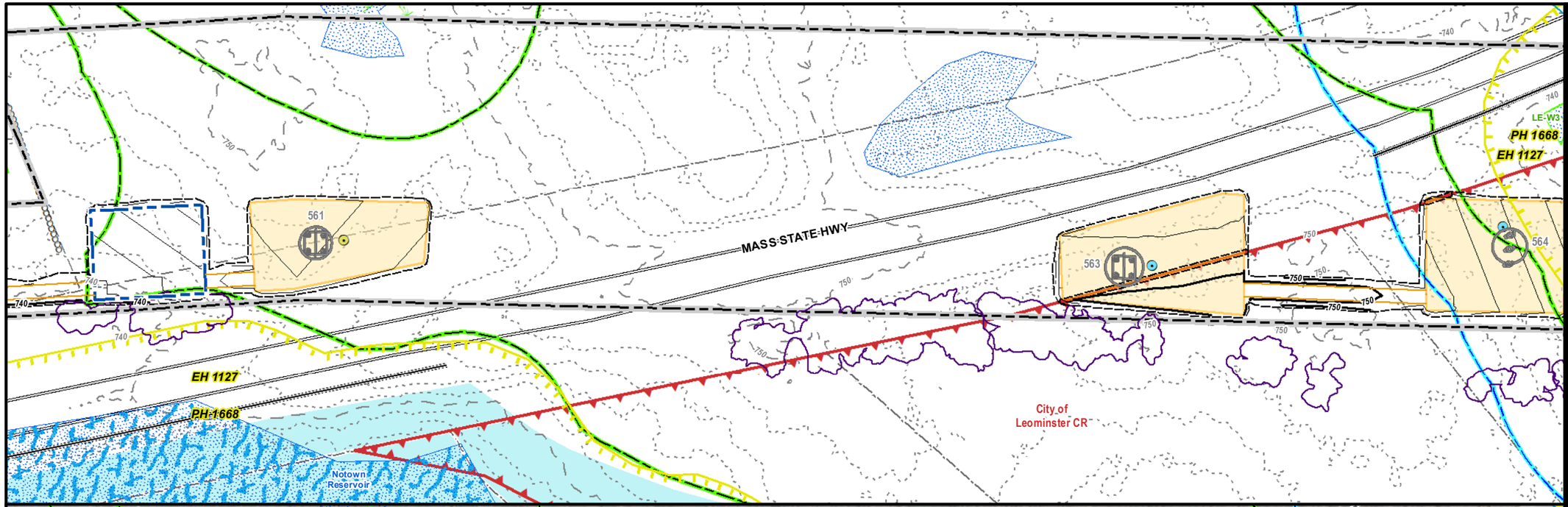
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1 - 33 - MAP SHEETS
1A - 33A - OFF ROW ACCESS SHEETS

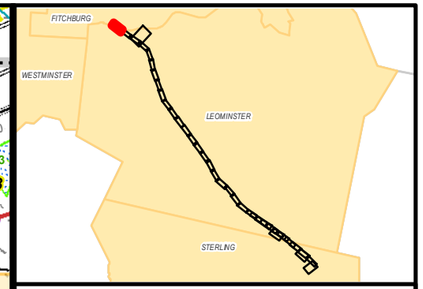
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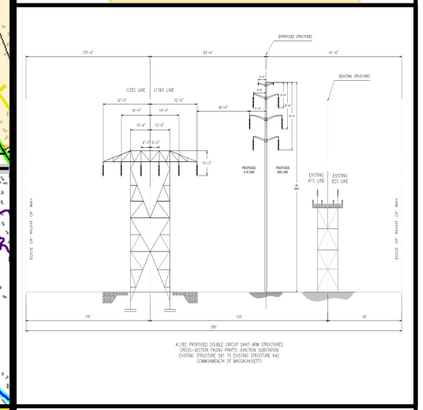
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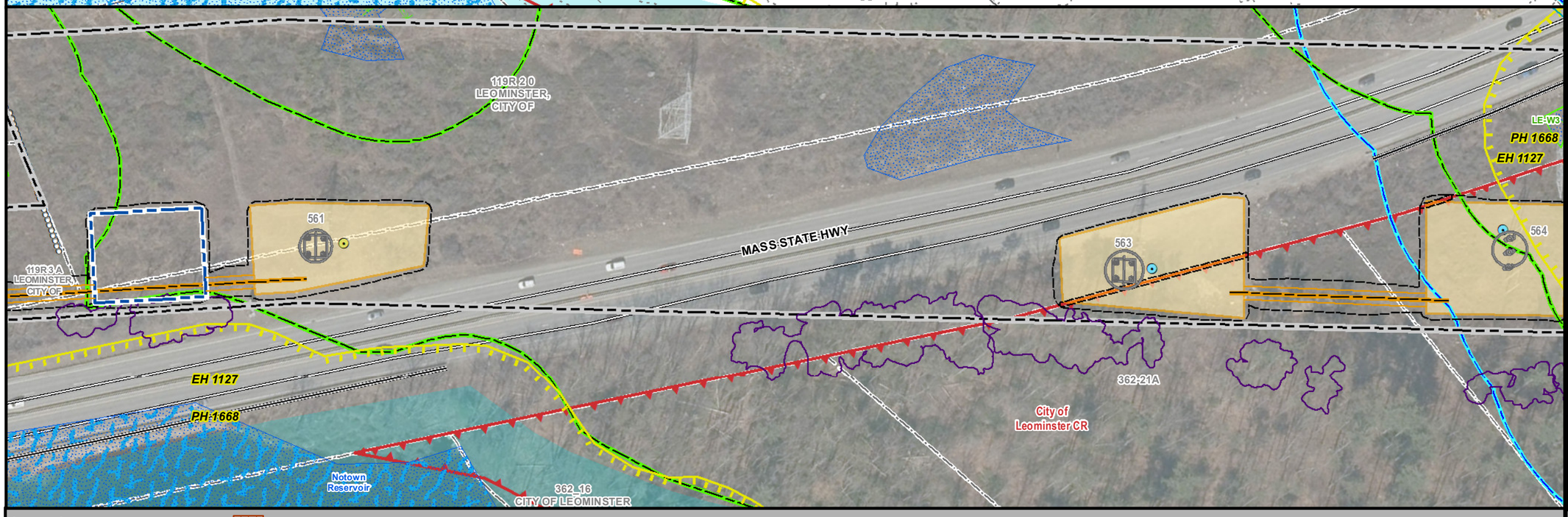
BSC GROUP

1 Mercantile Street Suite 601
Worcester, MA 01608









MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

FITCHBURG & LEOMINSTER, MA

PAGE 1 OF 33

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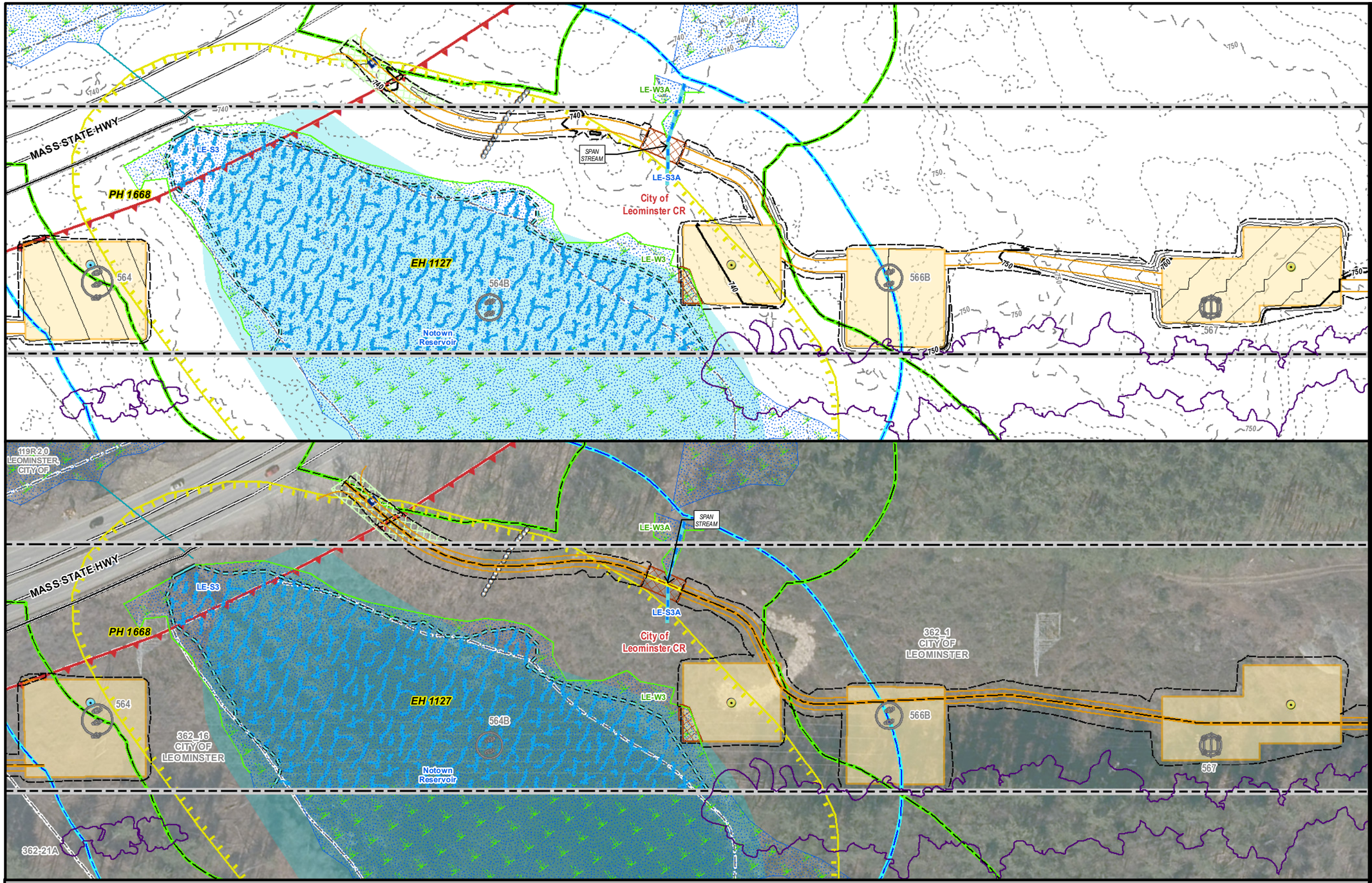
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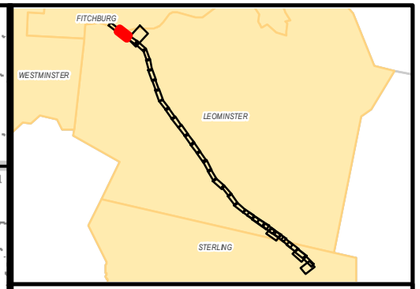
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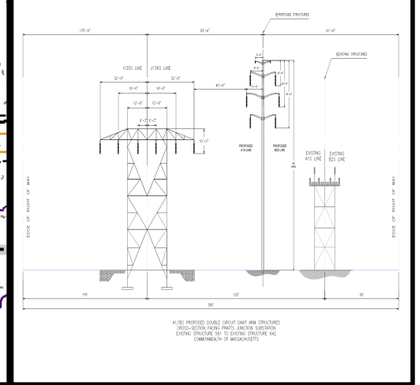
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FITCHBURG & LEOMINSTER, MA

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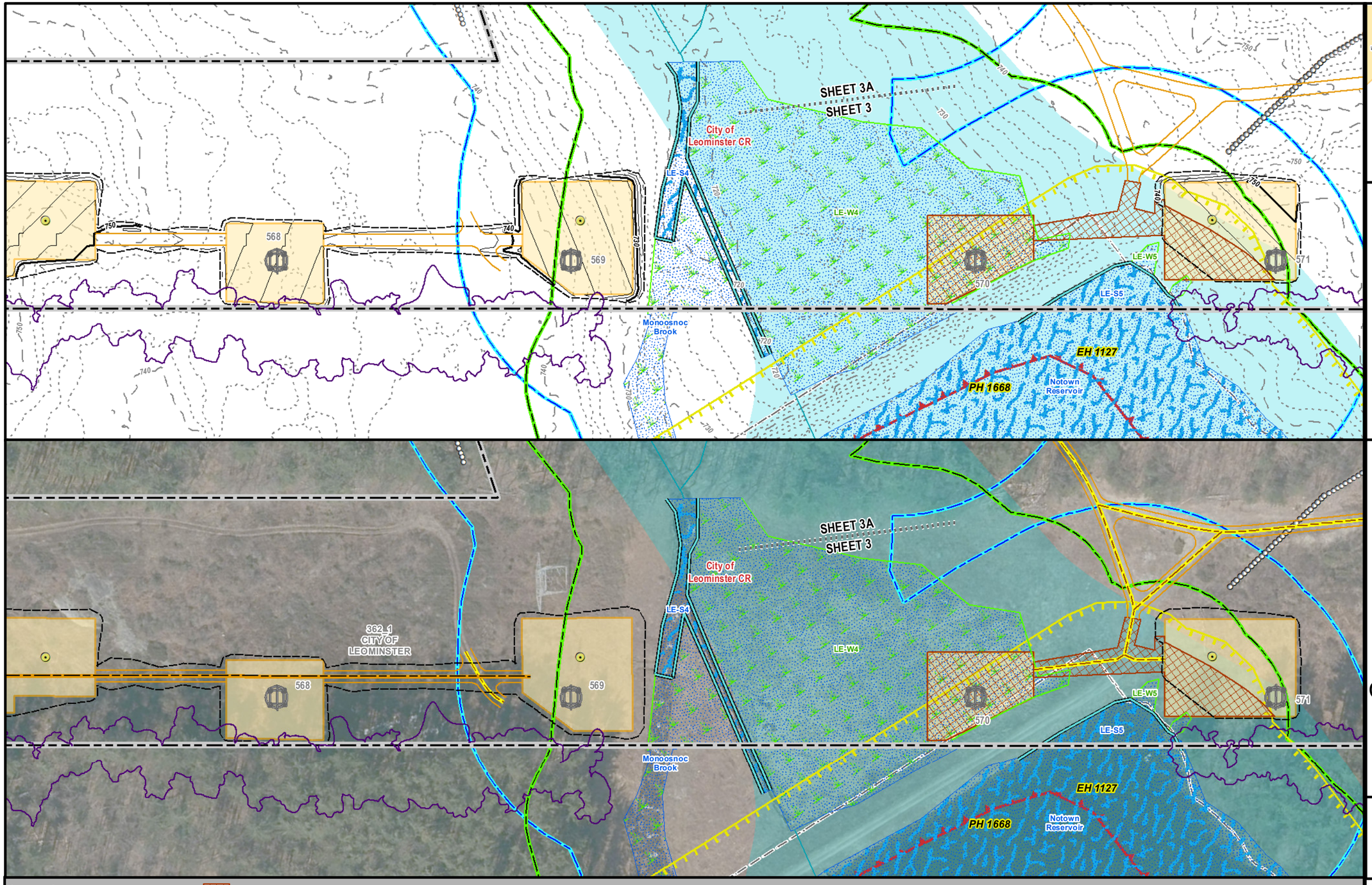
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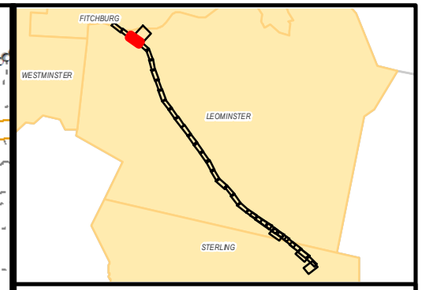
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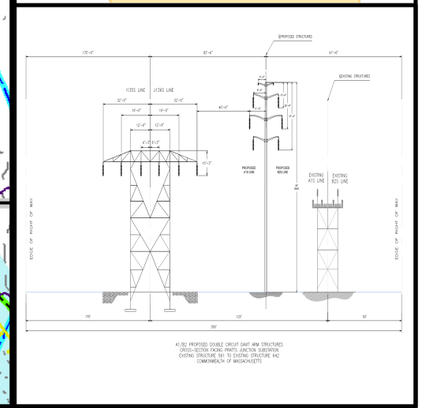
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 3 OF 33

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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Article 97 Lands

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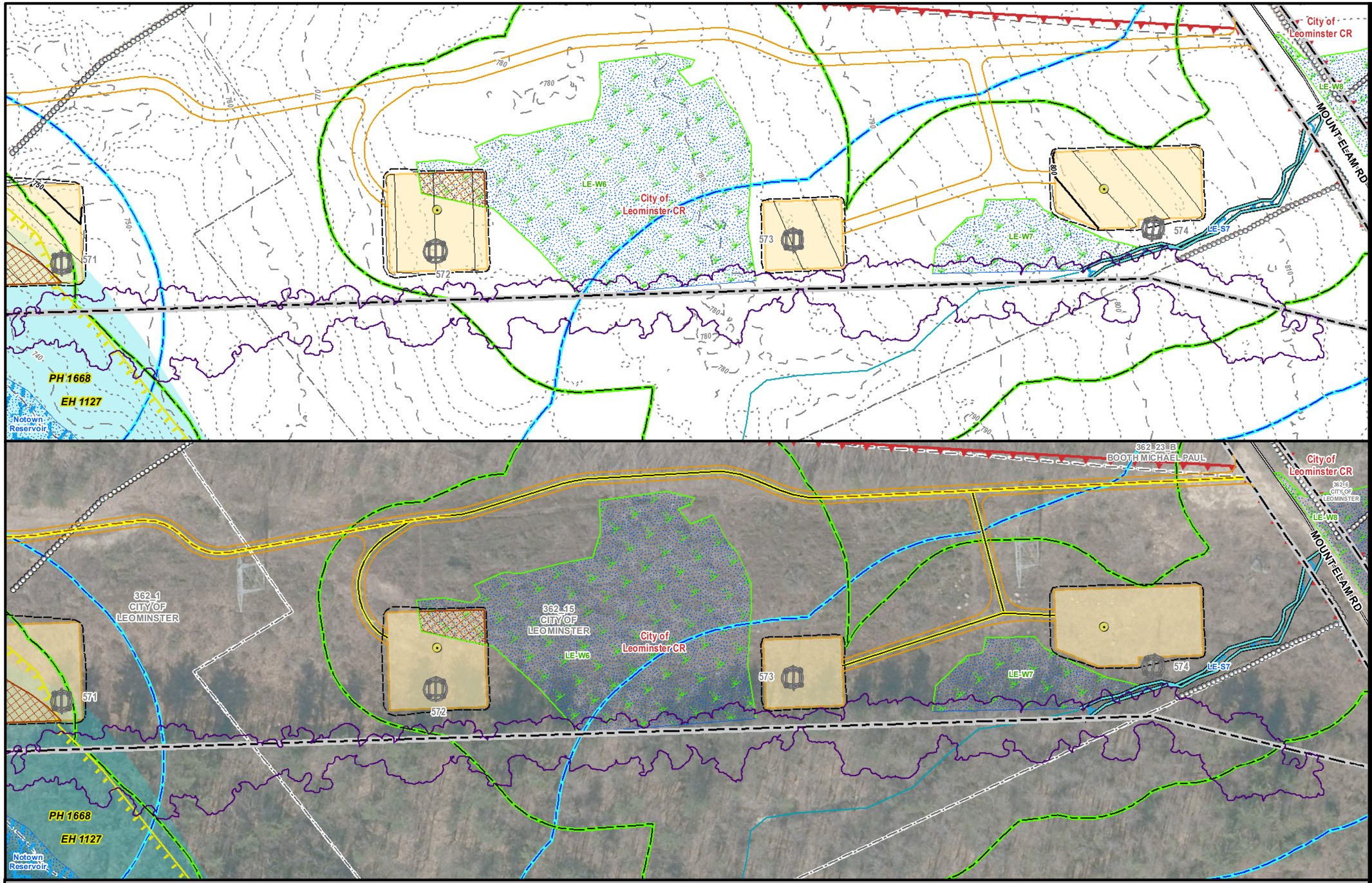
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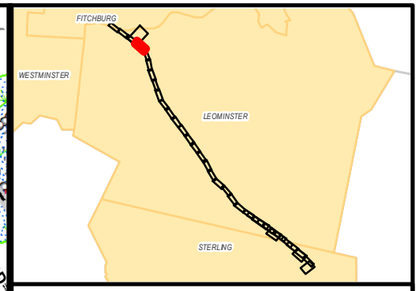
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

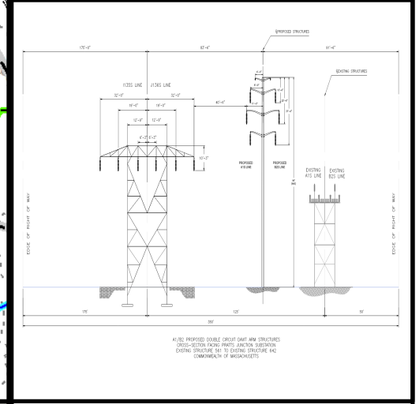
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PLANIMETRIC & AERIAL

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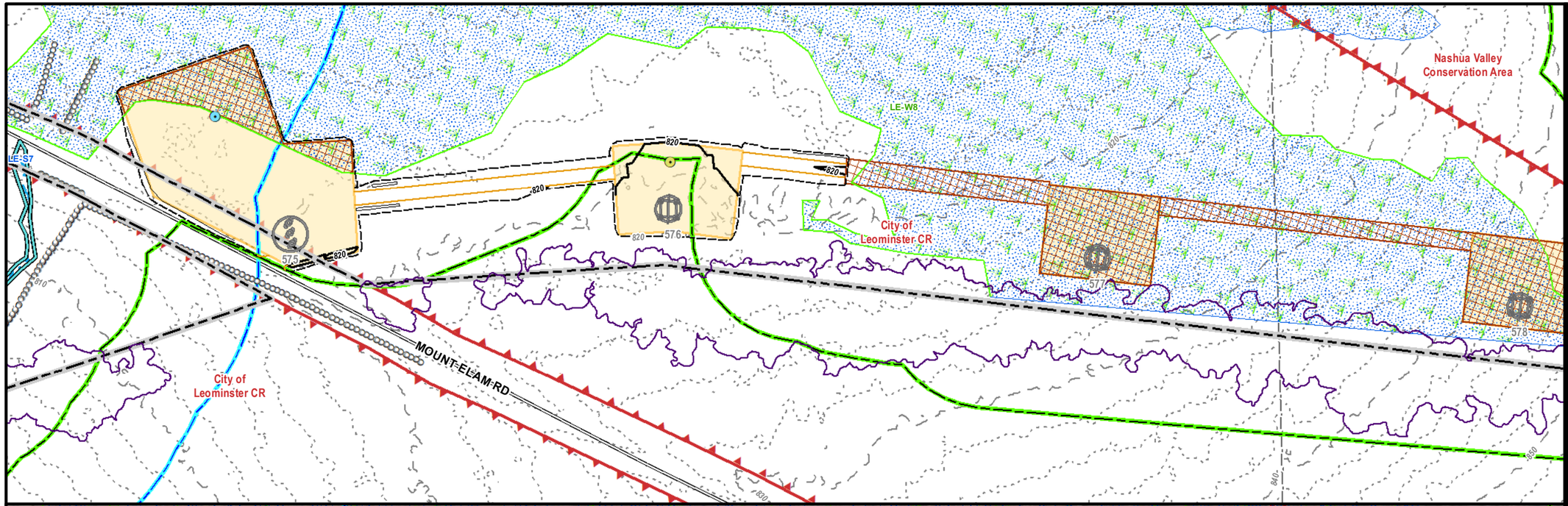
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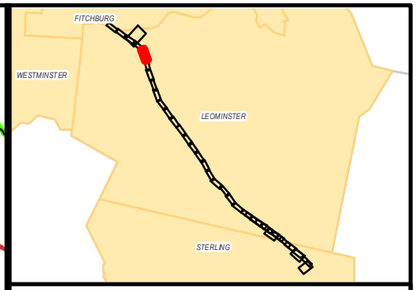
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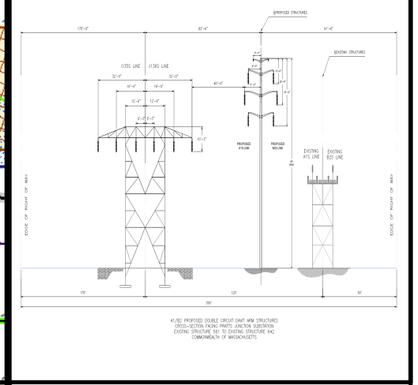
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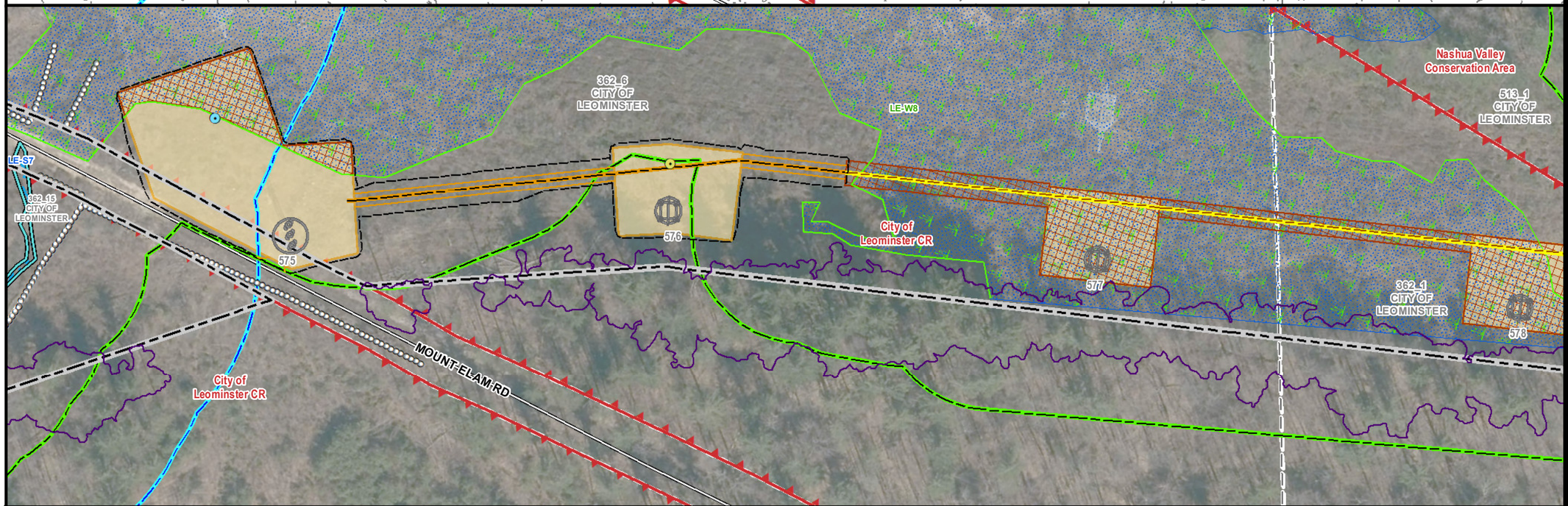
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 5 OF 33

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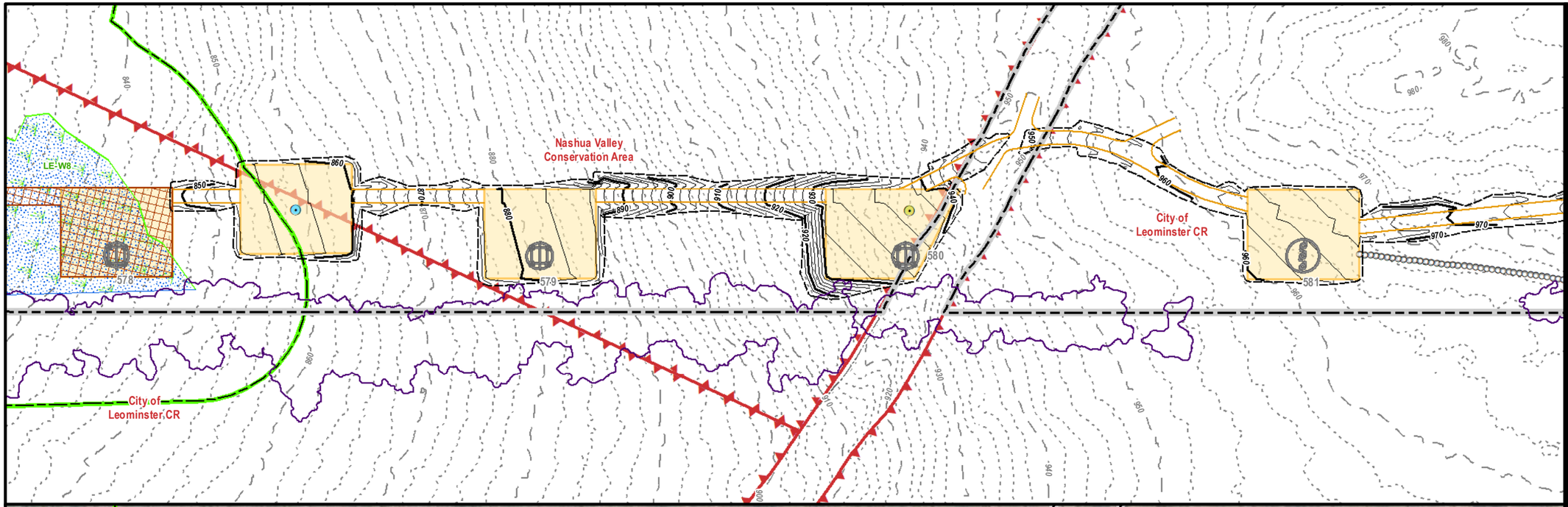
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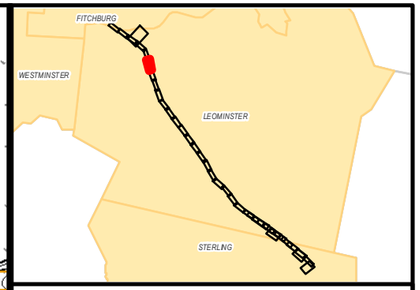
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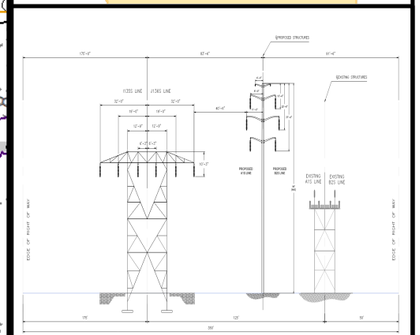
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BSC GROUP
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WORCESTER, MA 01608

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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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LEOMINSTER, MA
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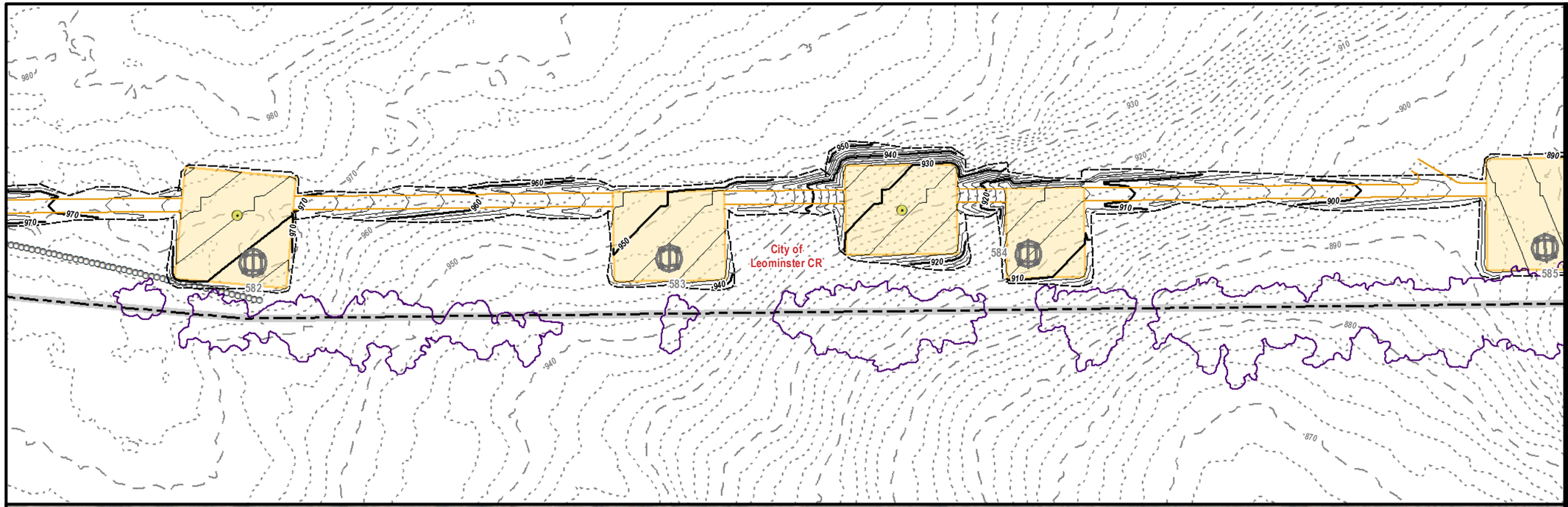
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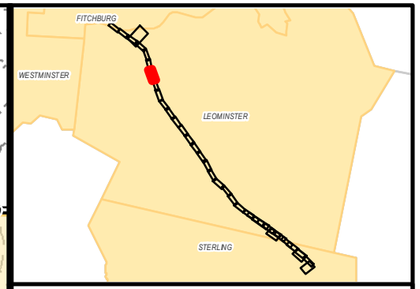
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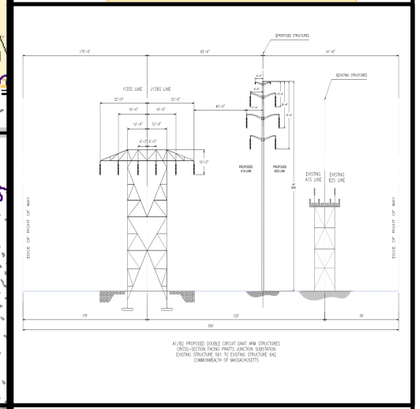
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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LEOMINSTER, MA
PAGE 7 OF 33

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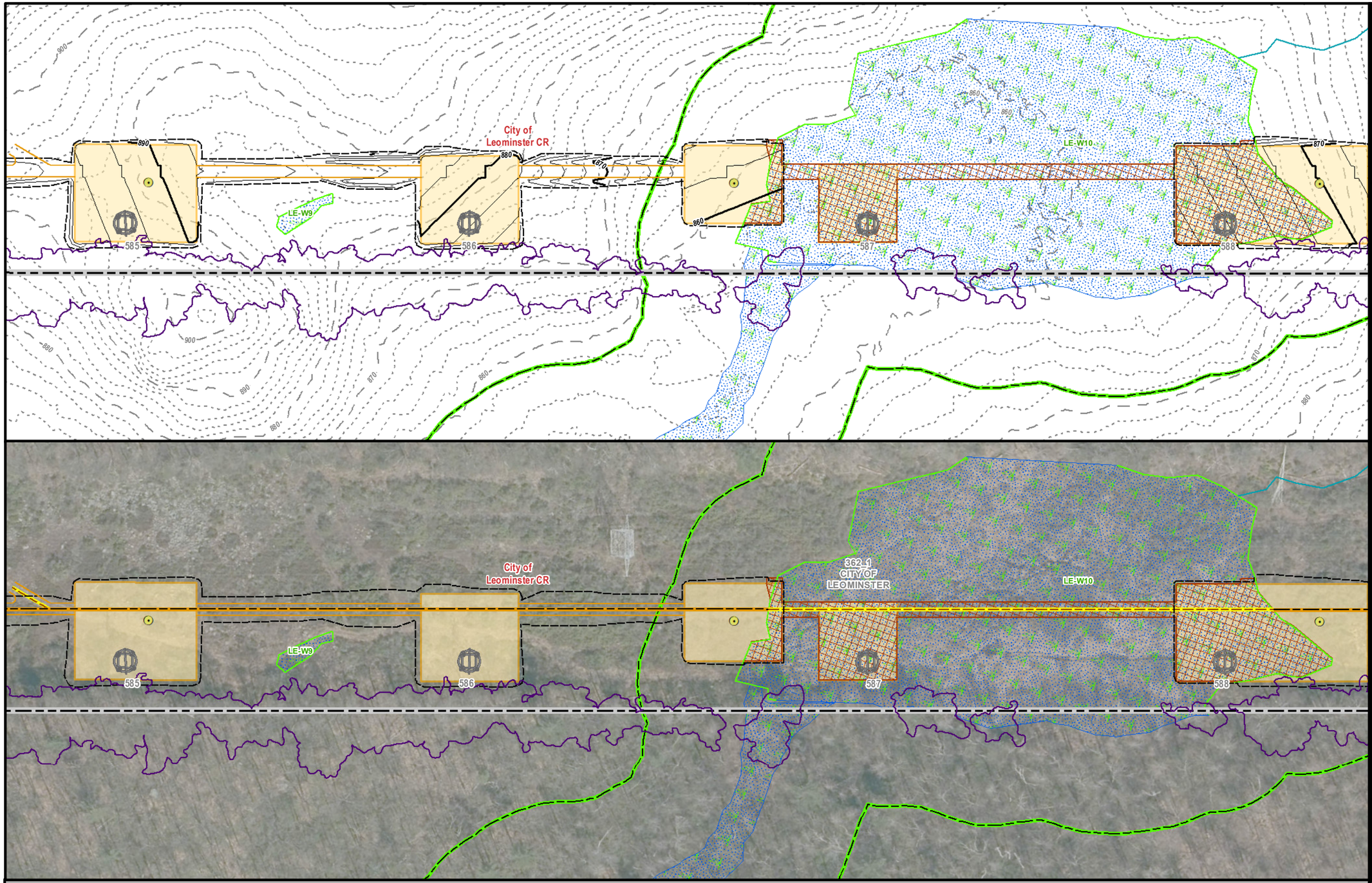
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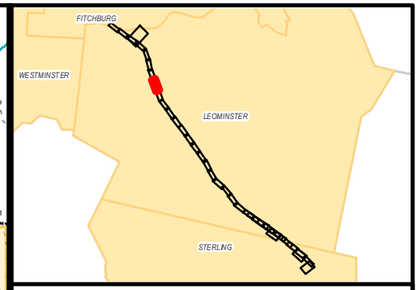
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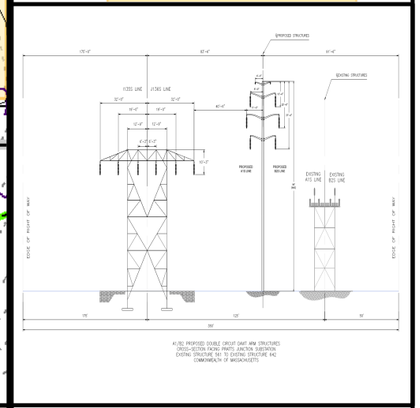
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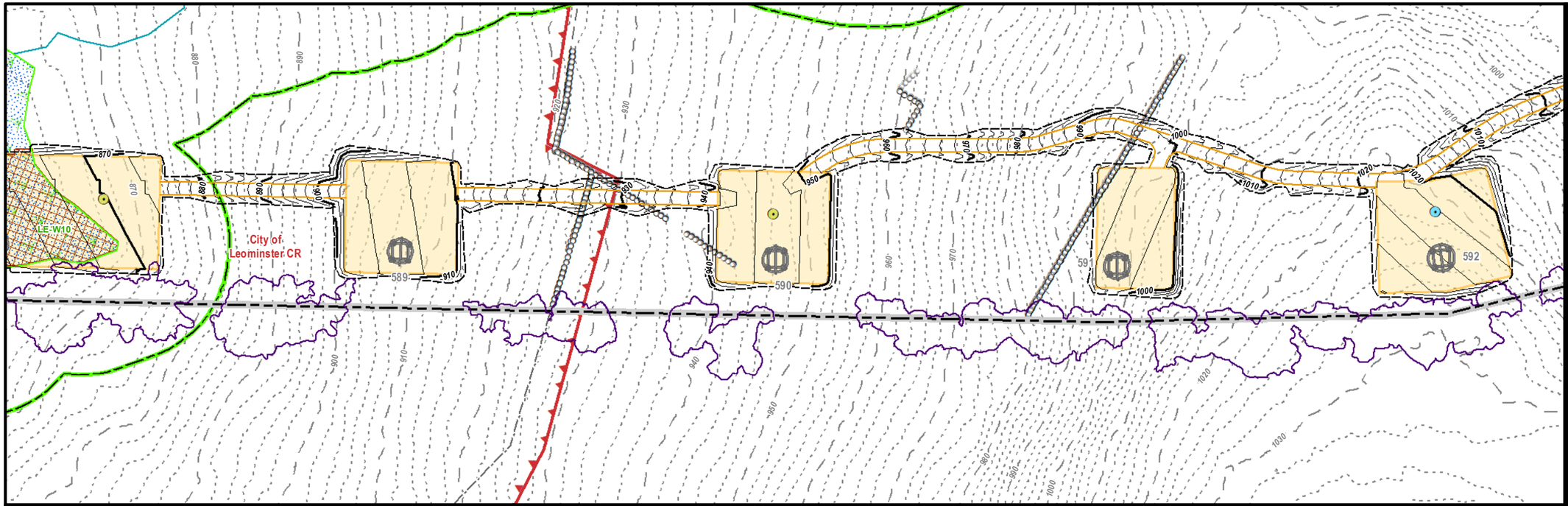
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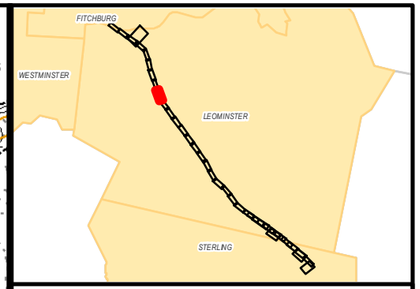
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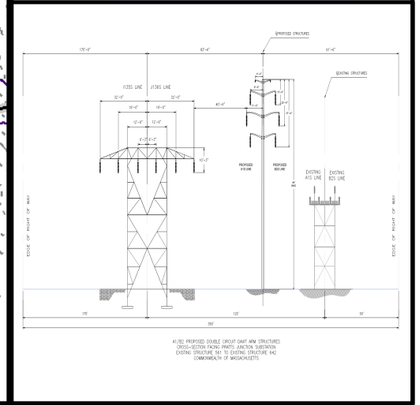
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 9 OF 33

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
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- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
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Article 97 Lands

- DCR-State Parks & Recreation
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- Land Trust
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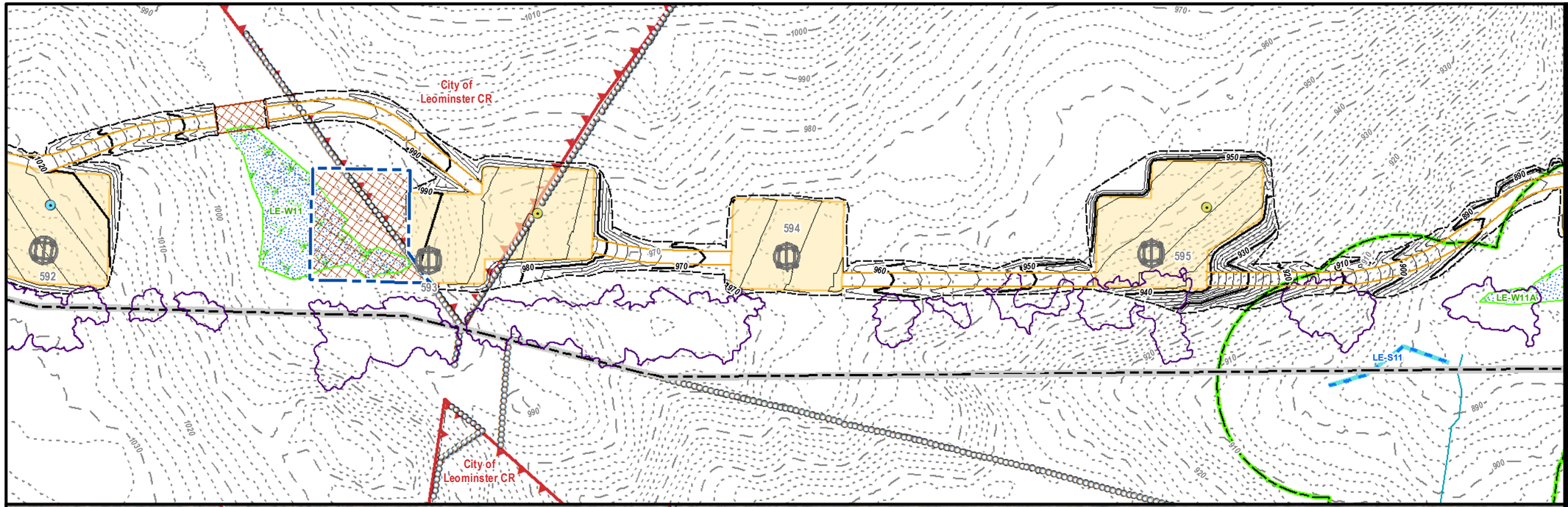
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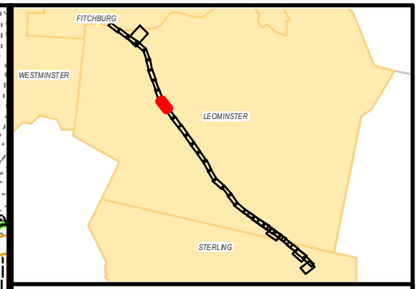
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

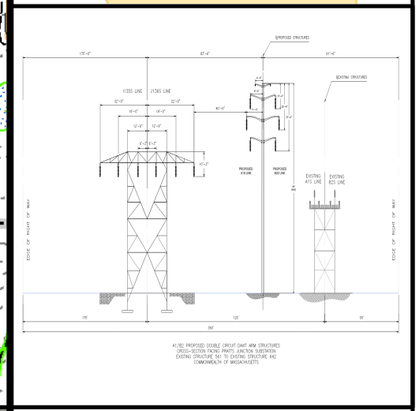
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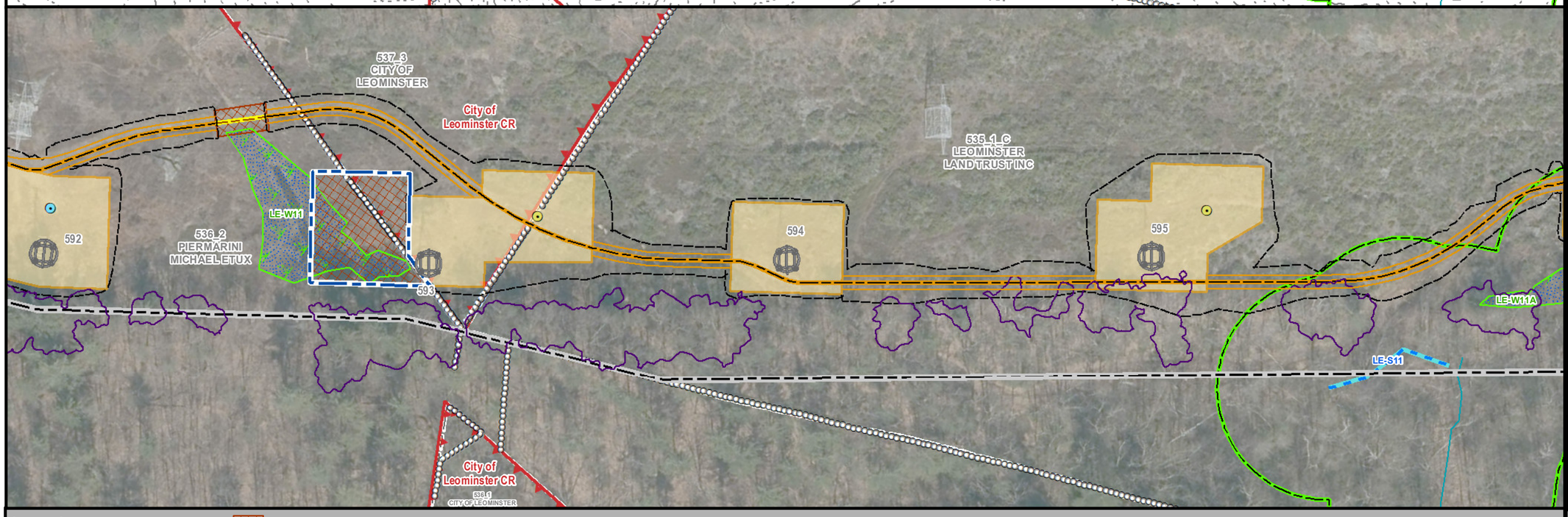
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MEPA General Purpose Plans

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LEOMINSTER, MA
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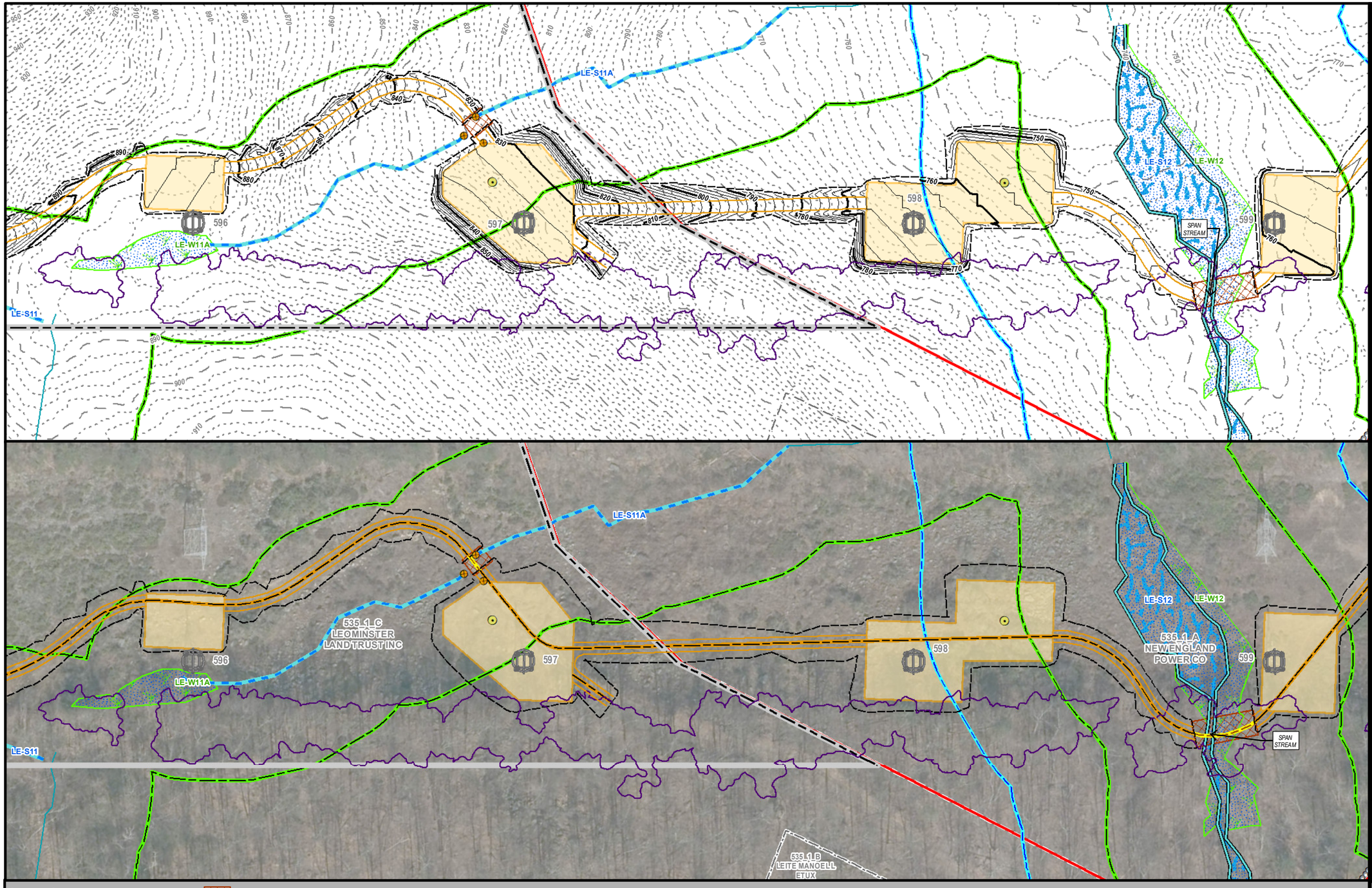
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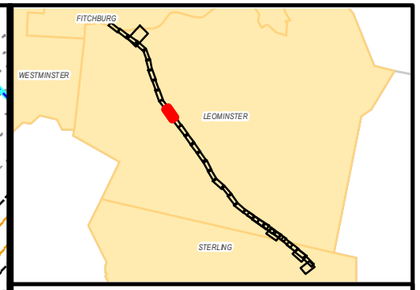
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WALTHAM, MA 02451

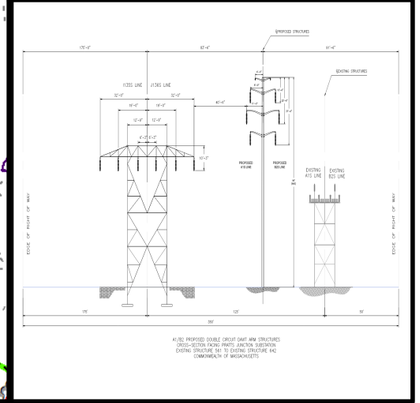
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1 MERCANTILE STREET SUITE 601
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LEOMINSTER, MA
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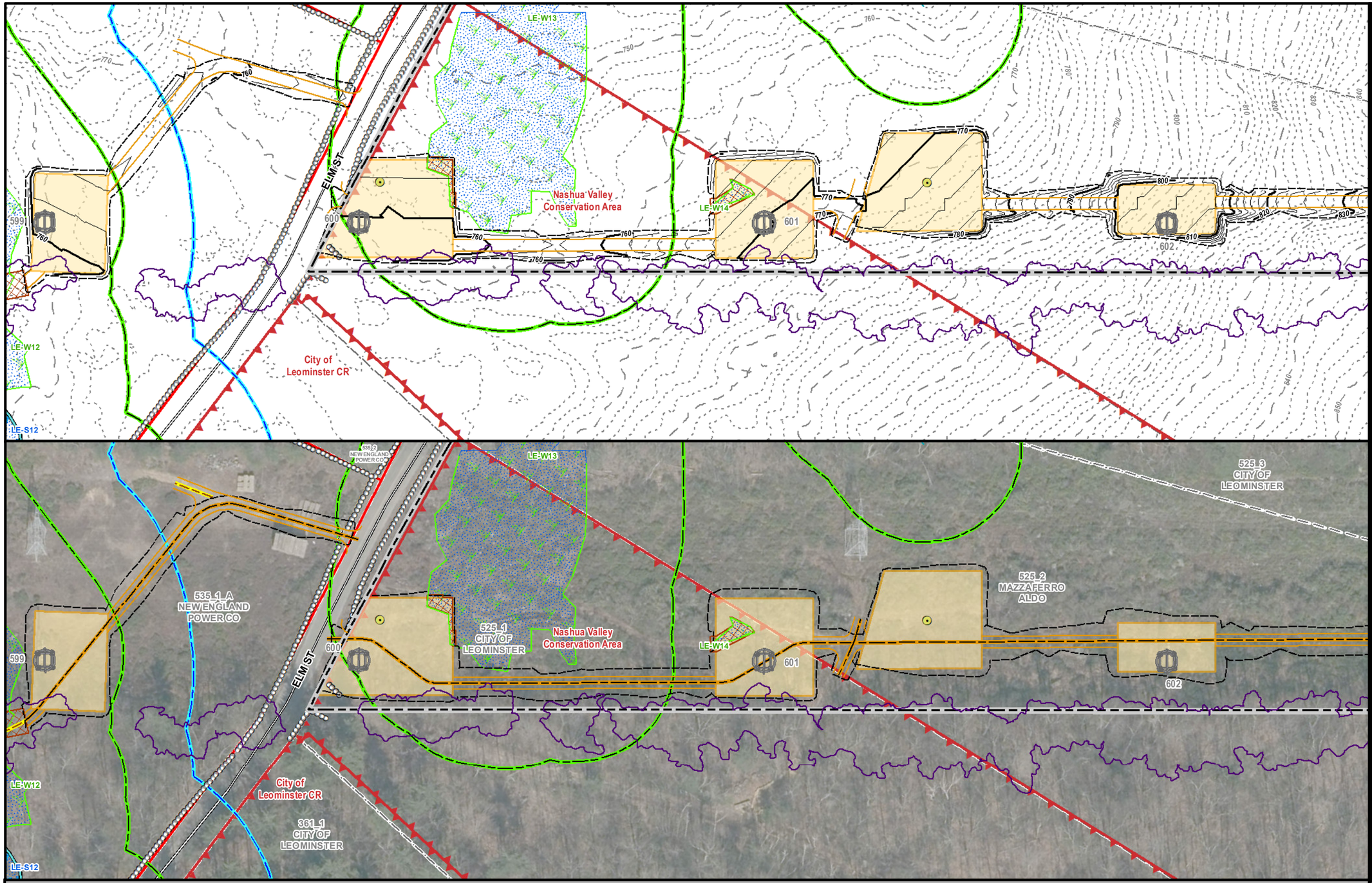
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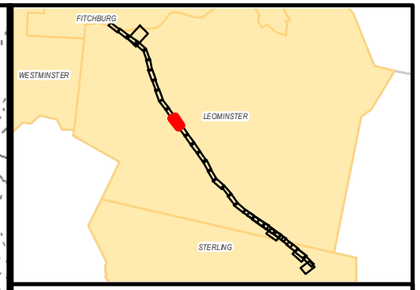
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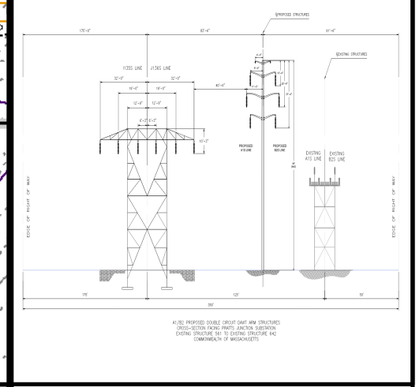
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 12 OF 33

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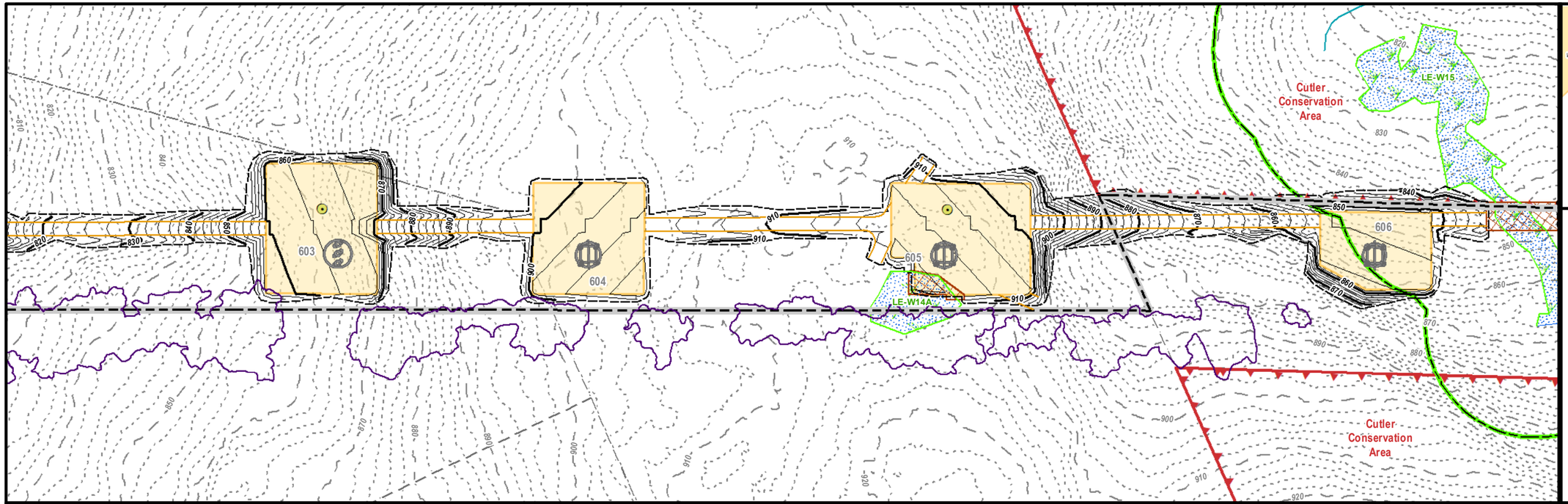
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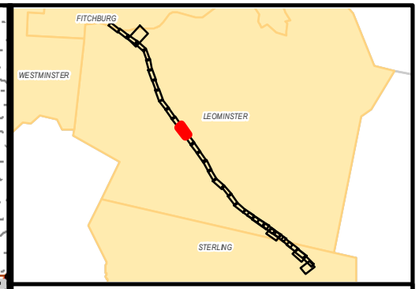
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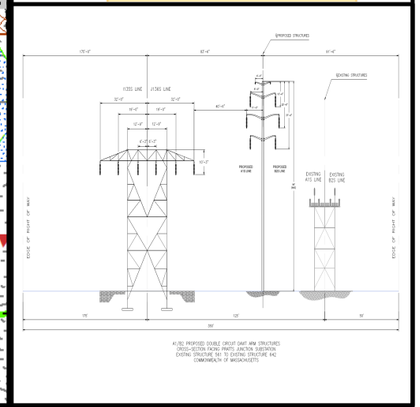
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PLANIMETRIC & AERIAL

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LEOMINSTER, MA
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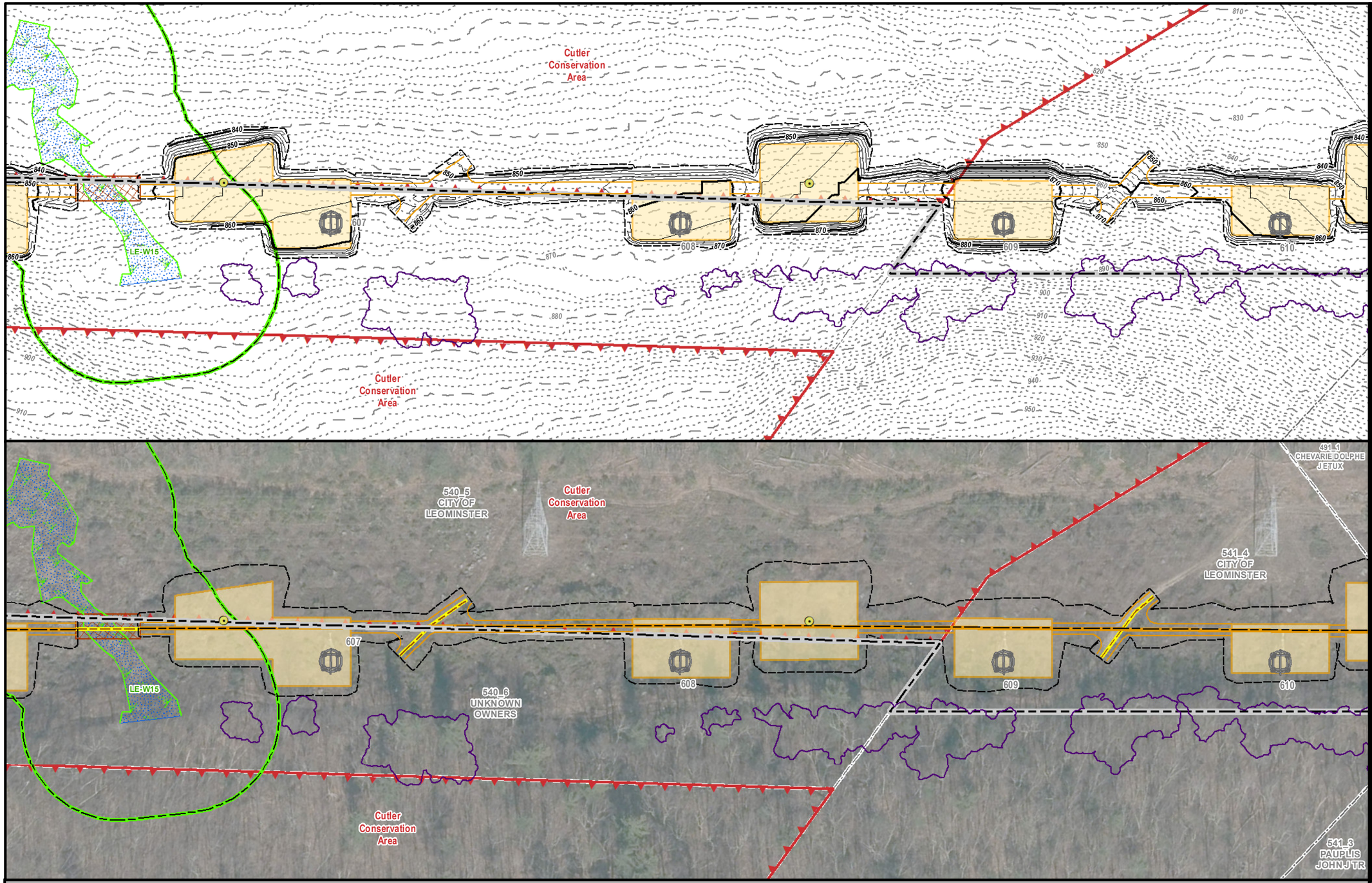
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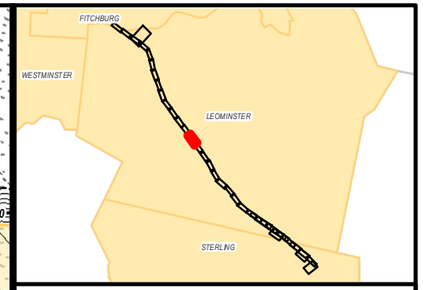
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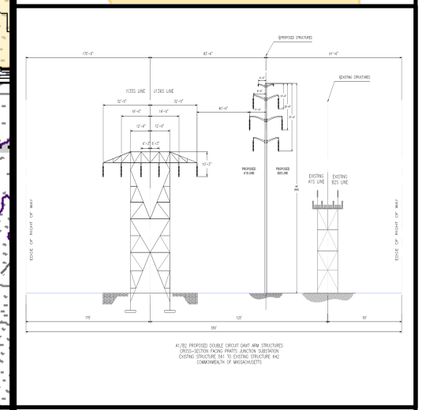
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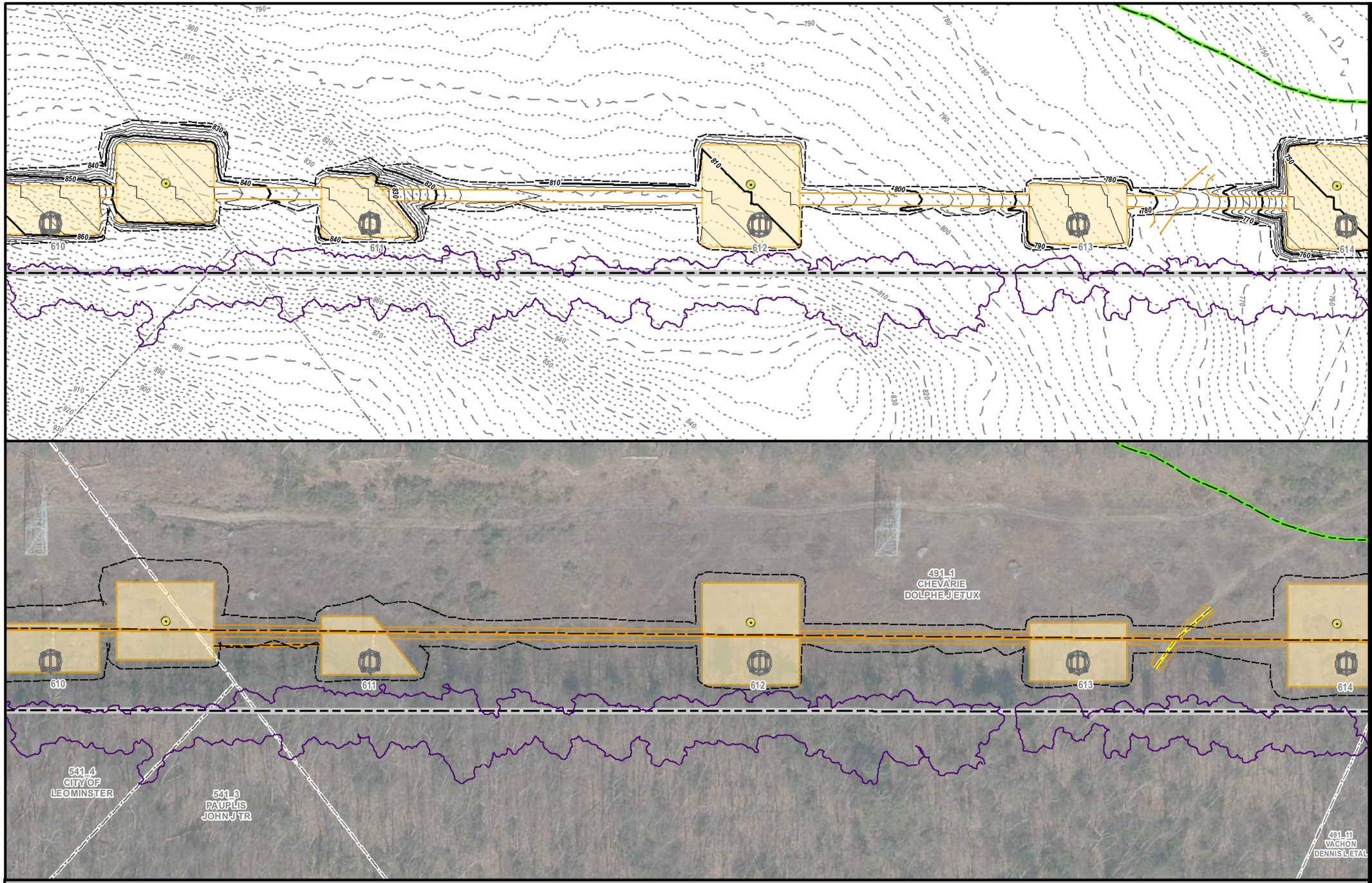
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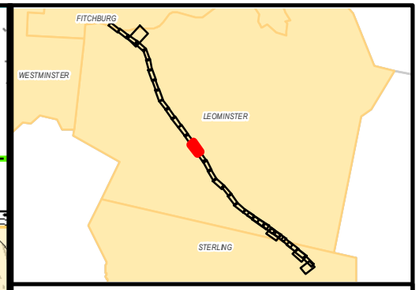
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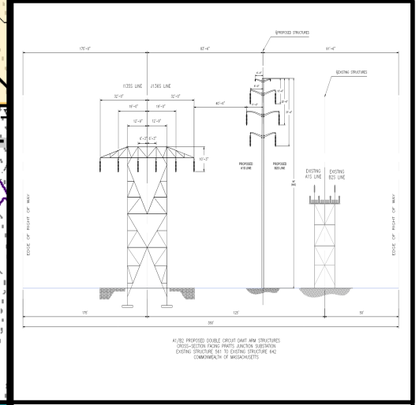
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Article 97 Lands

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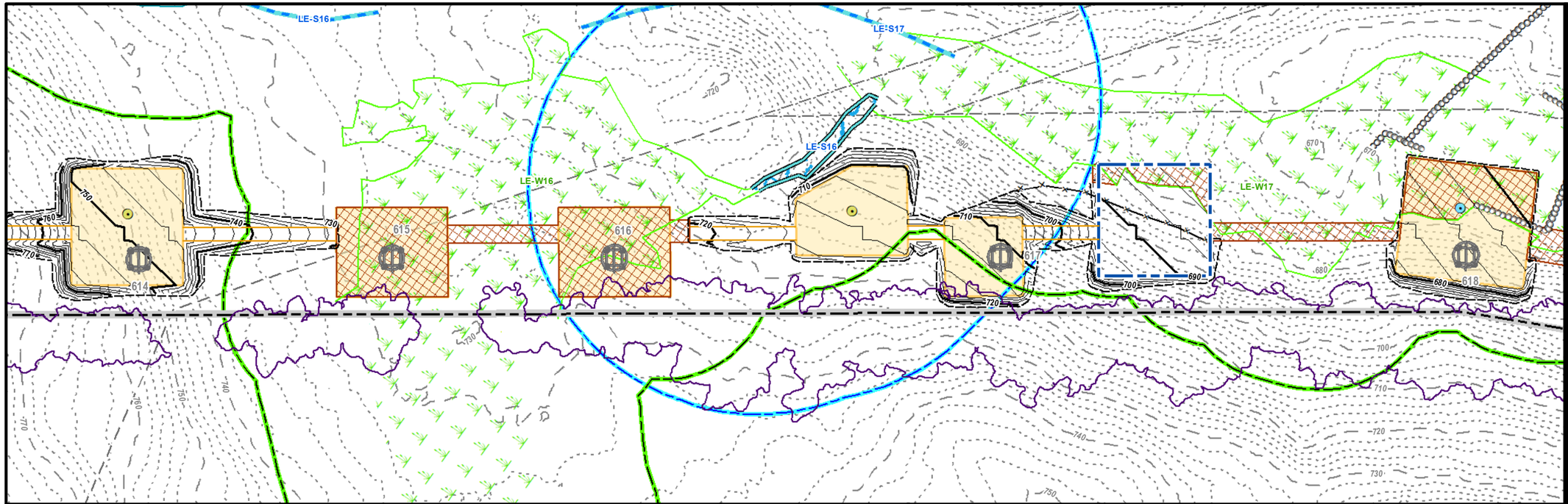
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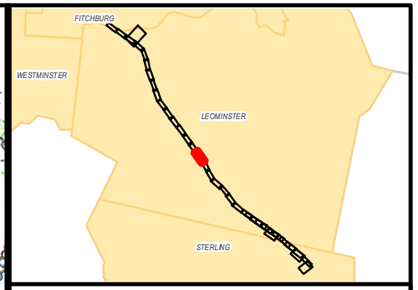
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

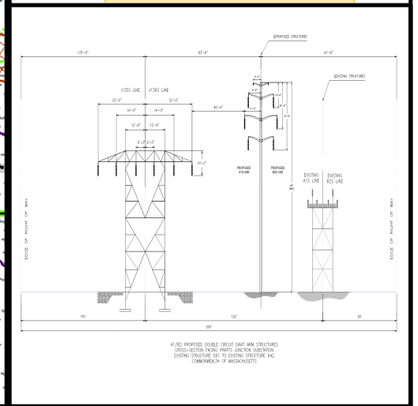
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WORCESTER, MA 01608

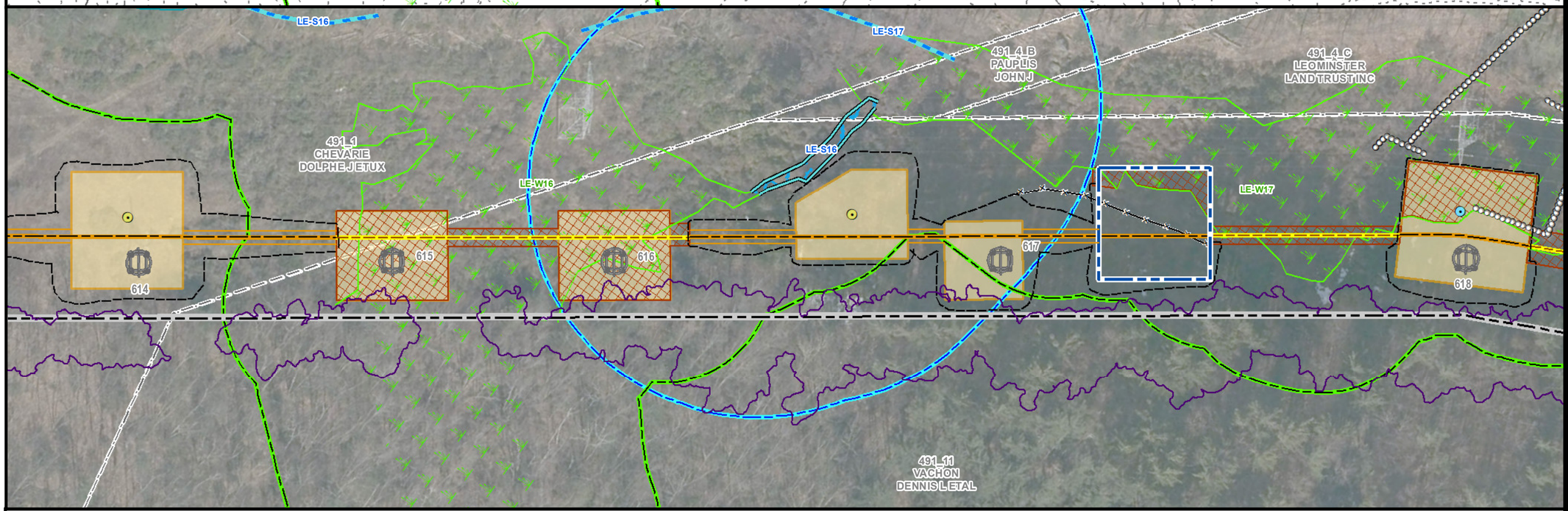
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 16 OF 33

1 inch = 100 feet
0 50 100
Feet

Legend

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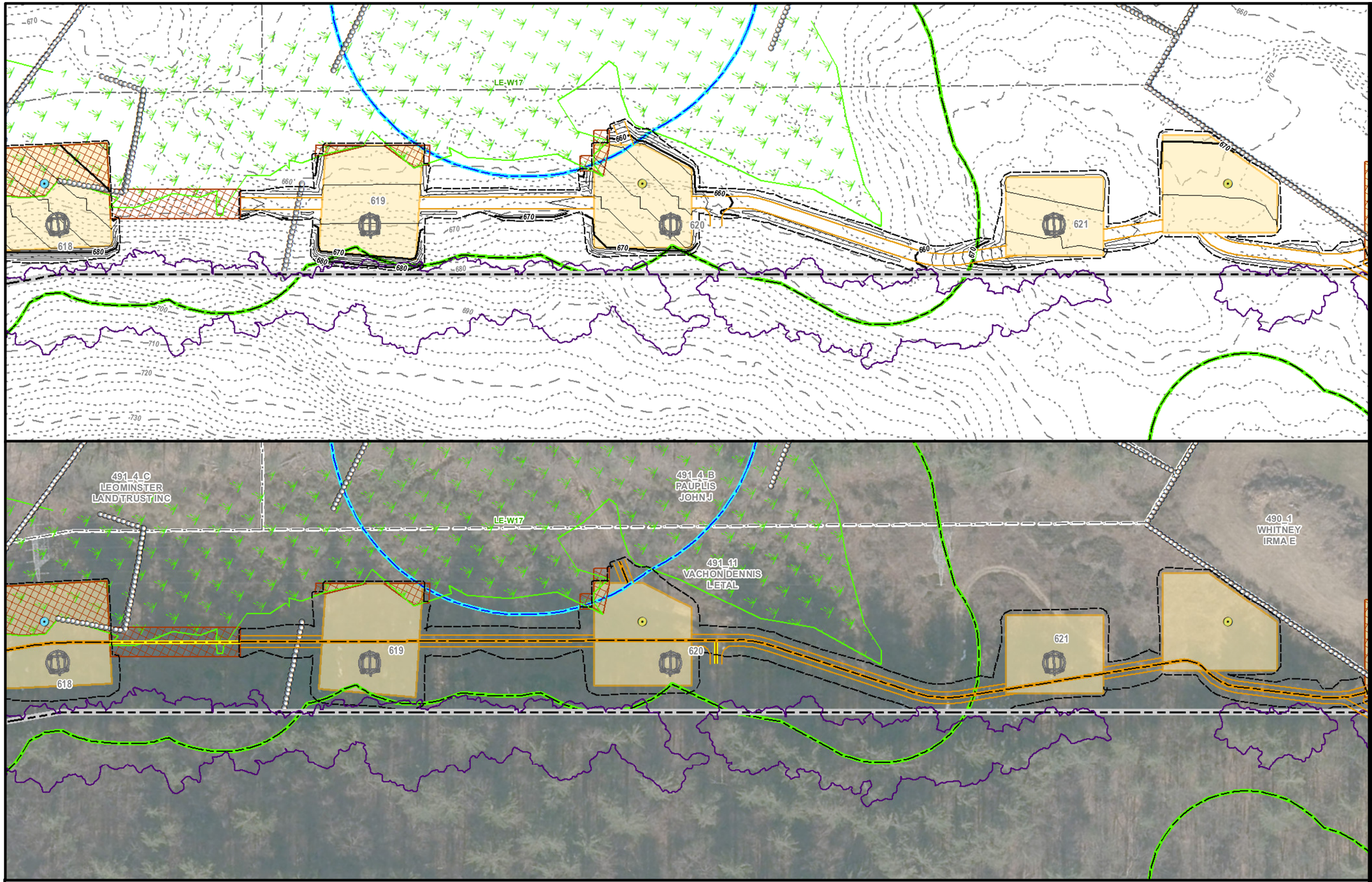
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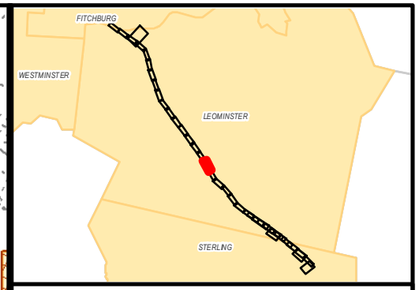
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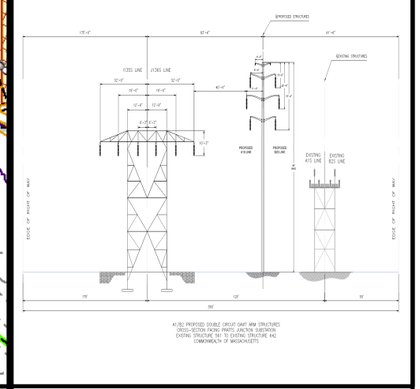
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1 MERCANTILE STREET SUITE 601
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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LEOMINSTER, MA
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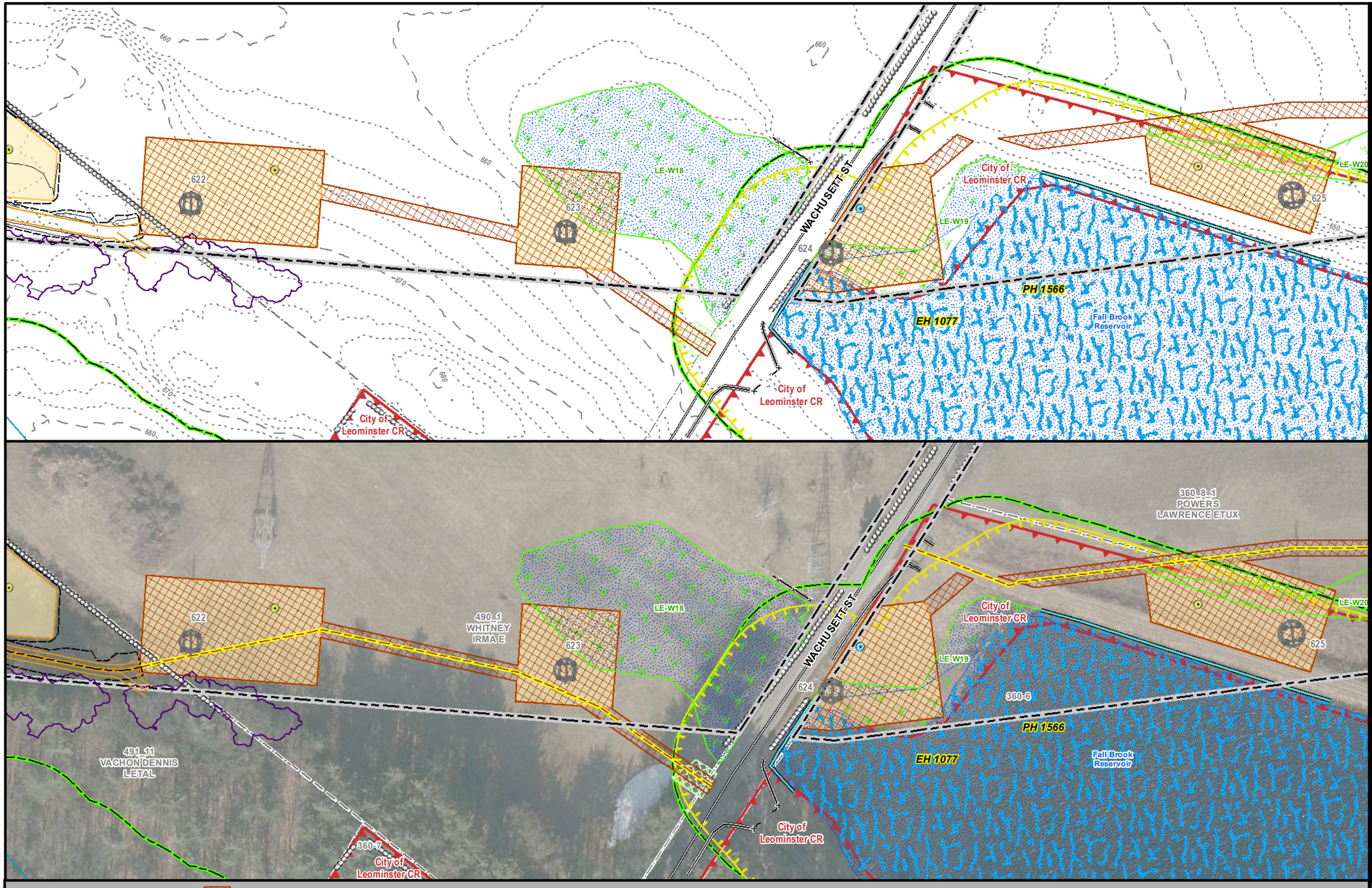
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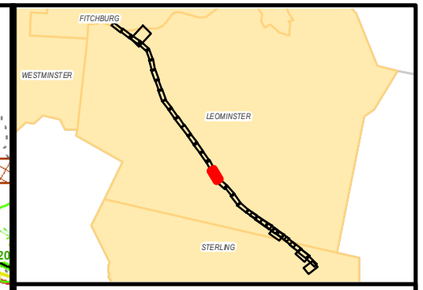
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nationalgrid
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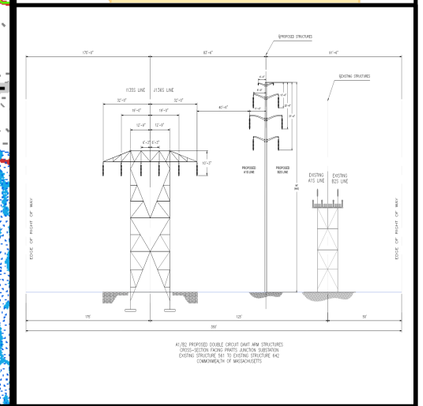
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
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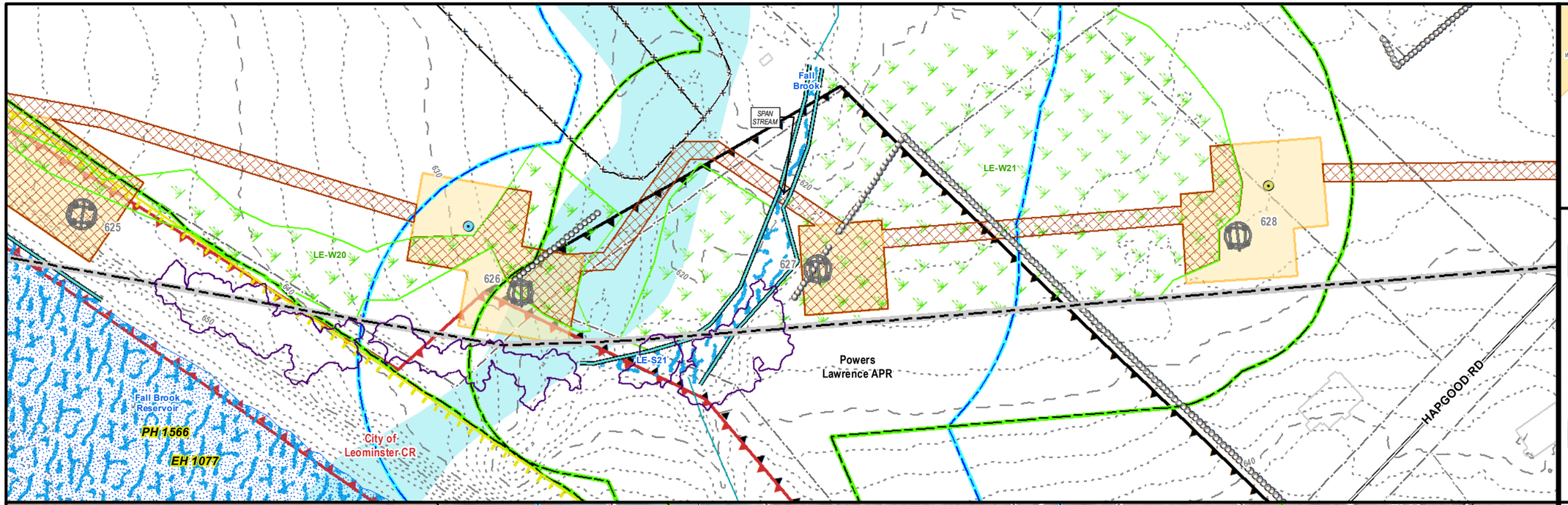
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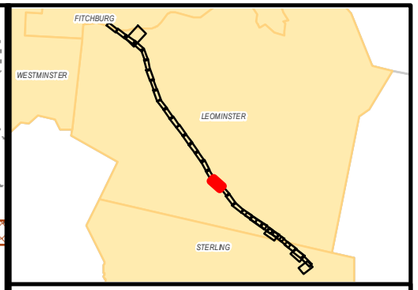
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170 DATA DRIVE
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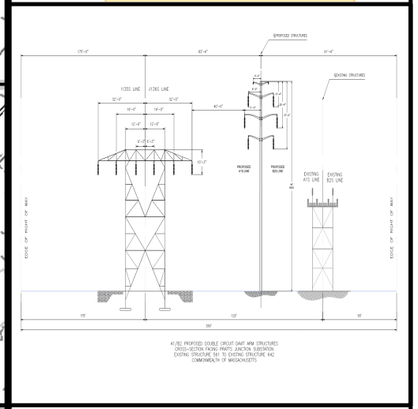
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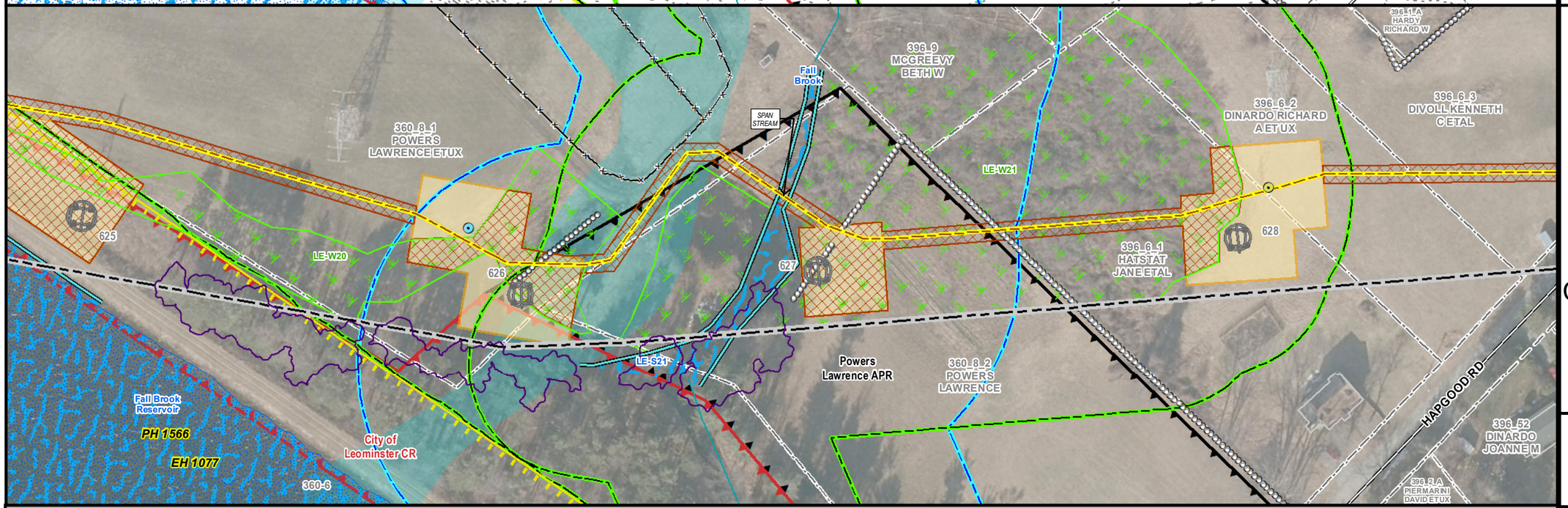
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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LEOMINSTER, MA
PAGE 19 OF 33

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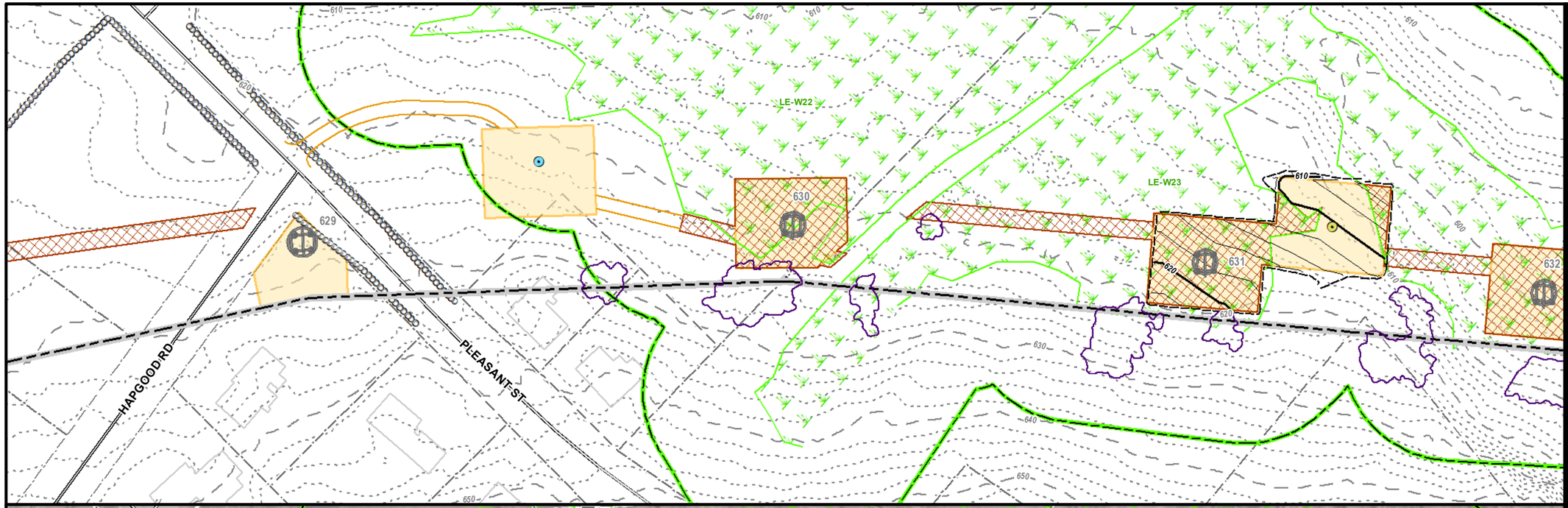
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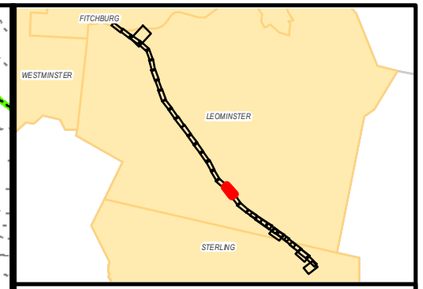
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170 DATA DRIVE
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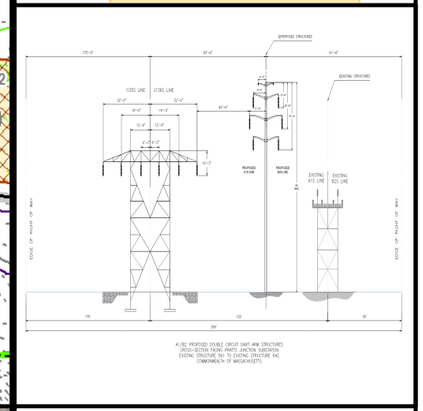
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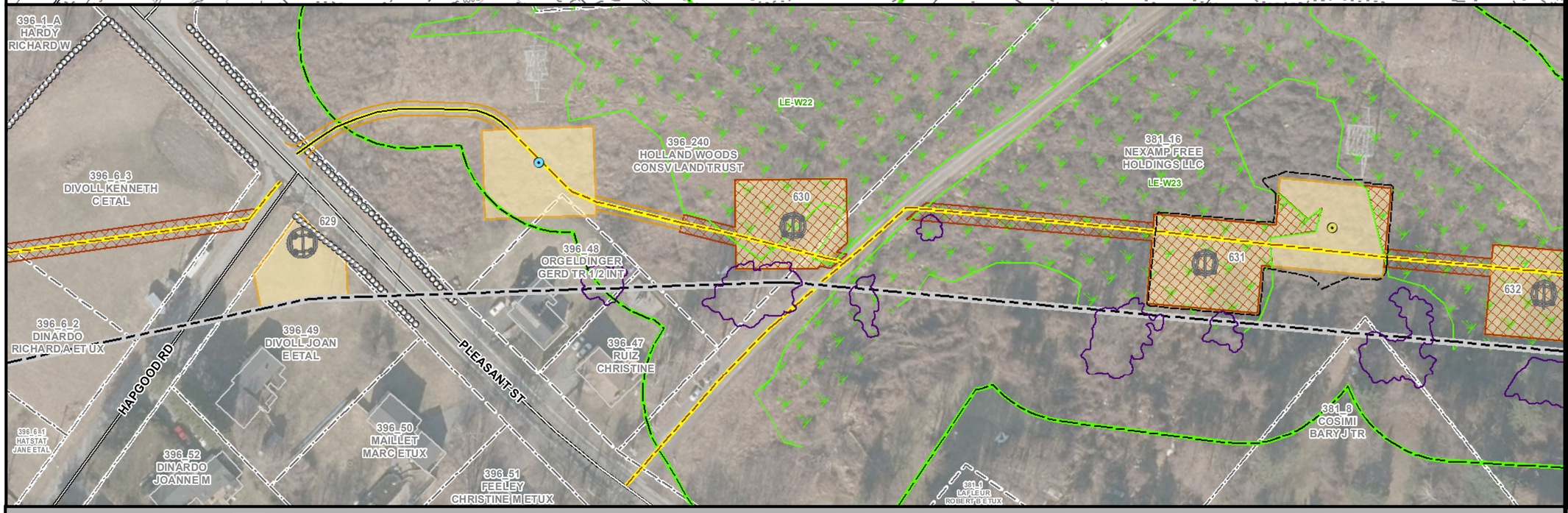
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MEPA General Purpose Plans

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LEOMINSTER, MA
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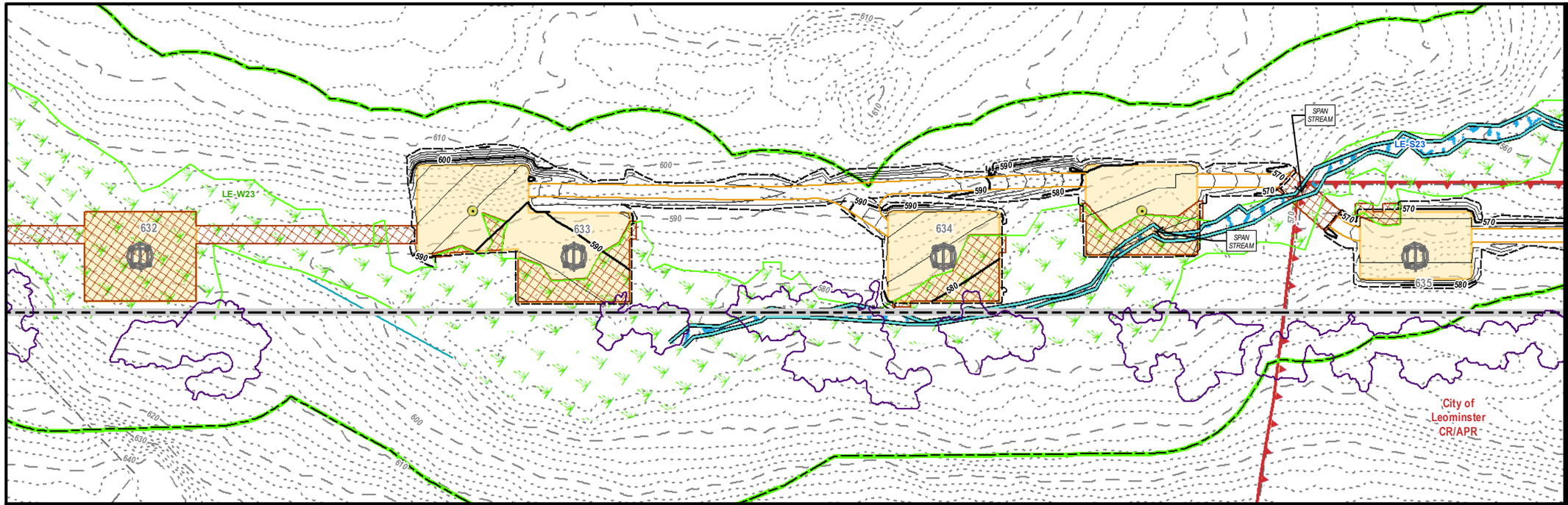
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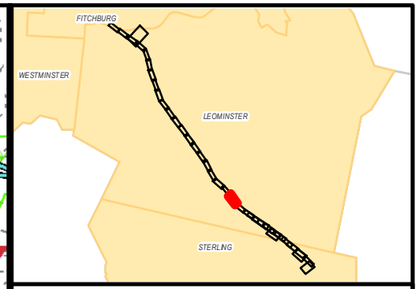
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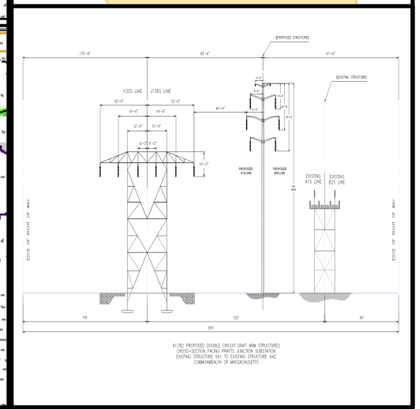
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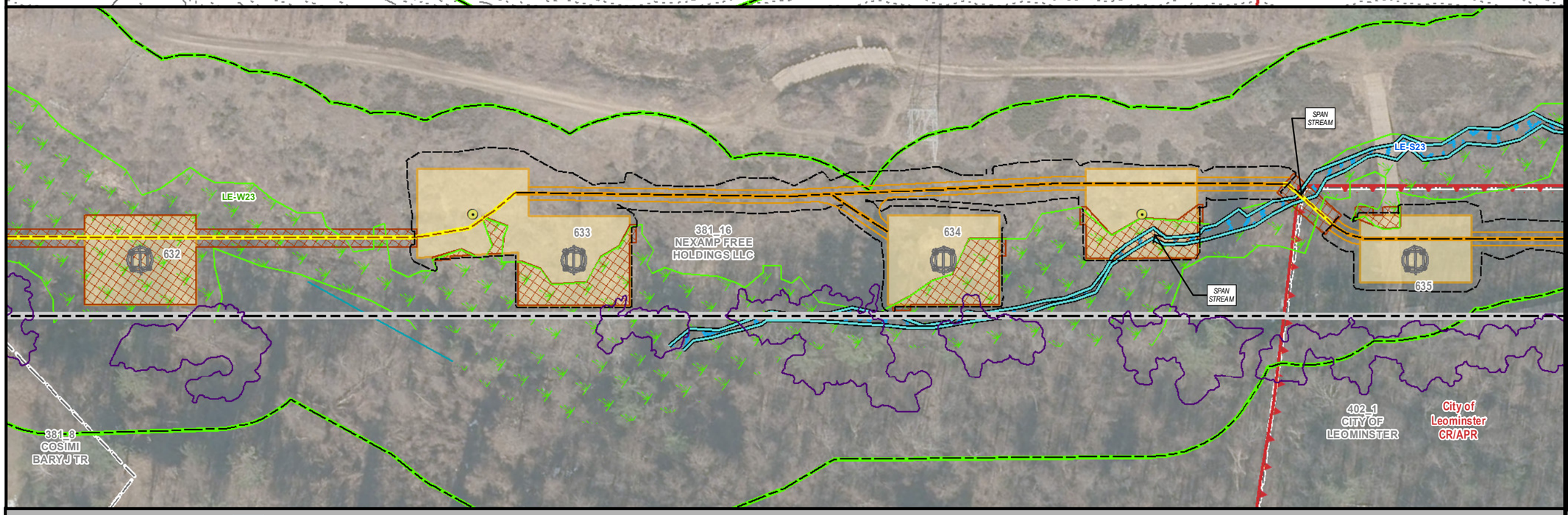
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ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 21 OF 33

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
- Stream Centerline
- Ordinary High Water
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- State Stream
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- DCR Trails
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- Existing Minor Contour
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Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

***Hybrid work envelopes (part temp. construction matting and part gravel) may display contours within a wetland that are representative of matted work area elevations.*

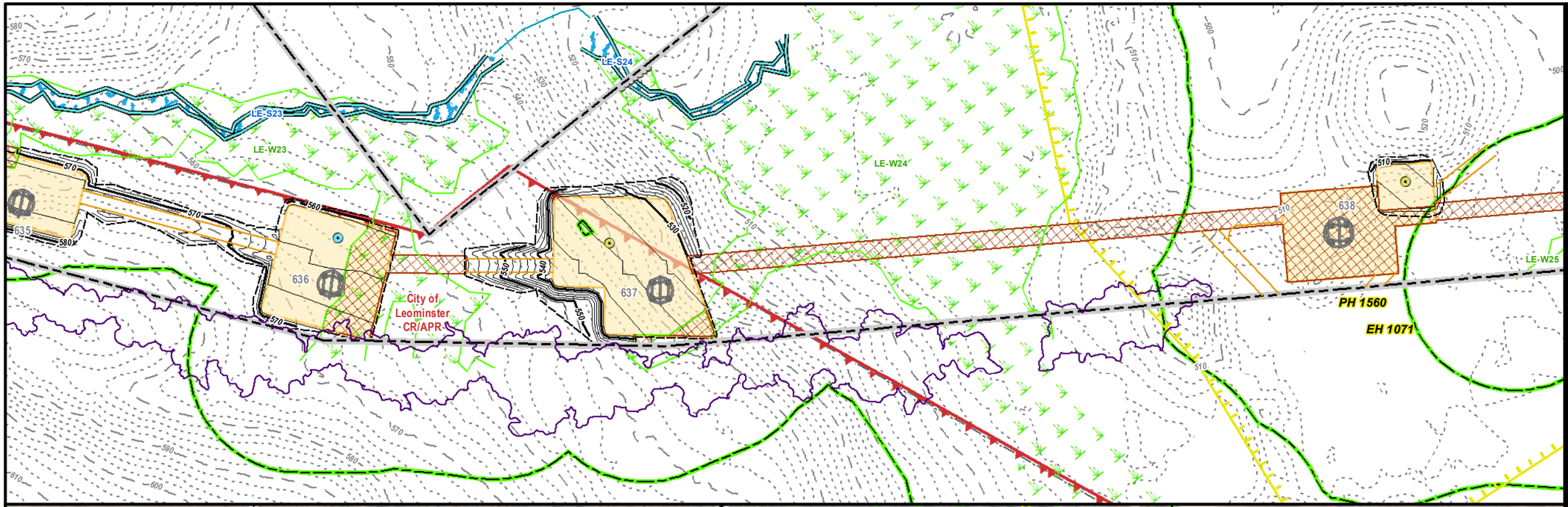
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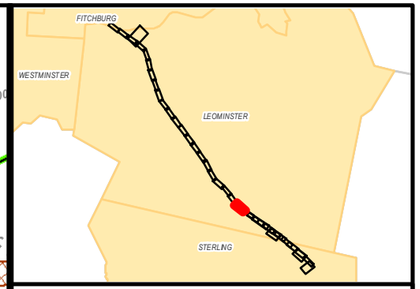
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

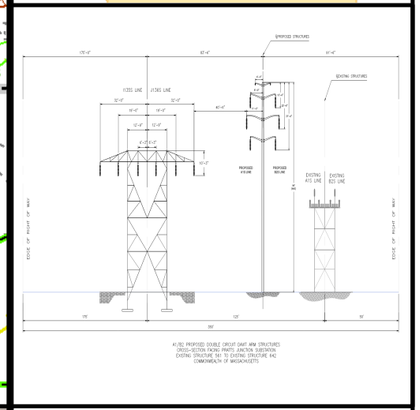
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

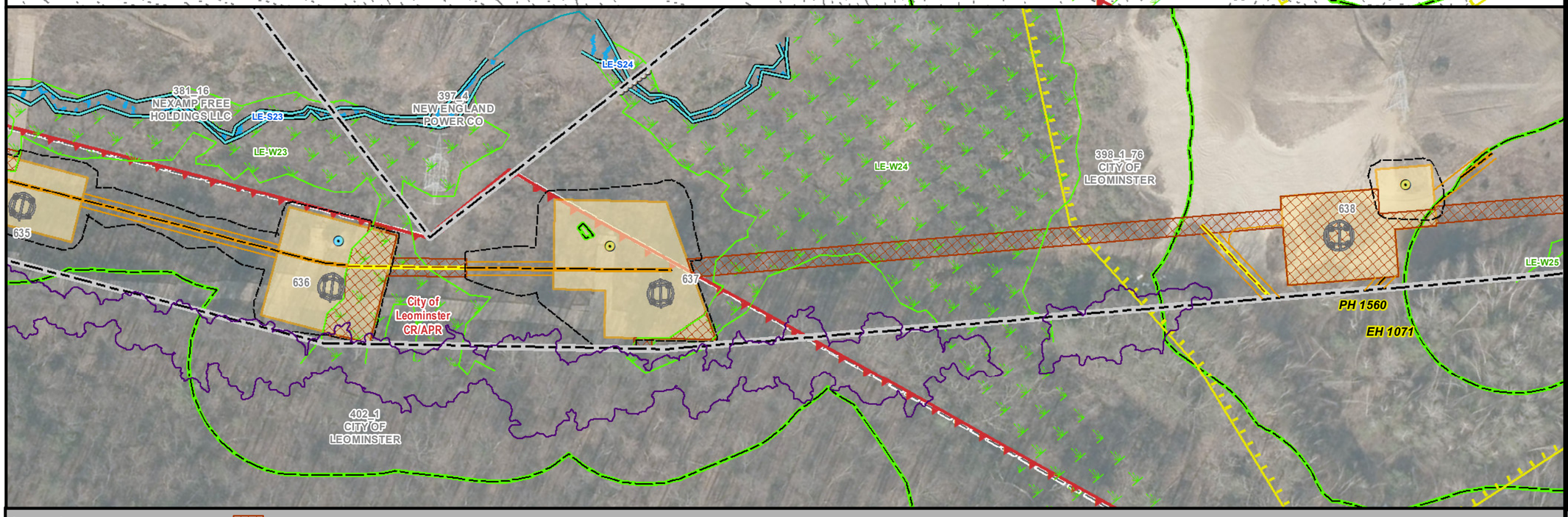
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 22 OF 33

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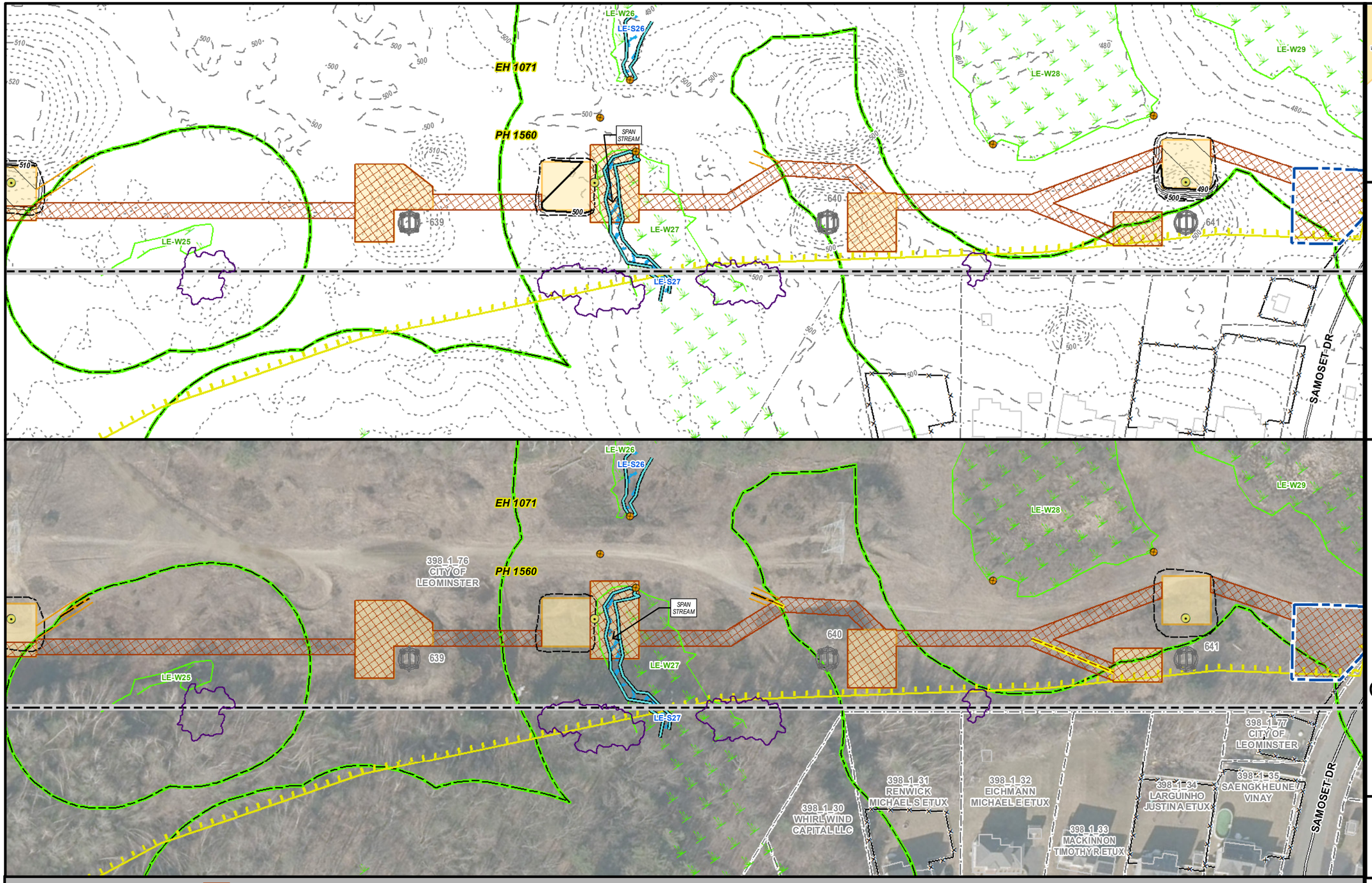
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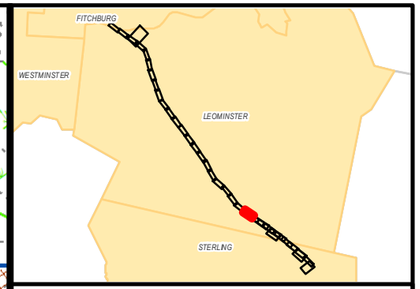
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WALTHAM, MA 02451

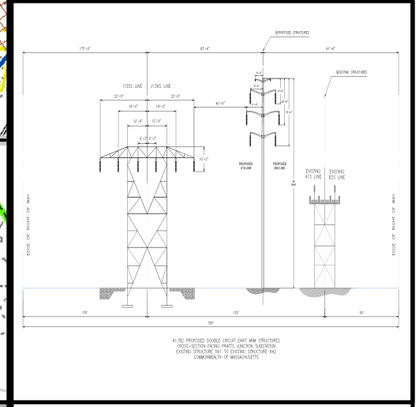
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BSC GROUP
1 MERCANTILE STREET SUITE 601
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PLANIMETRIC & AERIAL

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LEOMINSTER, MA
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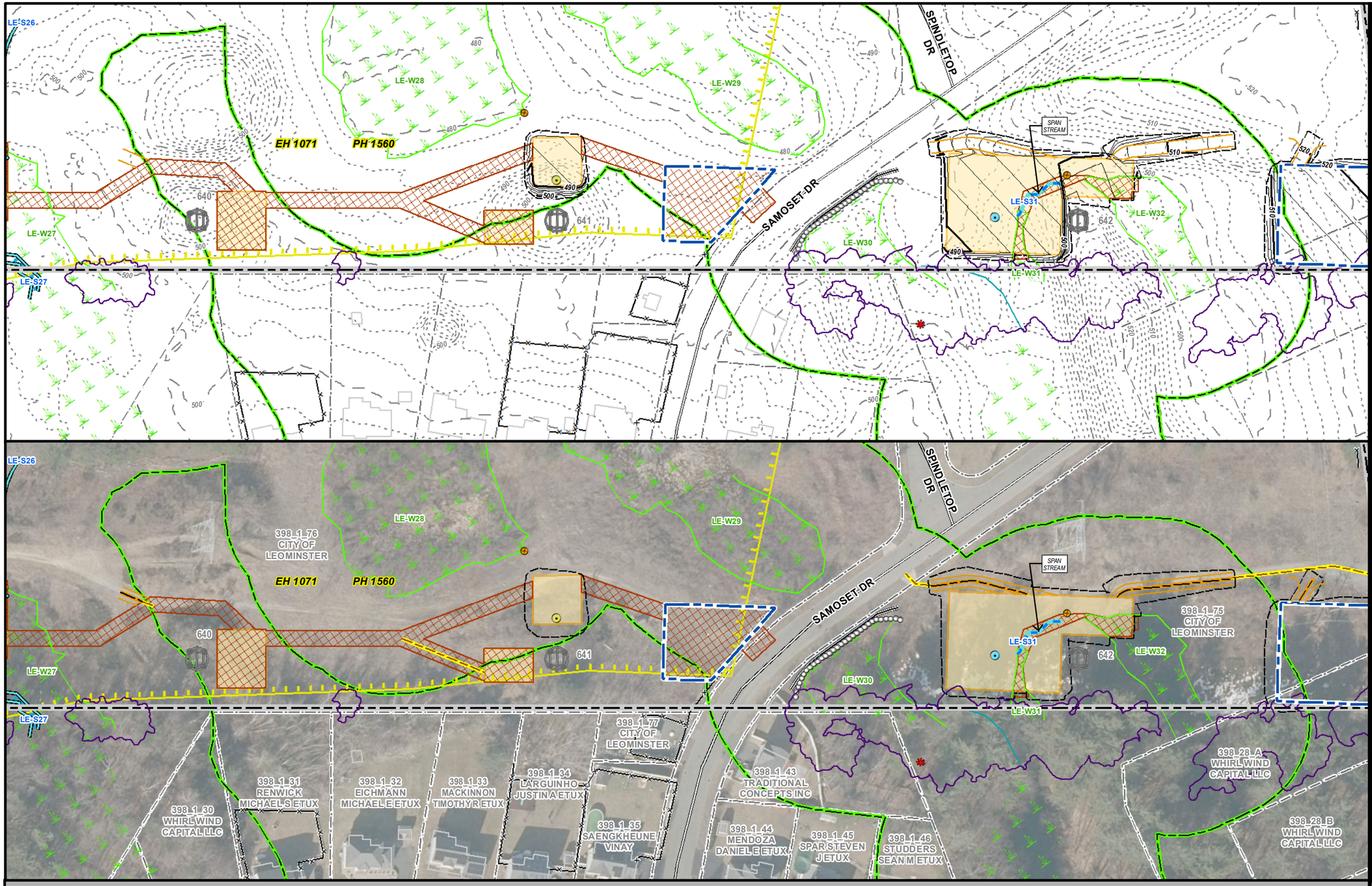
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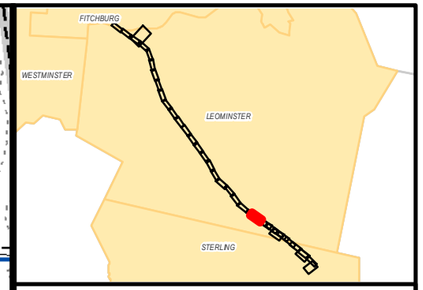
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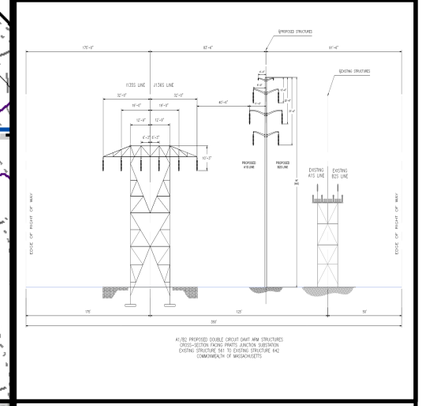
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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LEOMINSTER, MA
PAGE 24 OF 33

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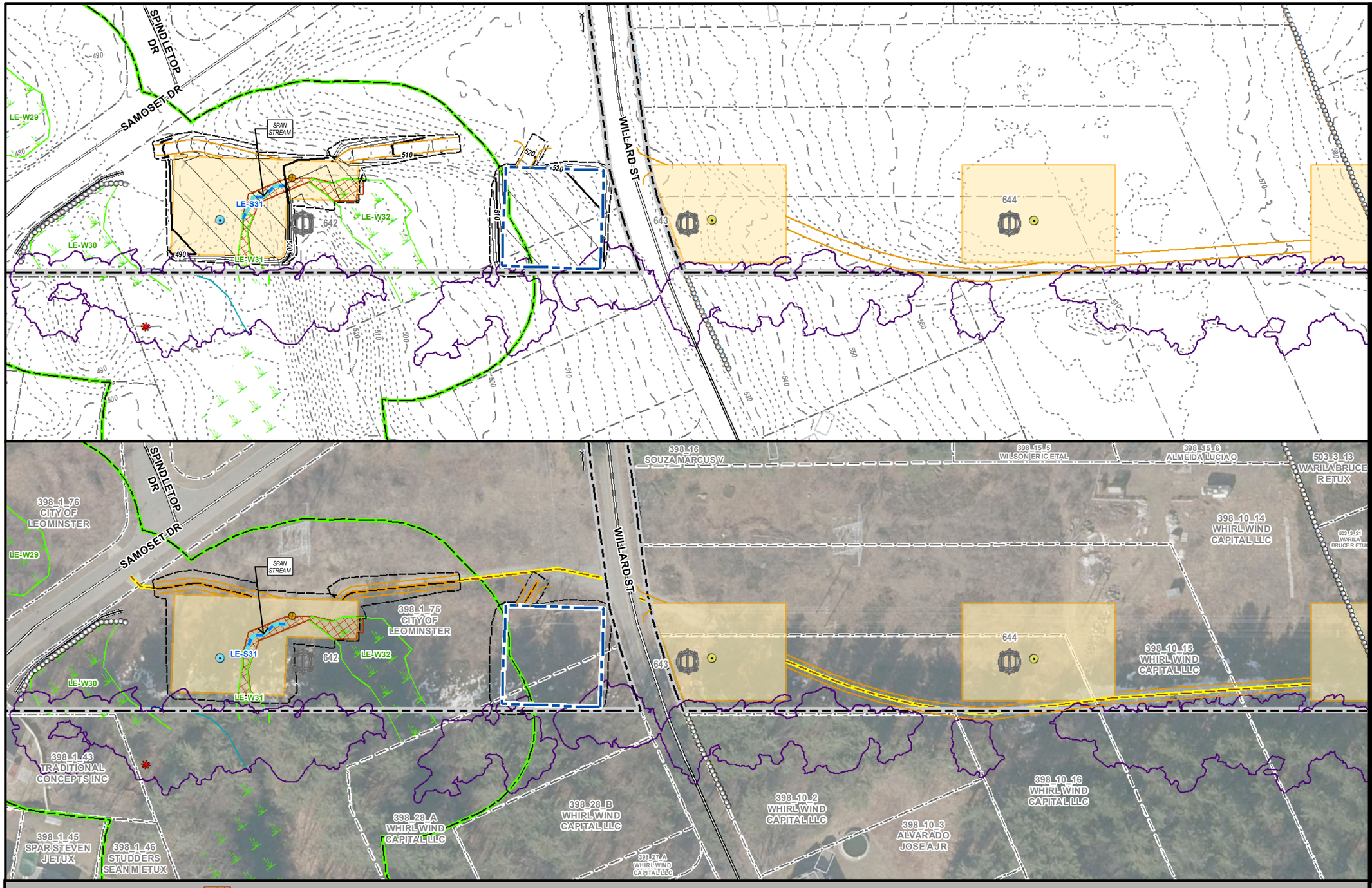
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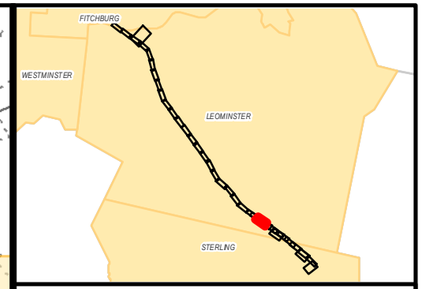
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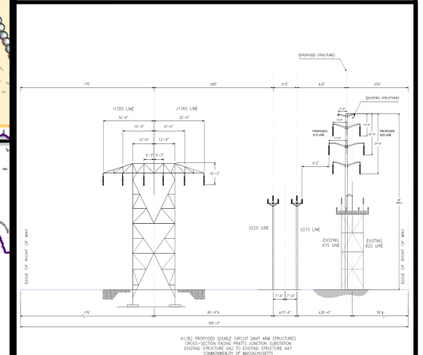
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 25 OF 33

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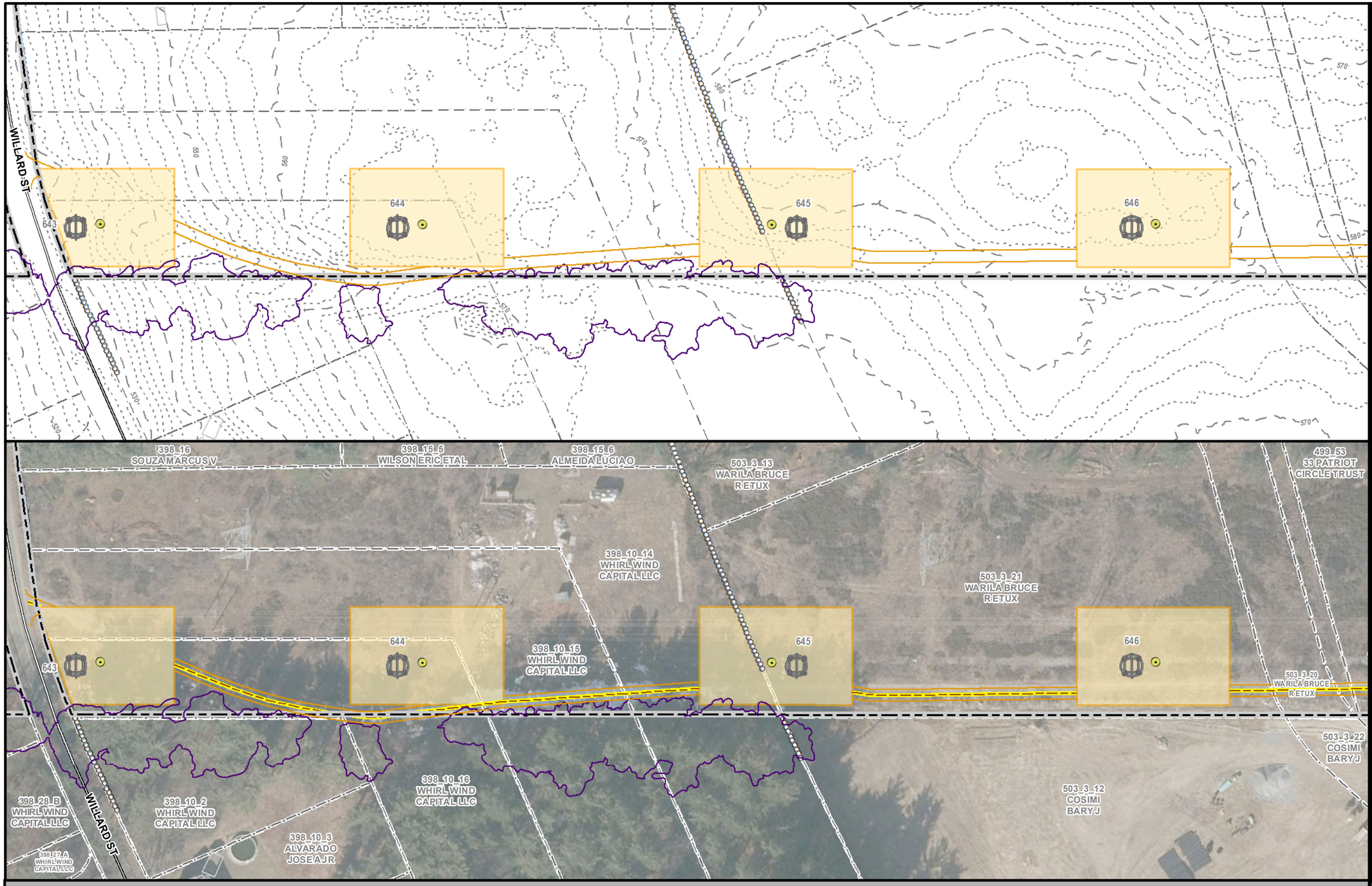
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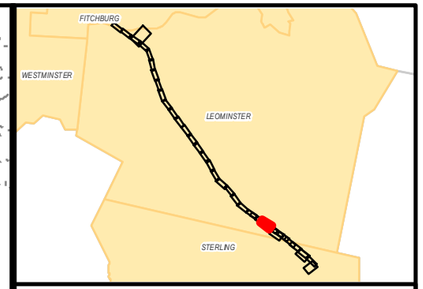
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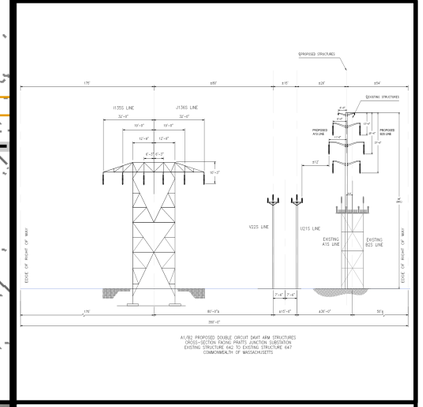
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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LEOMINSTER, MA
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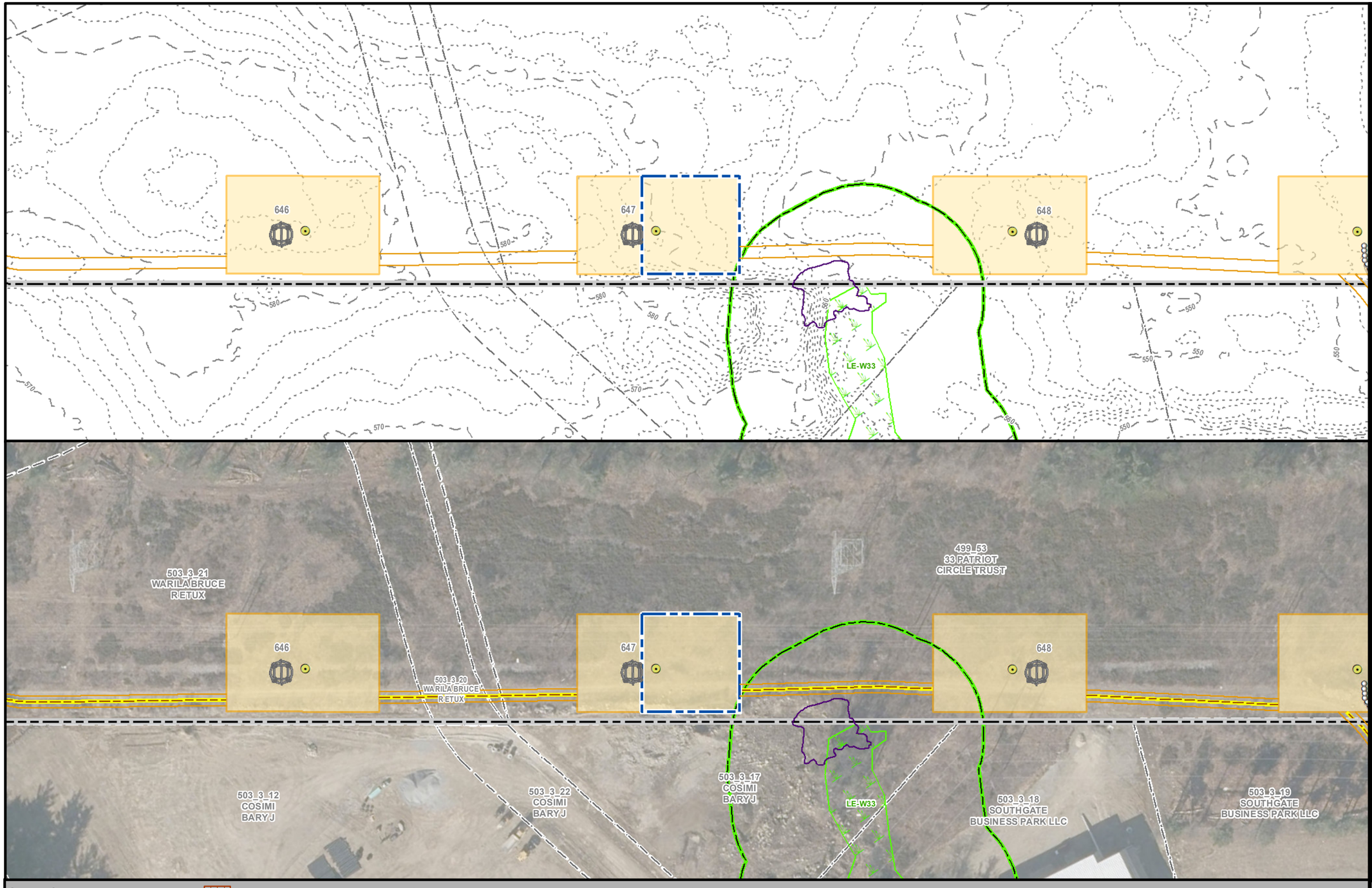
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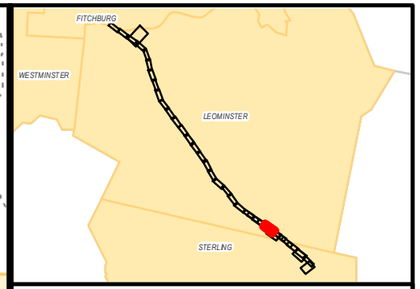
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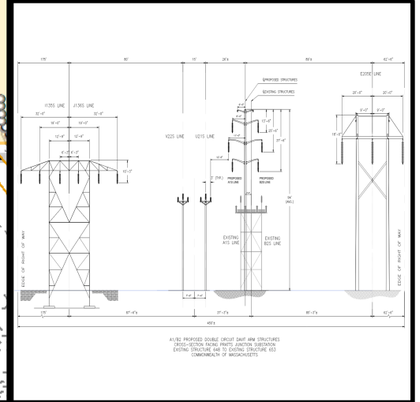
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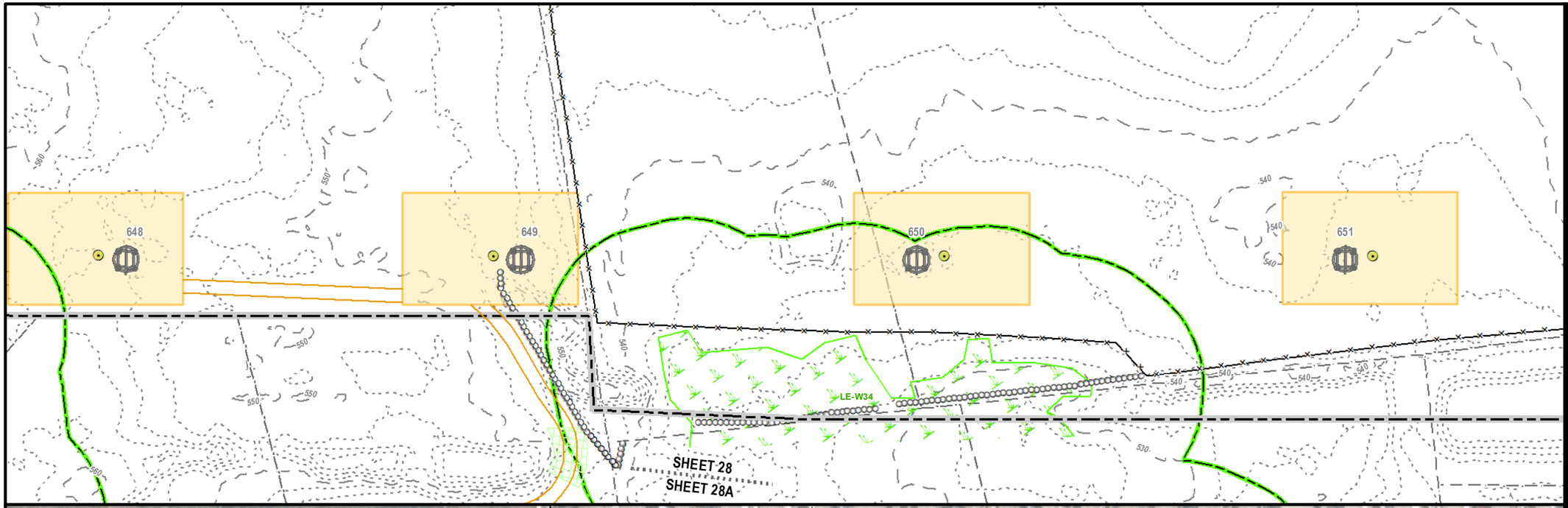
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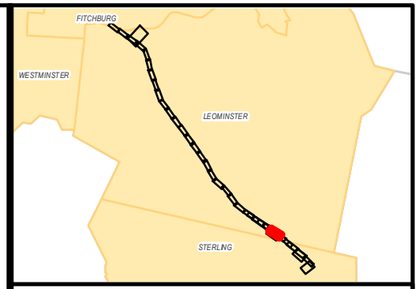
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WALTHAM, MA 02451

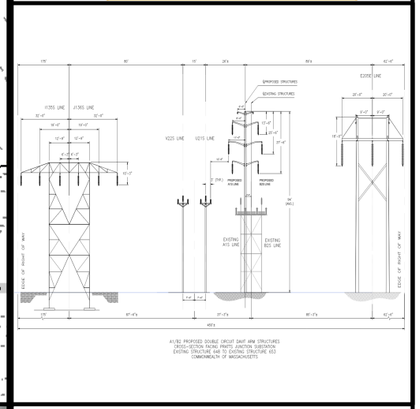
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WORCESTER, MA 01608

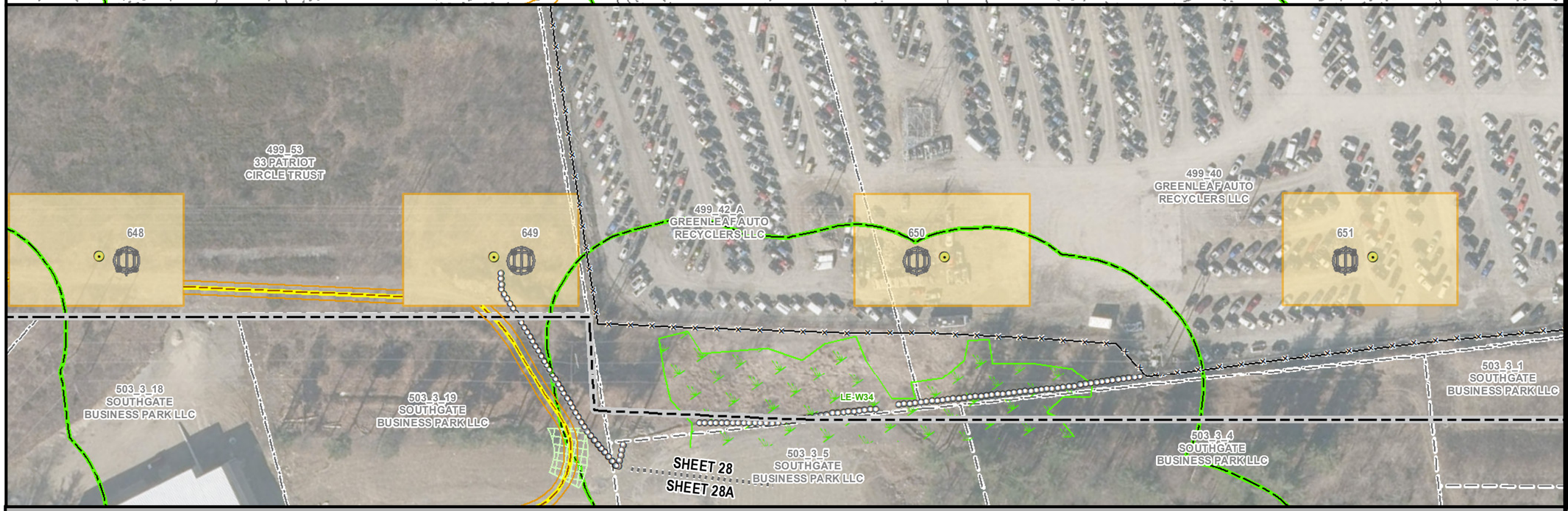
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER, MA
PAGE 28 OF 33

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
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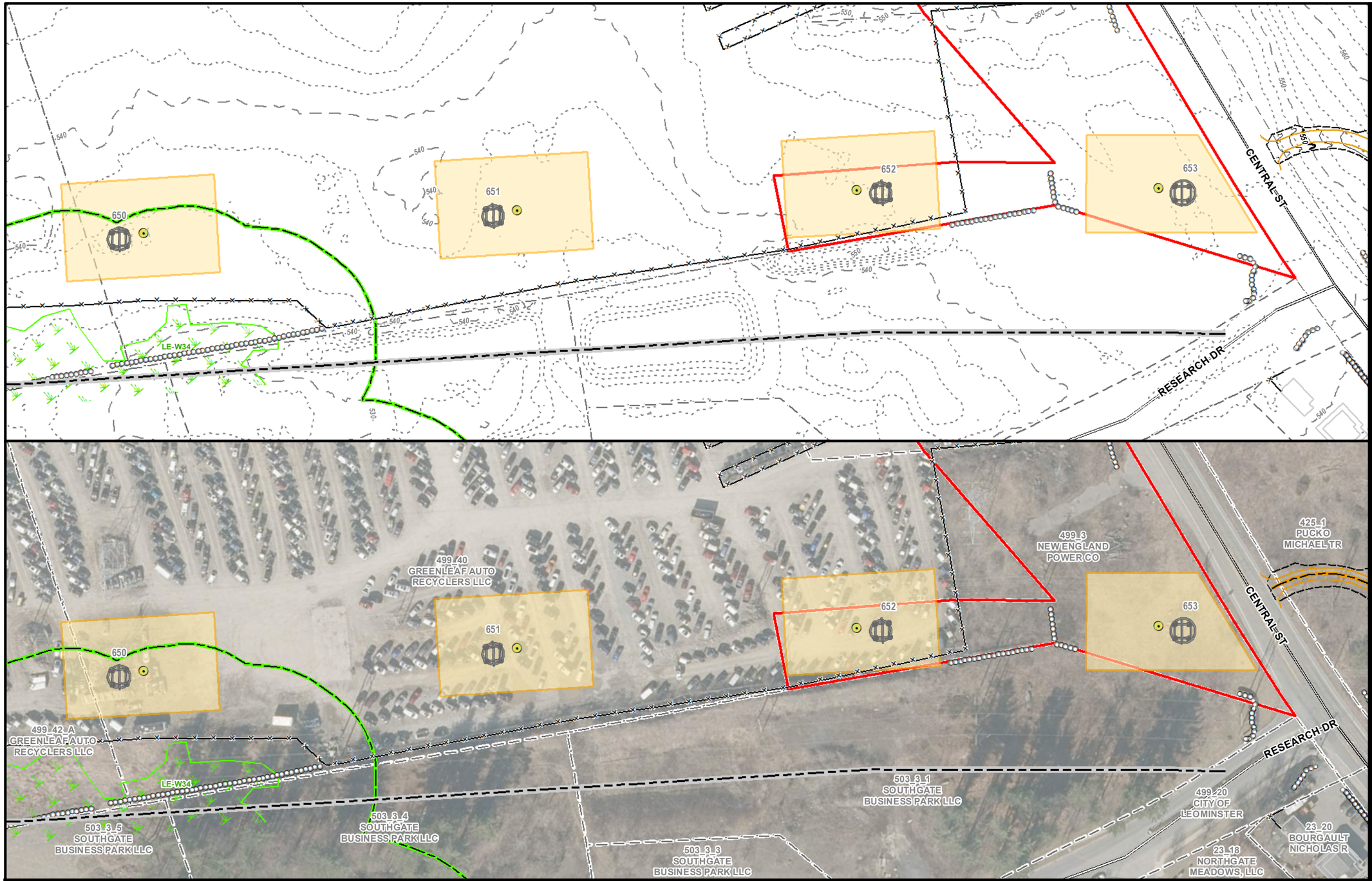
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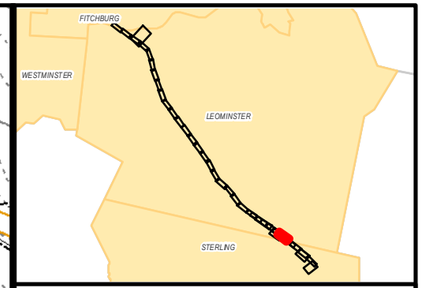
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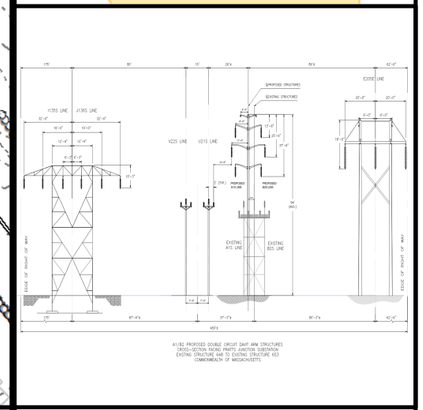
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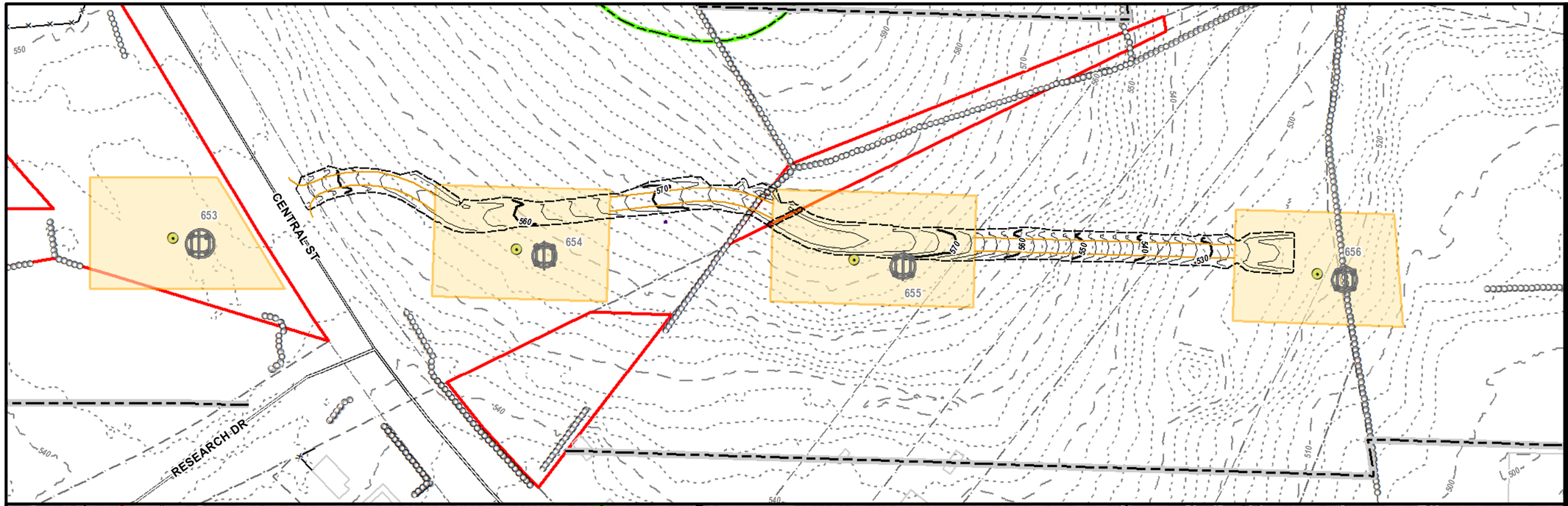
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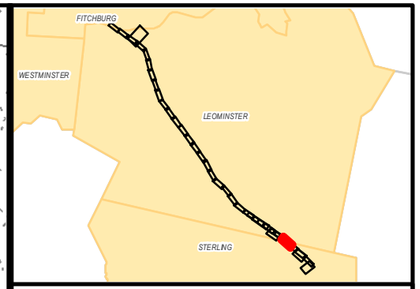
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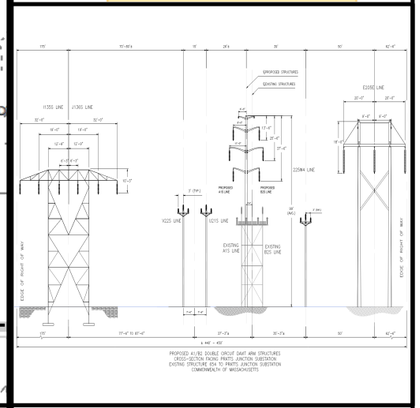
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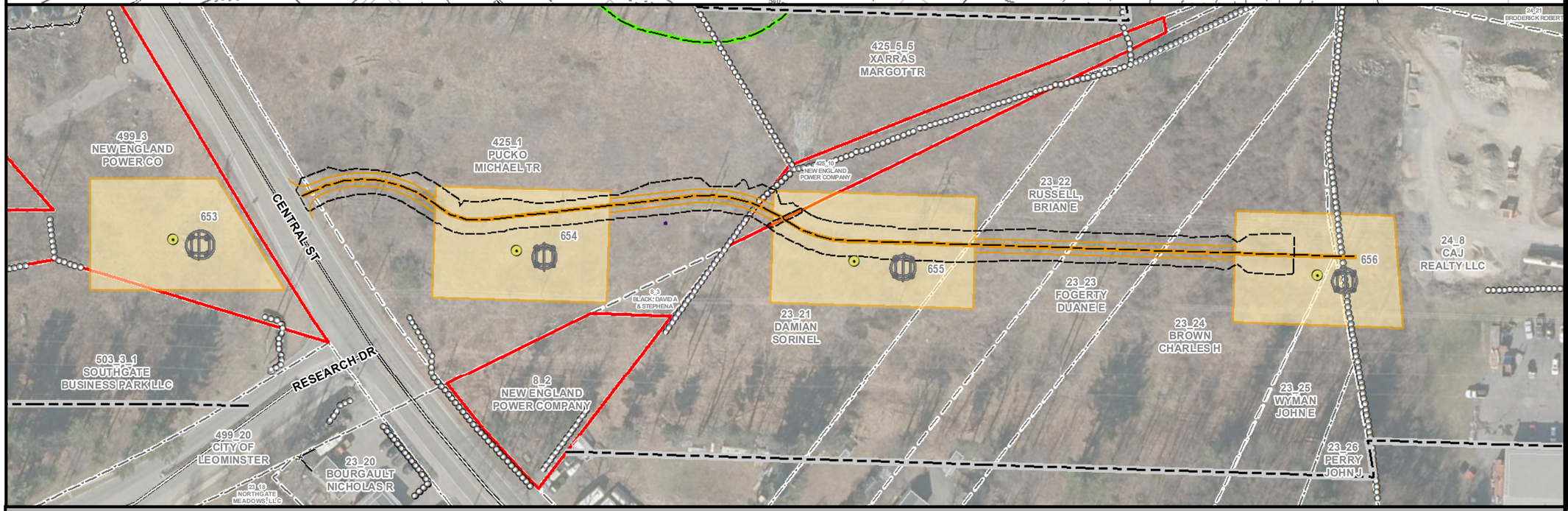
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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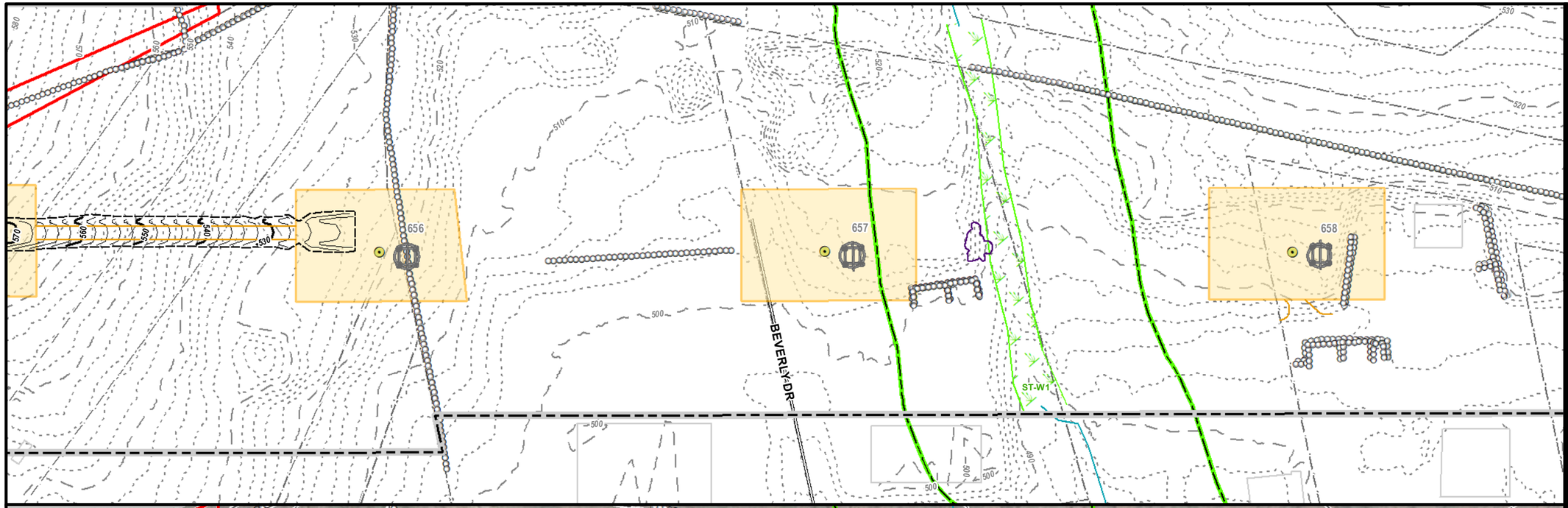
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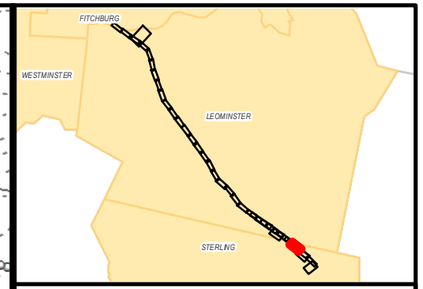
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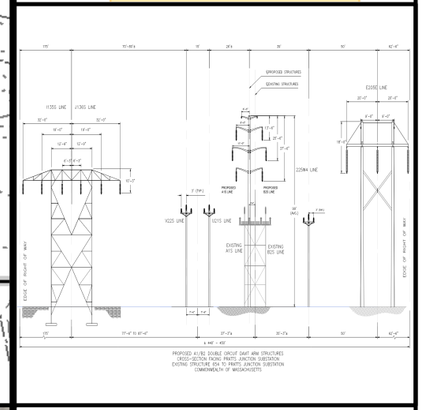
BSC GROUP
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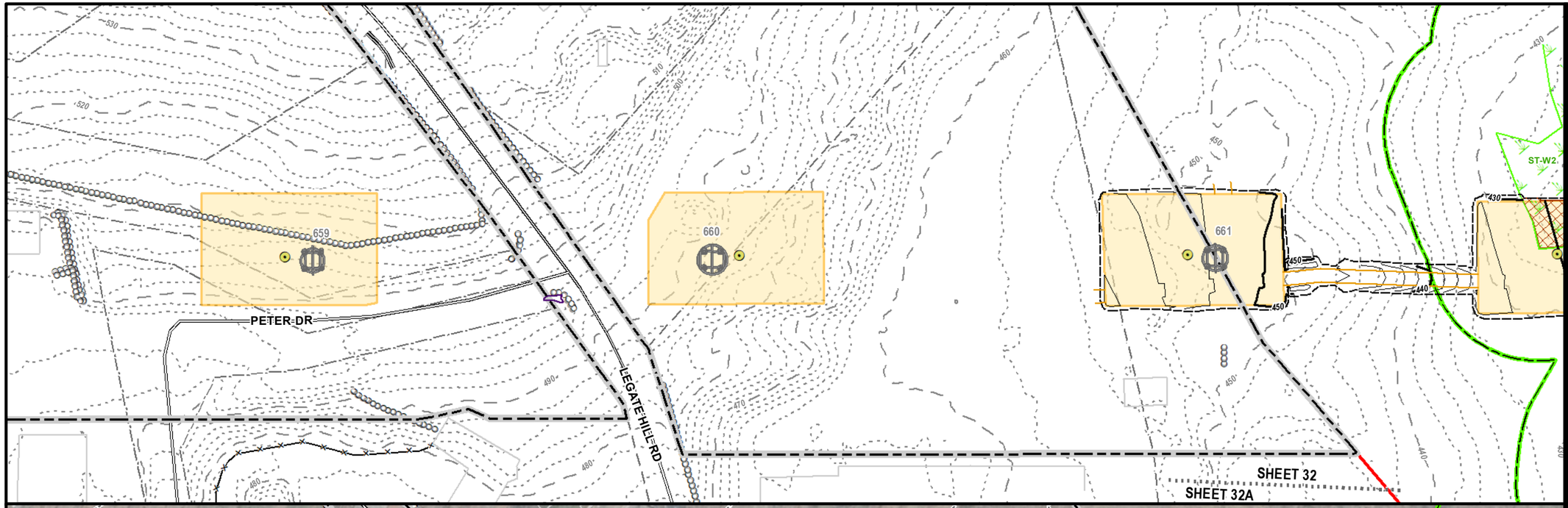
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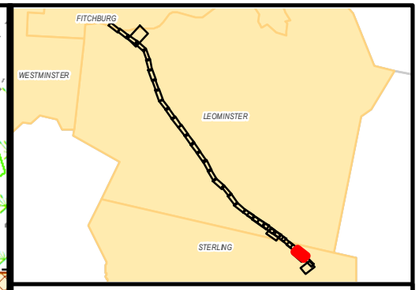
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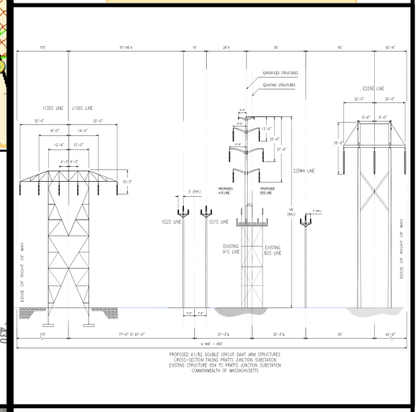
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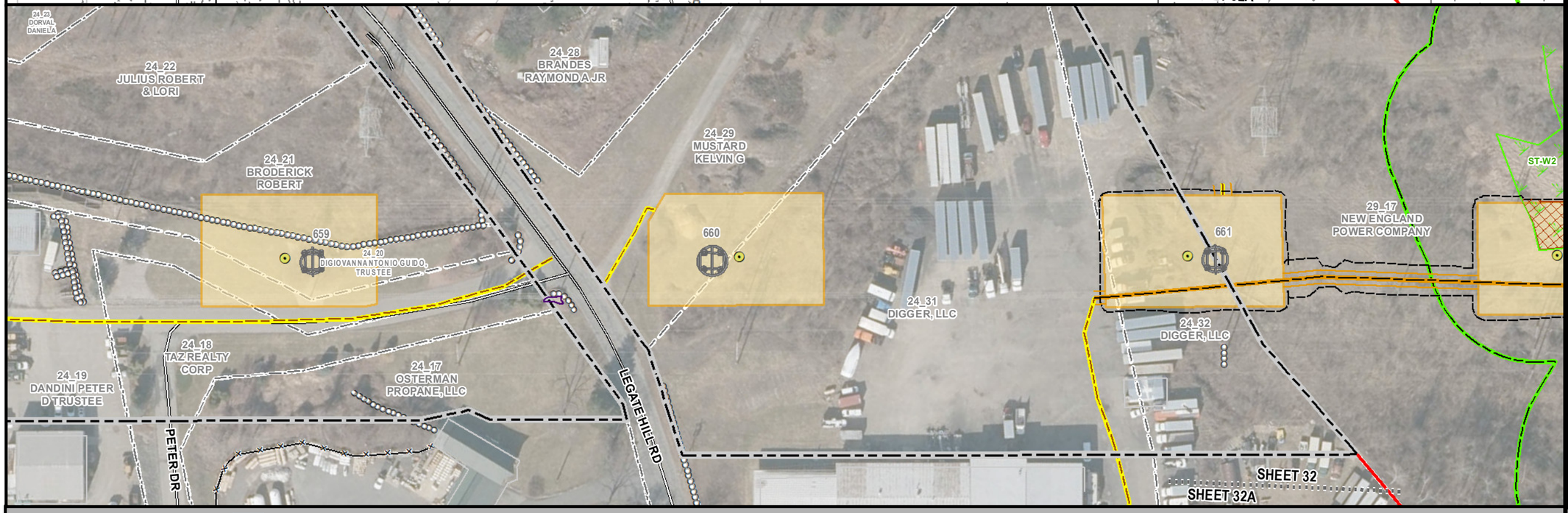
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MEPA General Purpose Plans

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STERLING, MA
PAGE 32 OF 33

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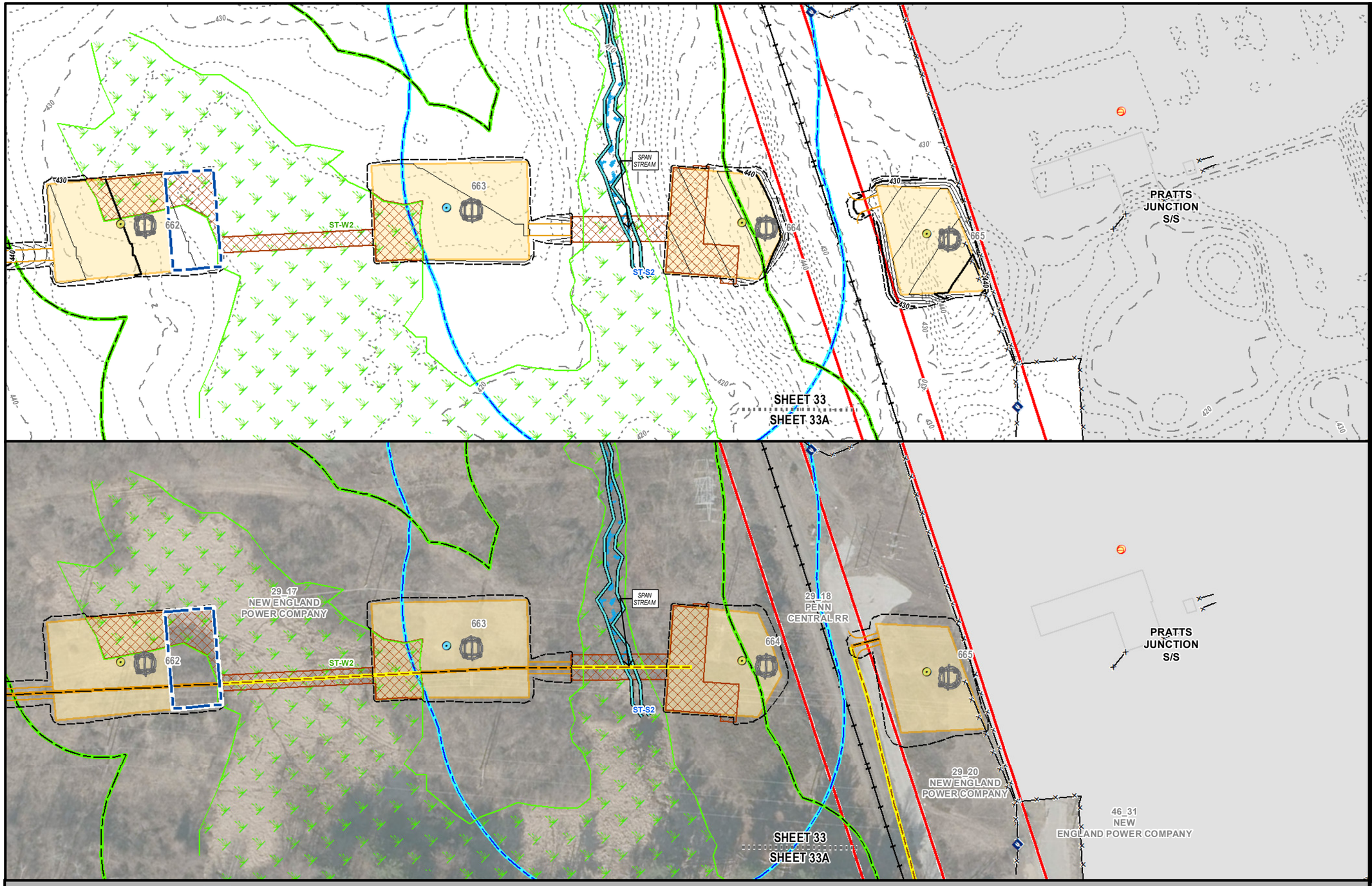
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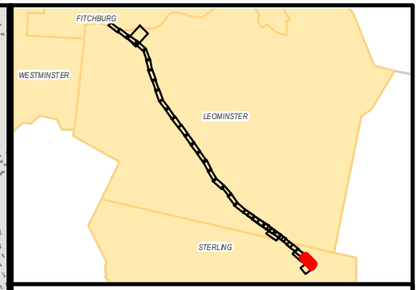
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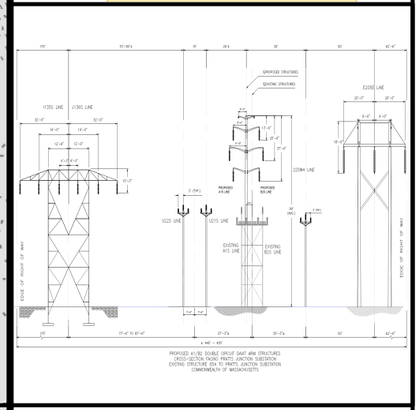
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- Existing Minor Contour
- Existing Major Contour
- Proposed Major Contour
- Proposed Minor Contour

Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

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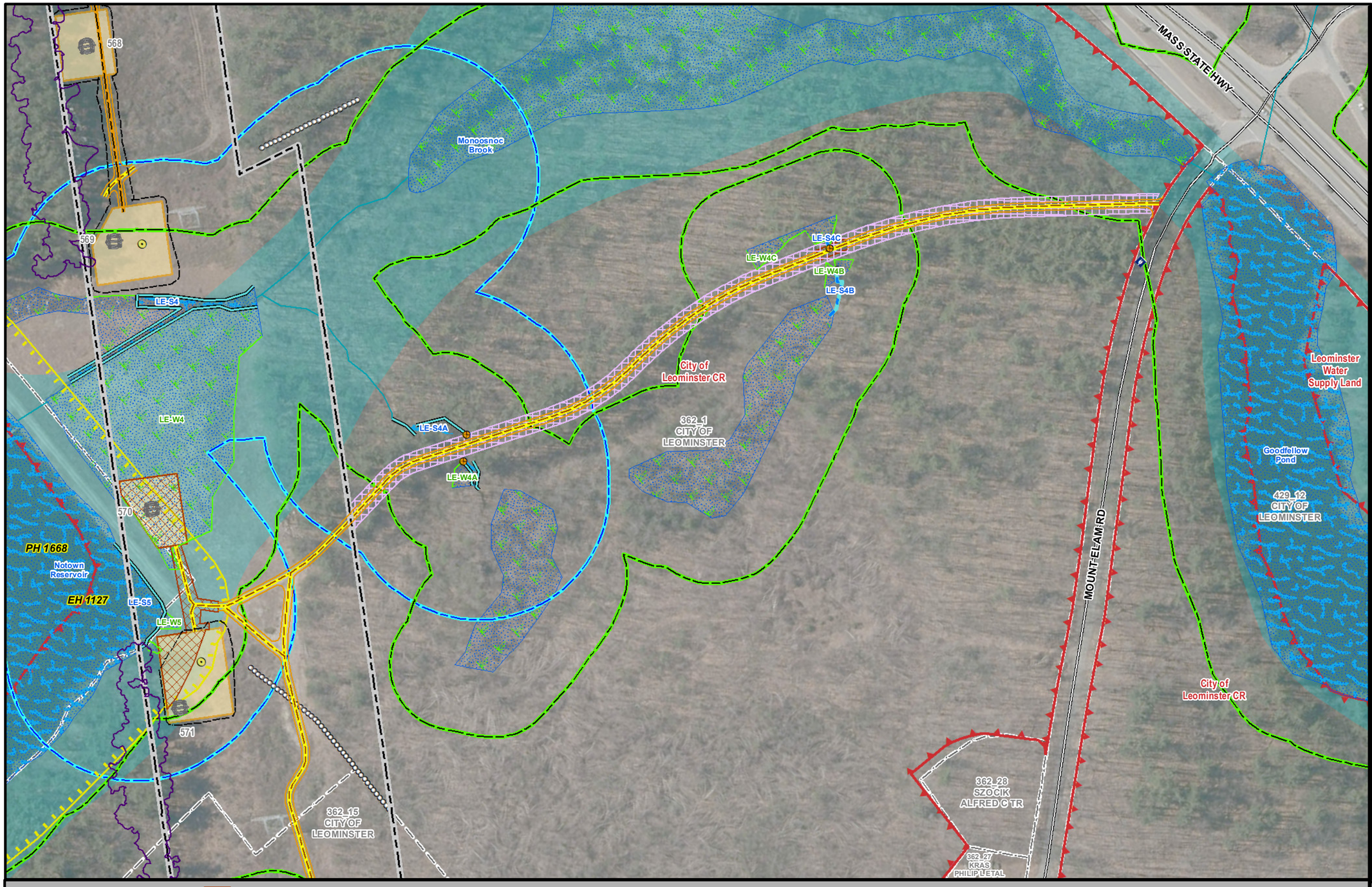
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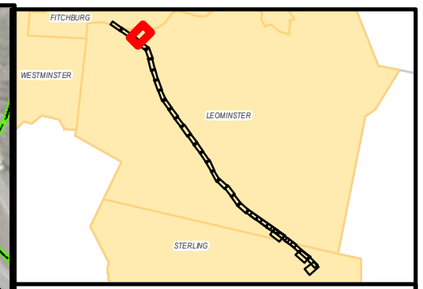
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; Certified Vernal Pools; Potential Vernal Pools; NHESP Priority Habitats; NHESP Estimated Habitats; NHESP Restricted Data; Hydrography; MADEP Hydrologic Connections; MADEP Wetlands; FEMA 100yr Floodplain; Public Water Supply; Zone II Wellhead Protection Area; Interim Wellhead Protection Area; Surface Water Protection Zone; Outstanding Resource Water; Areas of Critical Environmental Concern; Watershed Protection Act Zones; Ch. 91 Tidelands Jurisdiction; Article 97 Land; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed)

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER & FITCHBURG, MA
PAGE 3A OF 33

1 inch = 150 feet
0 80 160
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
- Stream Centerline
- Ordinary High Water
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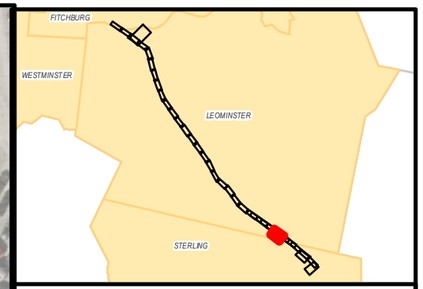
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170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
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1 MERCANTILE STREET SUITE 601
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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

LEOMINSTER & STERLING, MA

PAGE 28A OF 33

1 inch = 100 feet

0 50 100

Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
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- Stonewall
- Guardrail
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- Proposed Major Contour
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Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
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- Private

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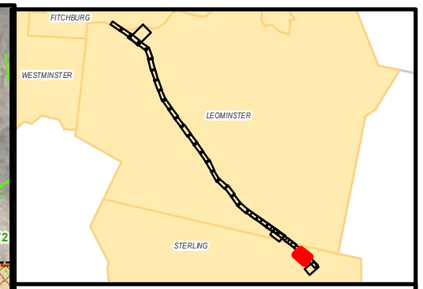
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WORCESTER, MA 01608

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2 MAINLINE CENTERLINE CHANGE

STERLING, MA
PAGE 32A OF 33

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
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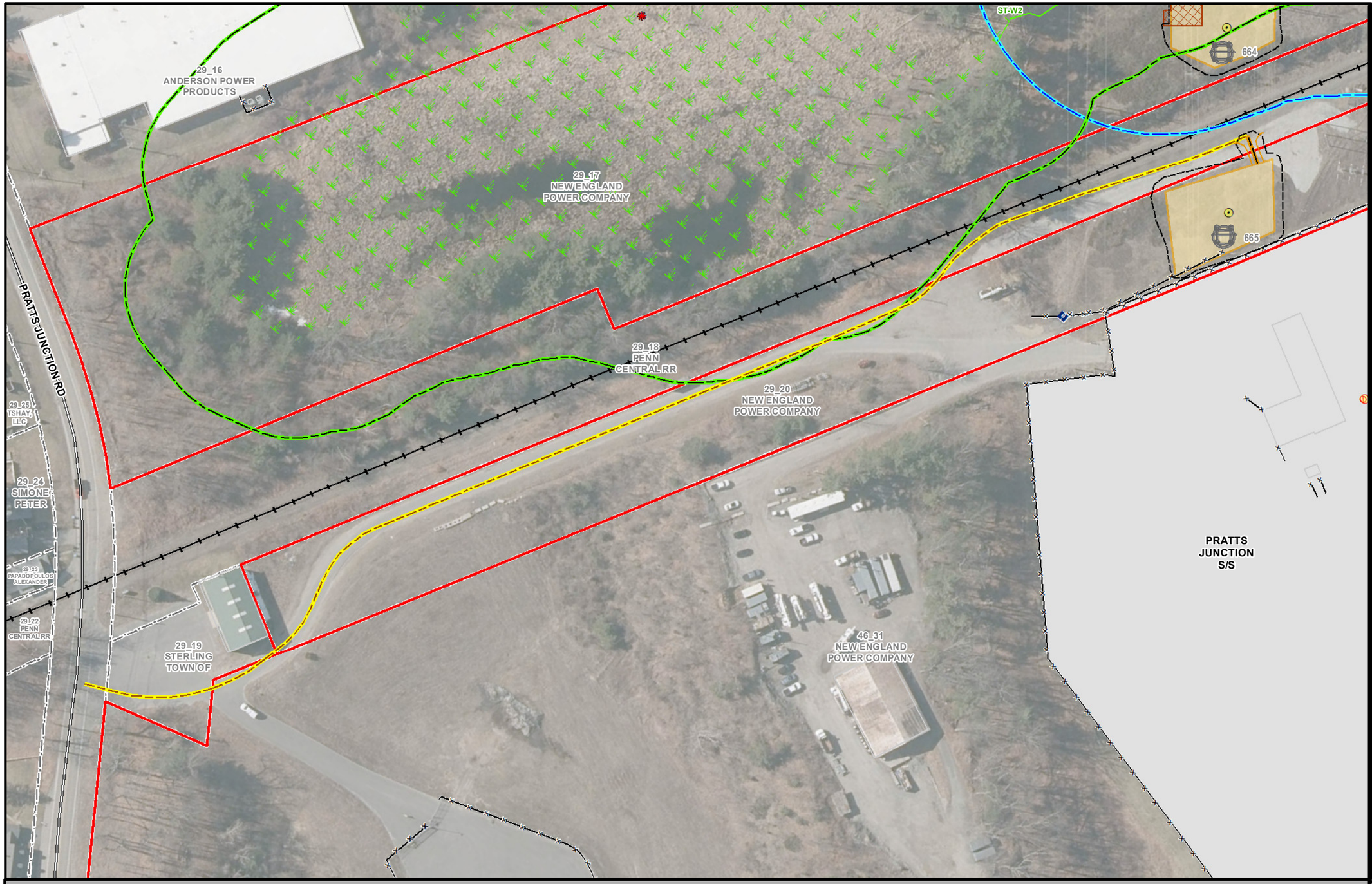
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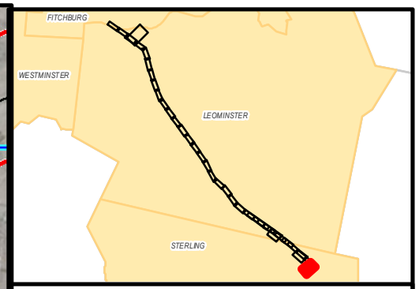
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nationalgrid
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MEPA General Purpose Plans

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STERLING, MA
PAGE 33A OF 33

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0 50 100
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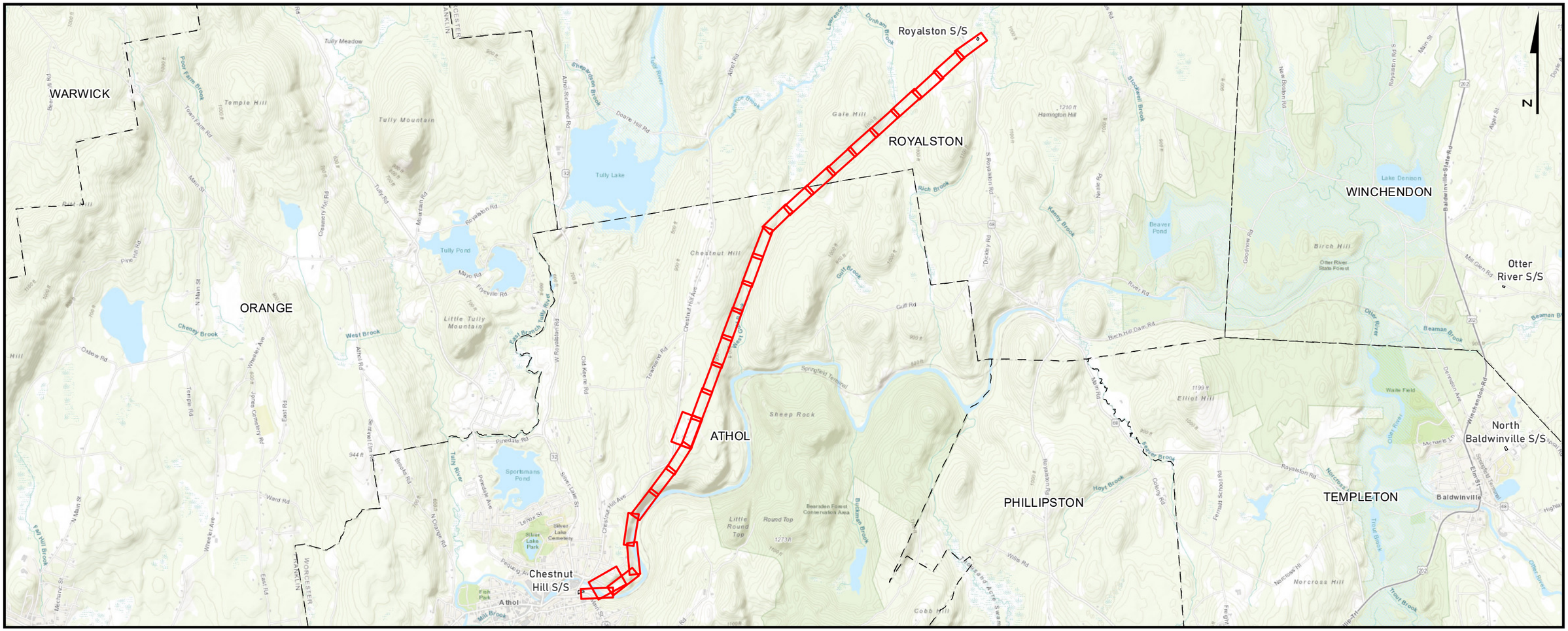
BSC Project Number: 89620.66

Asset Condition Refurbishment (ACR) Project - Athol Tap Lines

Royalston & Athol, MA

MEPA General Purpose Plans - 75% Design

July 17, 2024



PREPARED FOR:

nationalgrid

170 Data Drive
Waltham, MA 02451

INDEX OF FIGURES

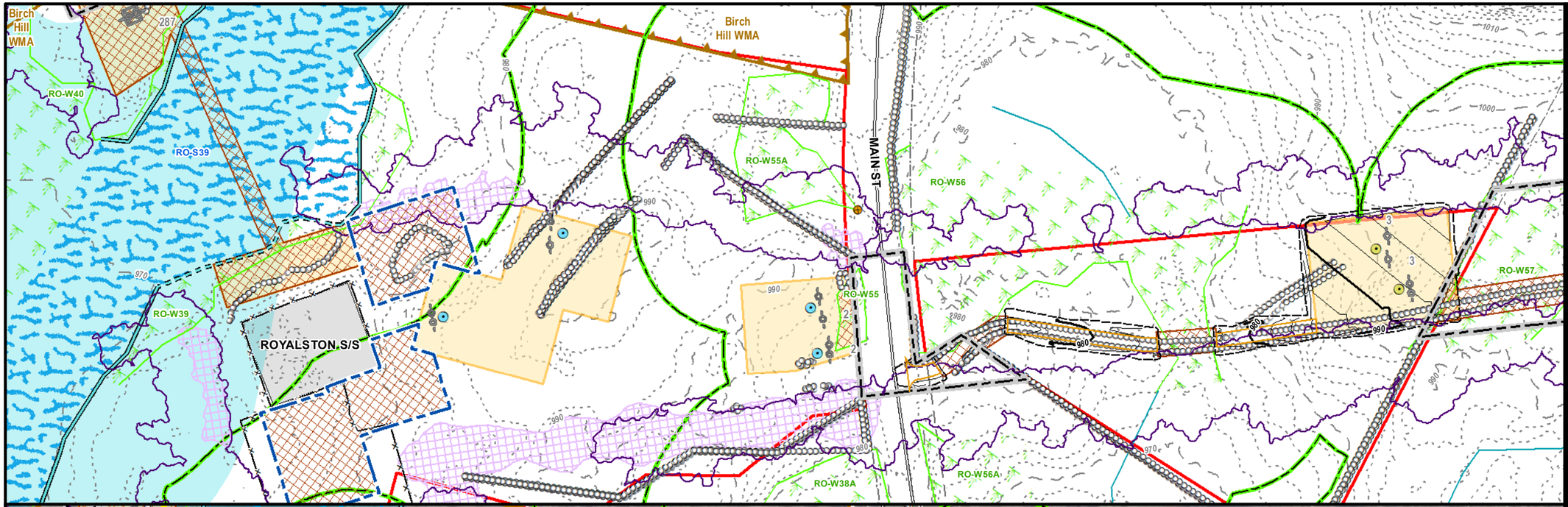
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1 - 25 - MAP SHEETS
18A & 25A - OFF ROW ACCESS SHEETS

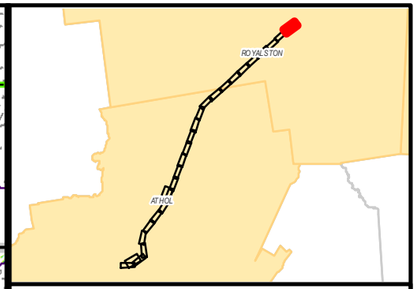
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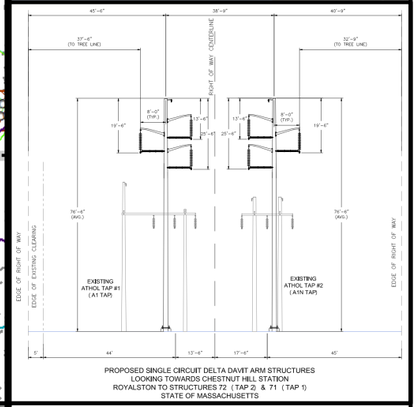
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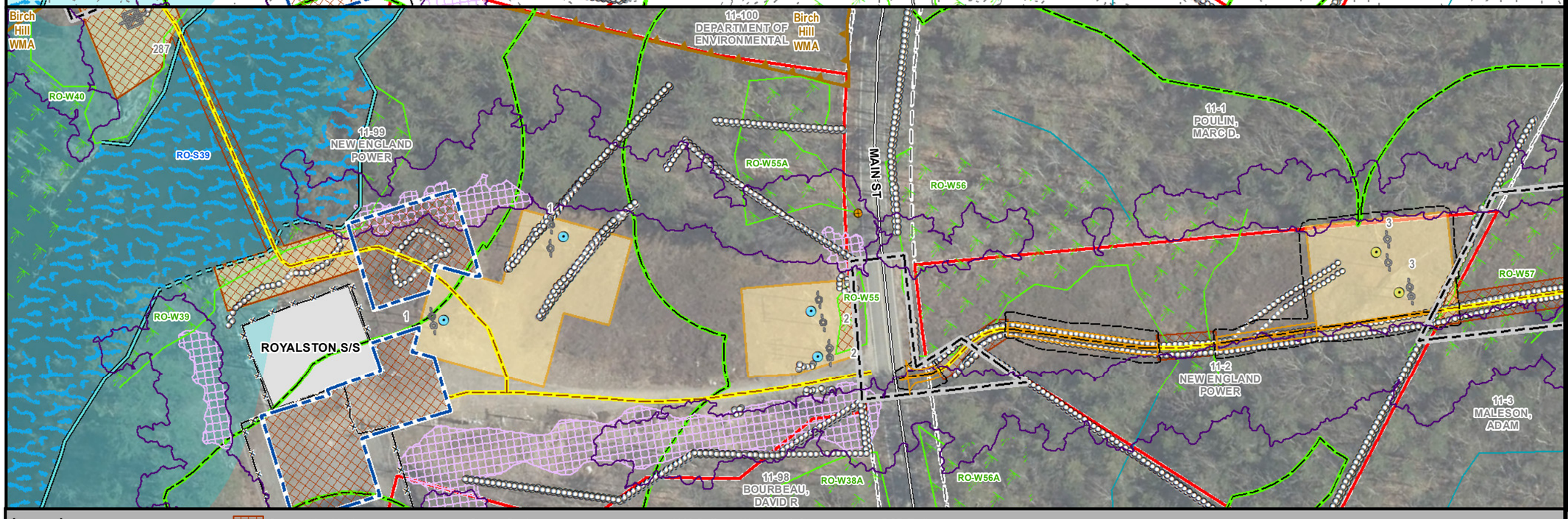
1 Mercantile Street Suite 601
Worcester, MA 01608







PROPOSED SINGLE CIRCUIT DELTA DAVIT ARM STRUCTURES
LOOKING TOWARDS CHESTNUT HILL STATION
ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ROYALSTON, MA
PAGE 1 OF 25

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
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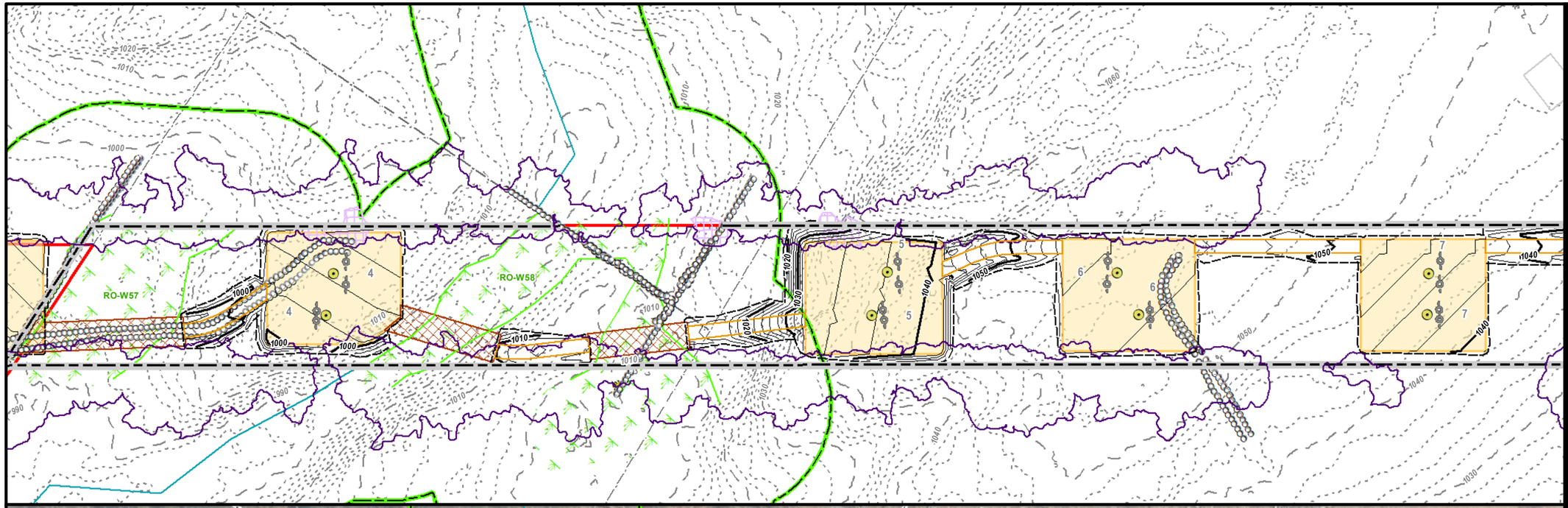
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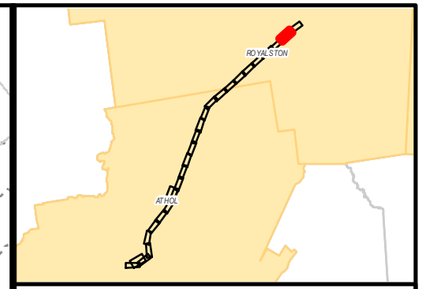
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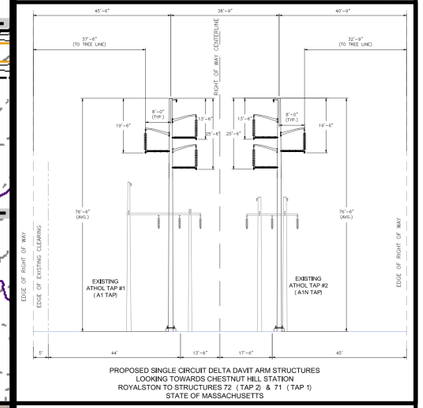
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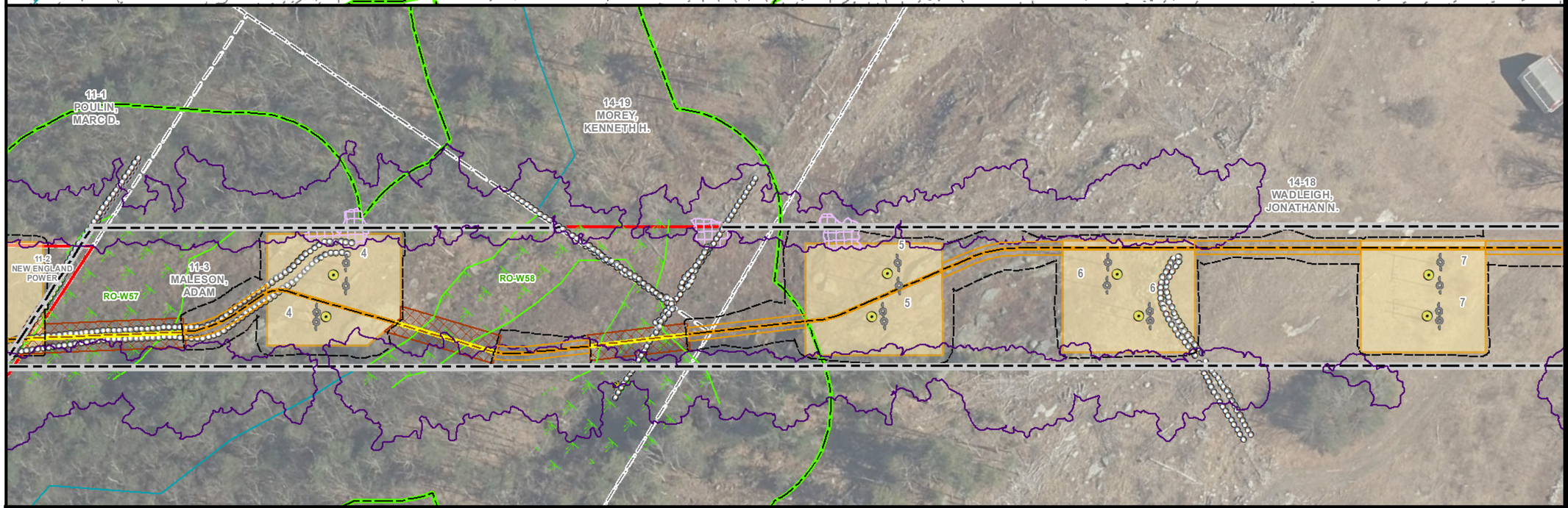
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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ROYALSTON, MA
PAGE 2 OF 25

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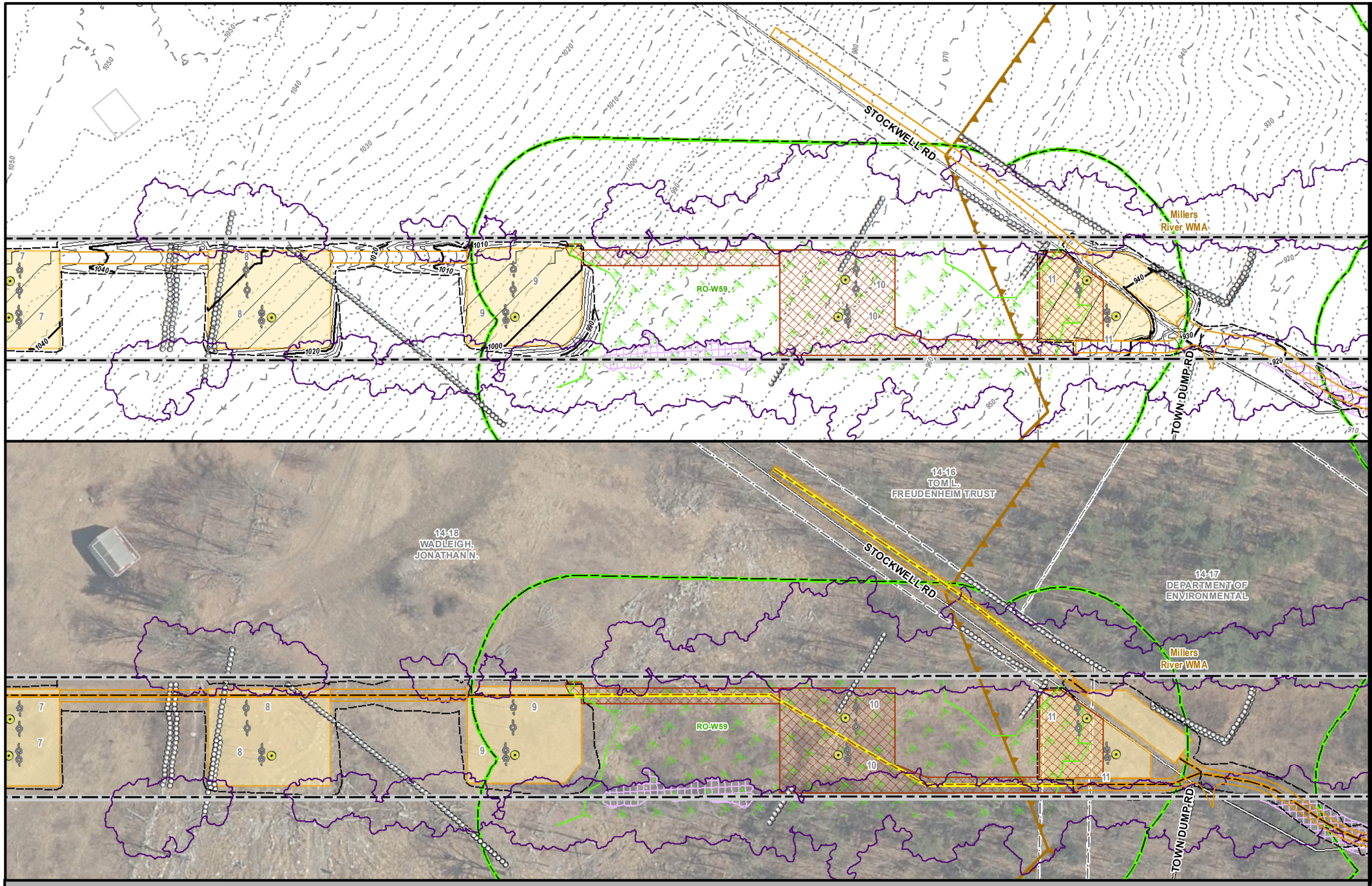
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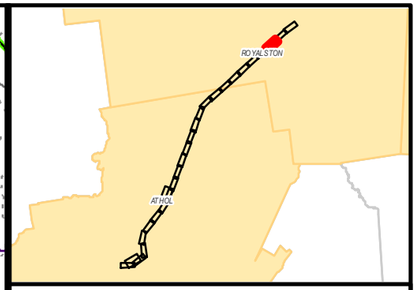
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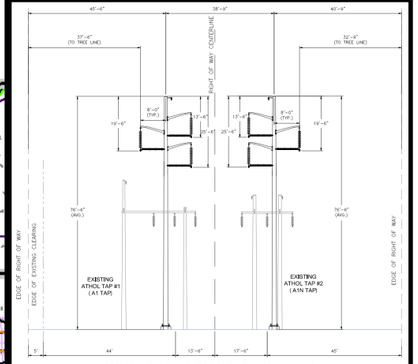
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PROPOSED SINGLE CIRCUIT DELTA DAVIT ARM STRUCTURES
LOOKING TOWARDS CHESTNUT HILL STATION
ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ROYALSTON, MA
PAGE 3 OF 25

1 inch = 100 feet
0 50 100
Feet

Legend

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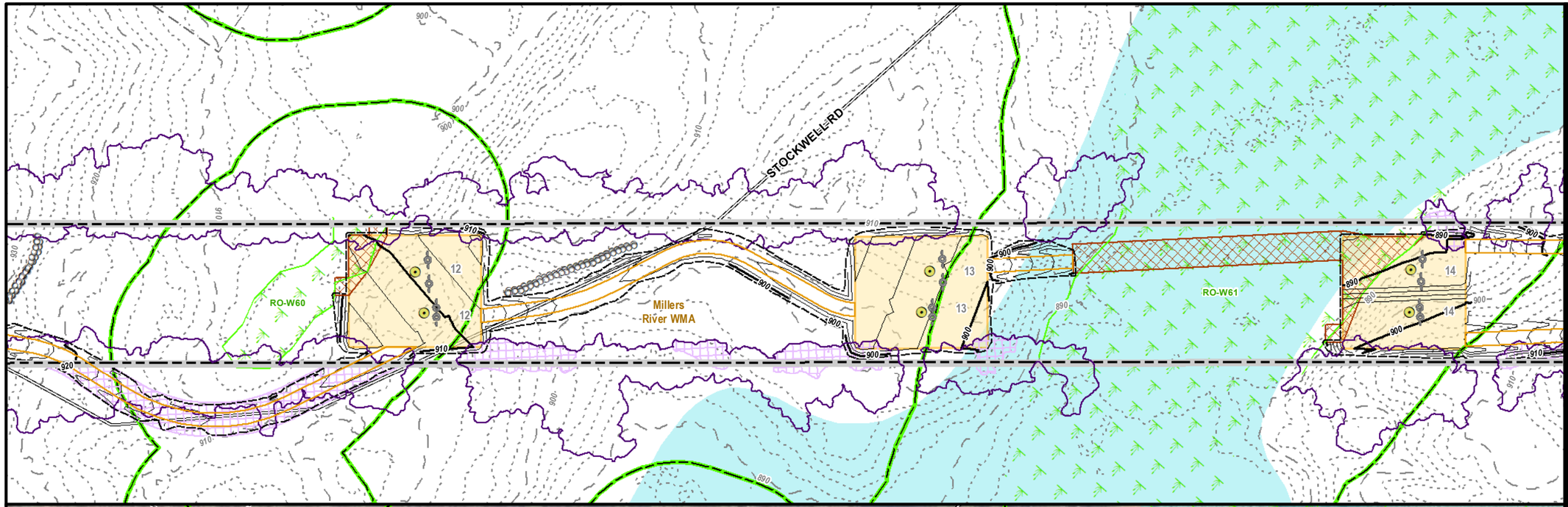
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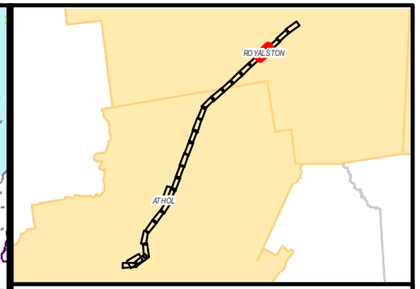
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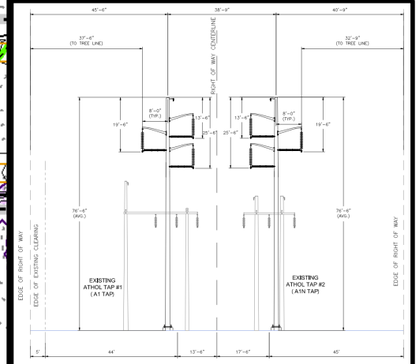
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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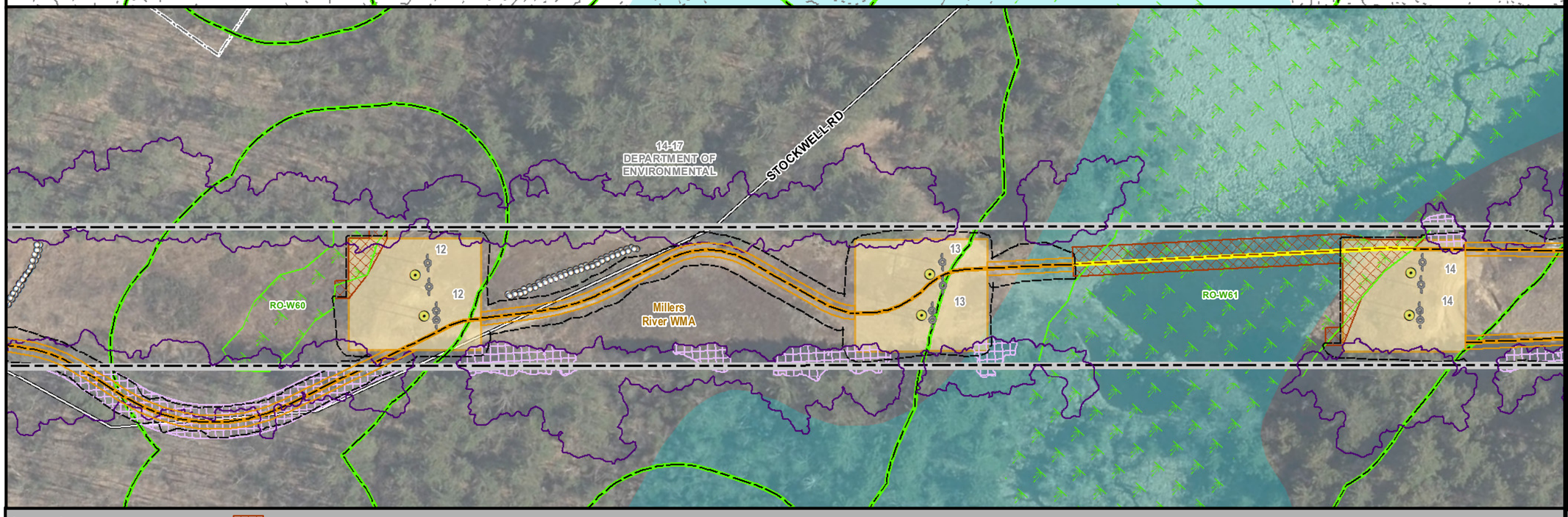
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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ROYALSTON, MA
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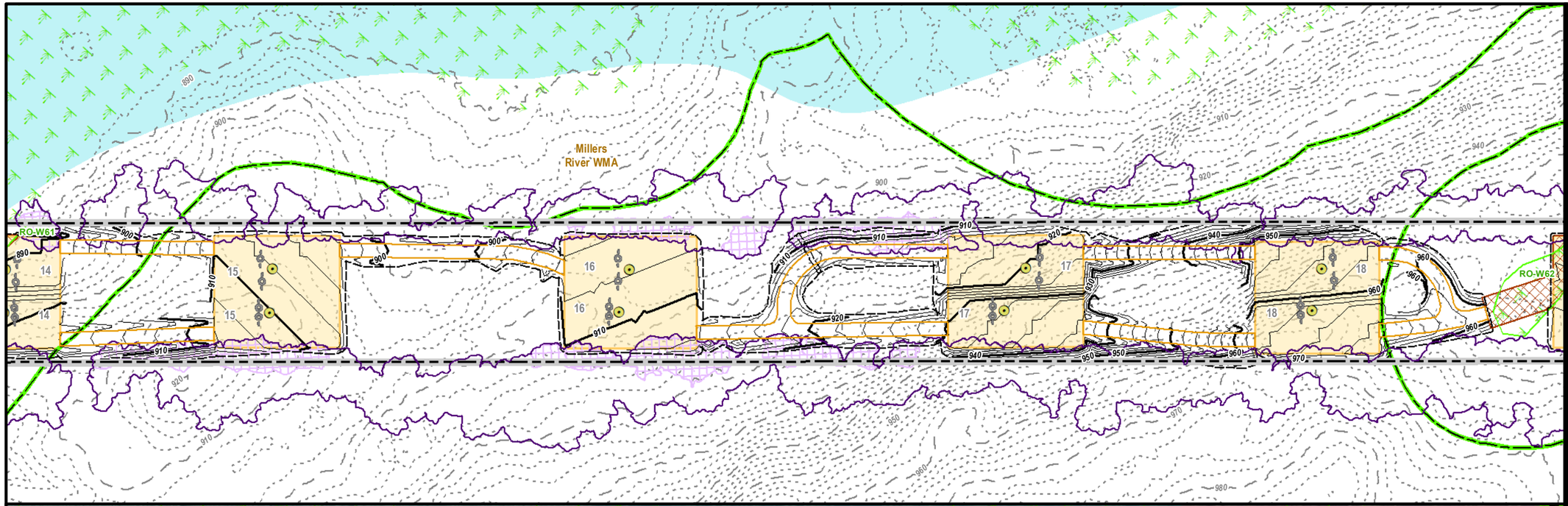
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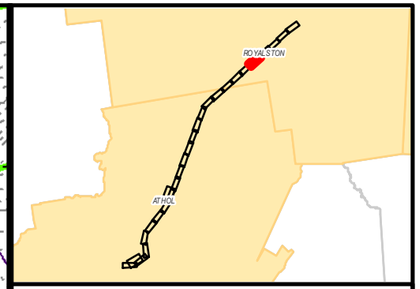
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WALTHAM, MA 02451

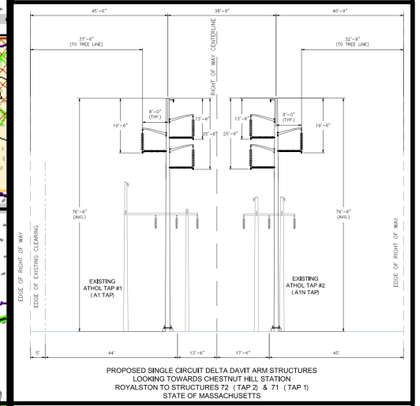
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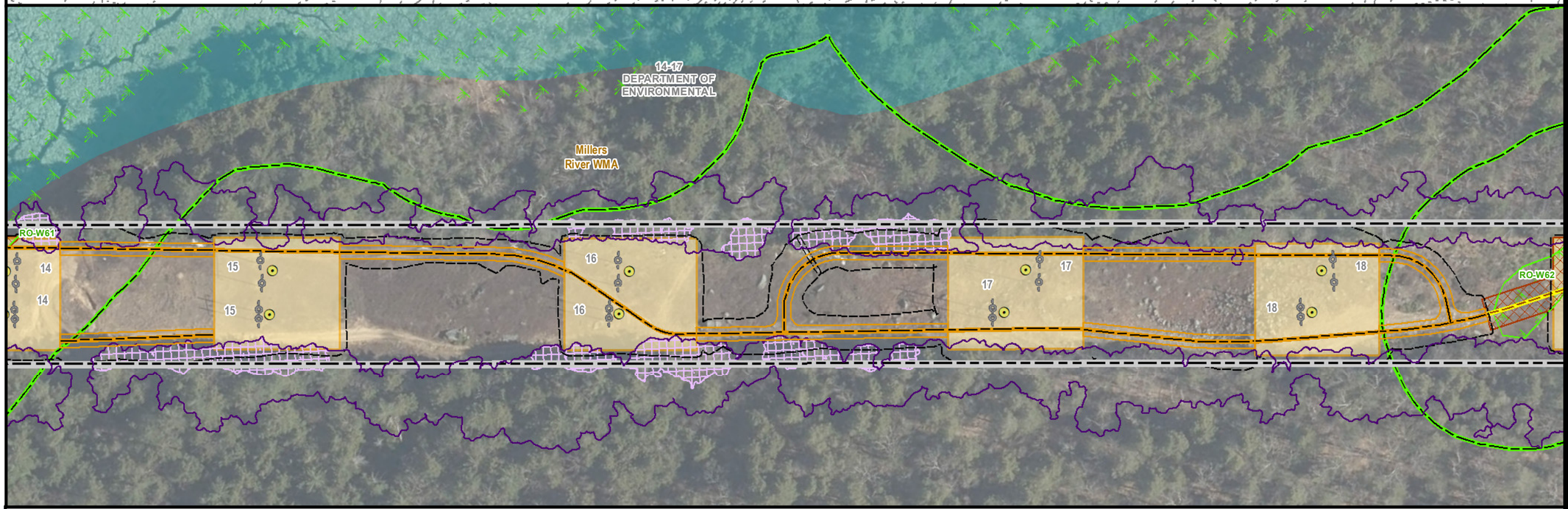
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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ROYALSTON, MA
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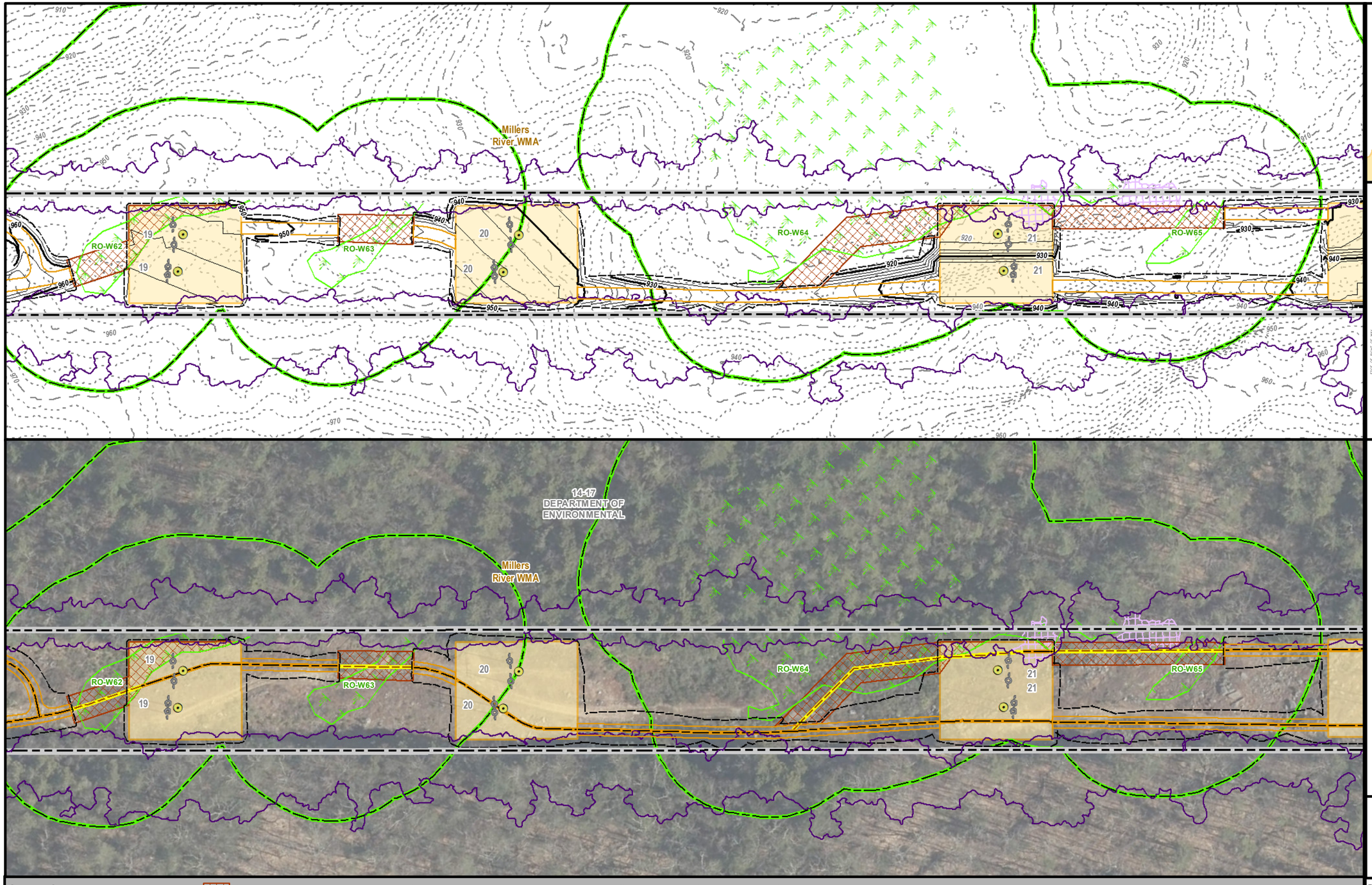
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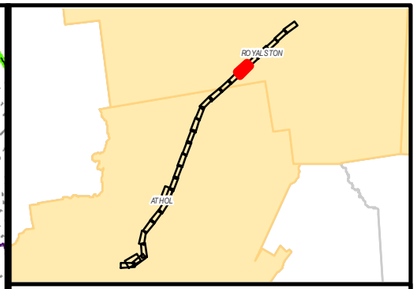
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WALTHAM, MA 02451

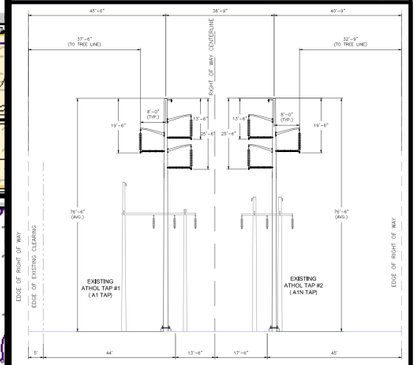
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1 MERCANTILE STREET SUITE 601
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ROYALSTON, MA
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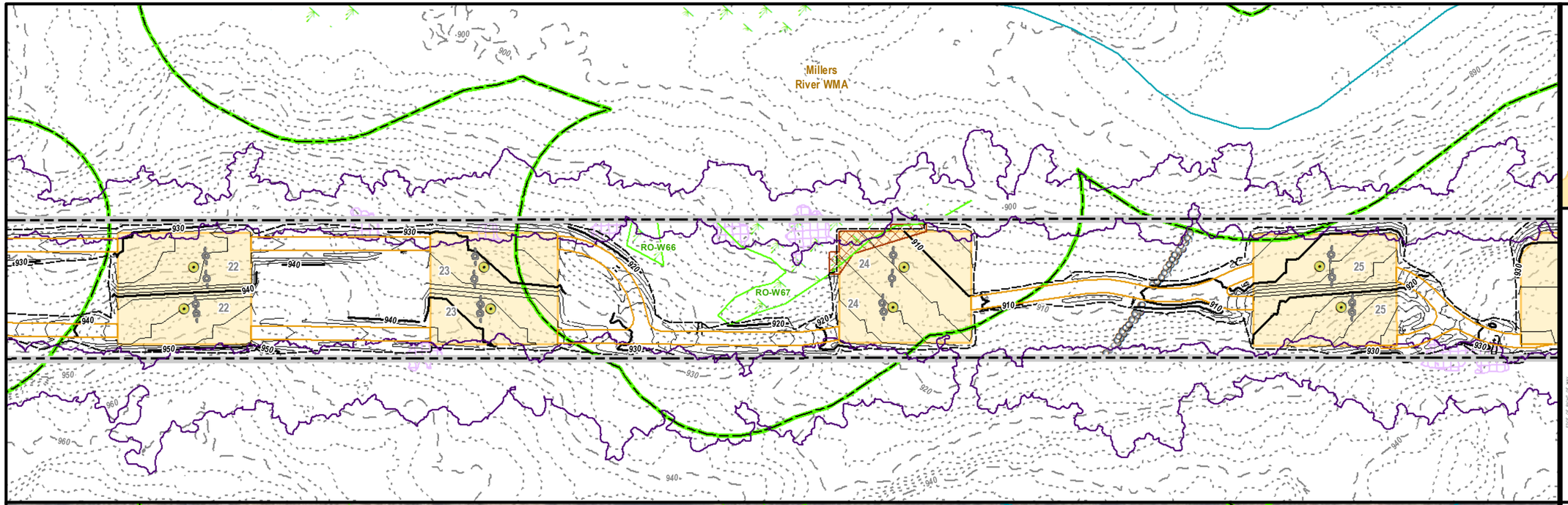
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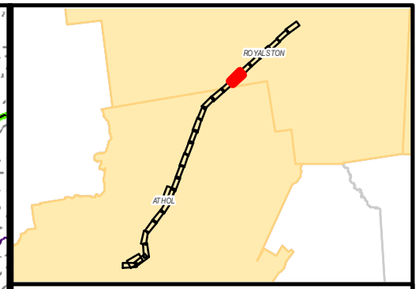
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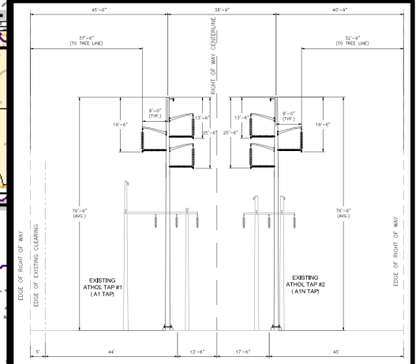
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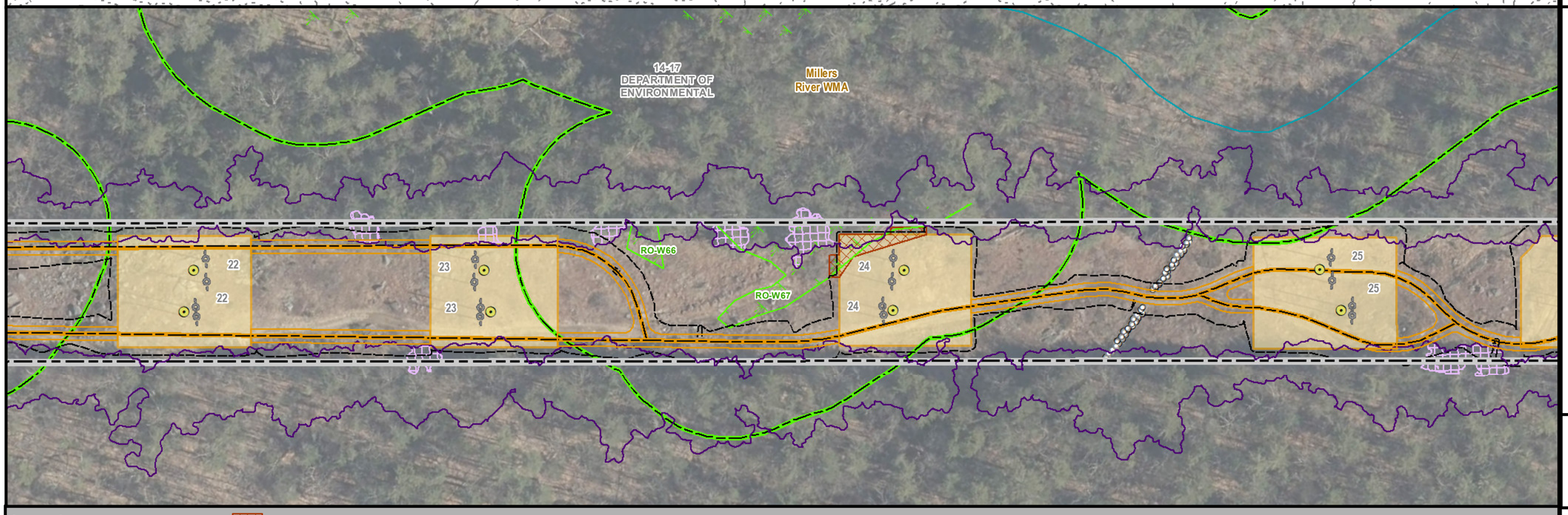
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ROYALSTON, MA
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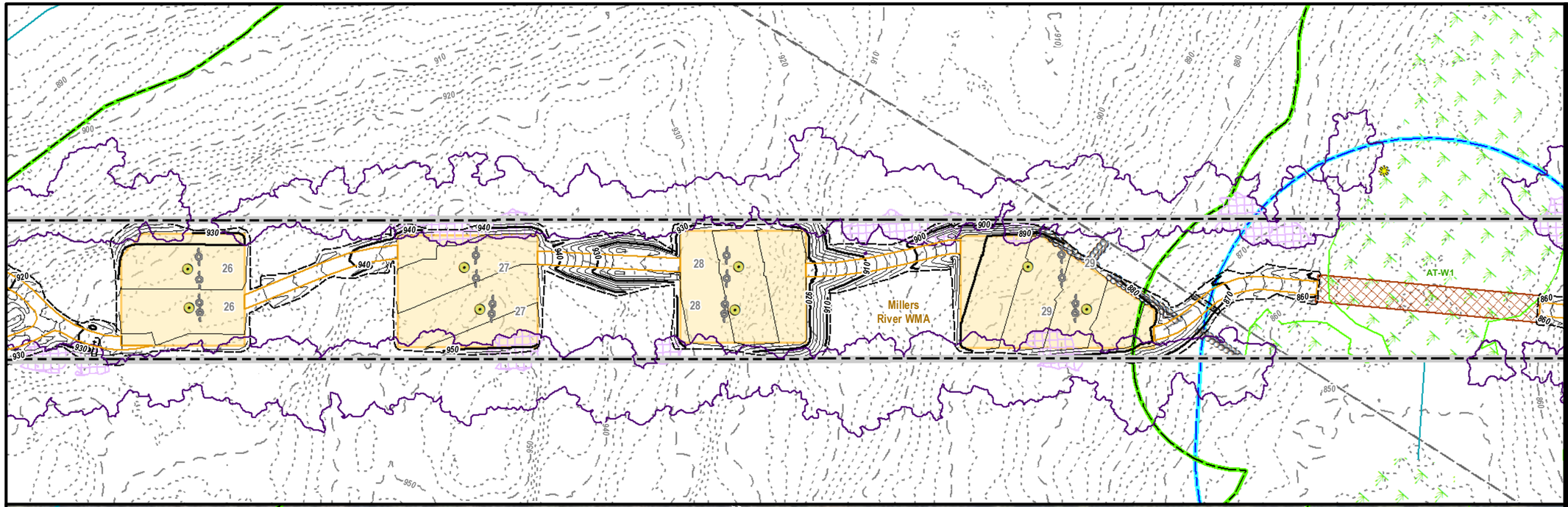
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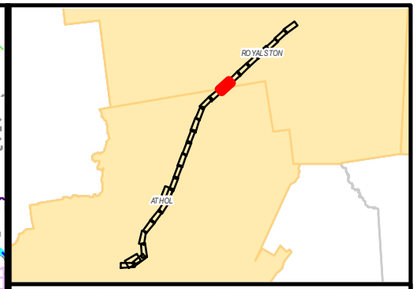
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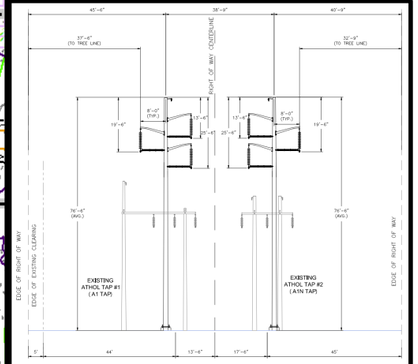
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ROYALSTON & ATHOL, MA
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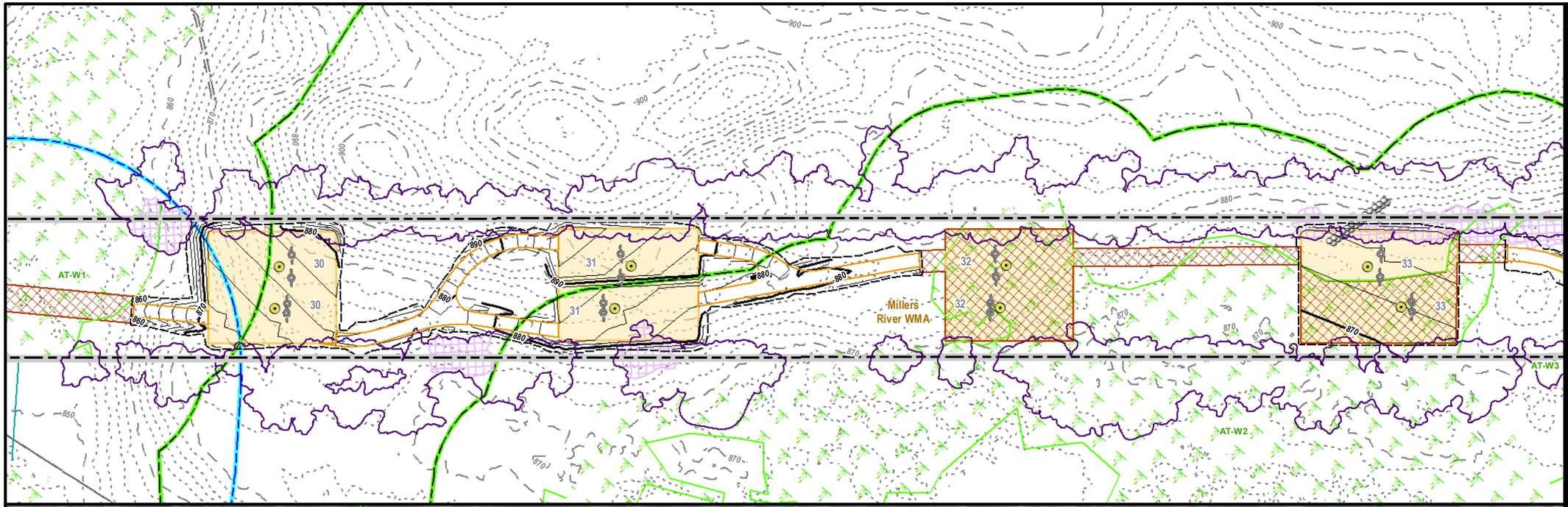
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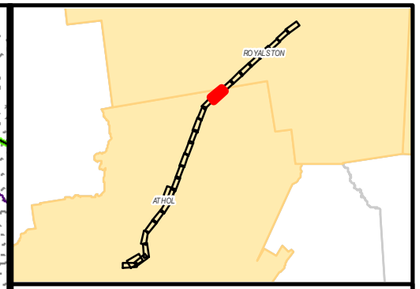
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170 DATA DRIVE
WALTHAM, MA 02451

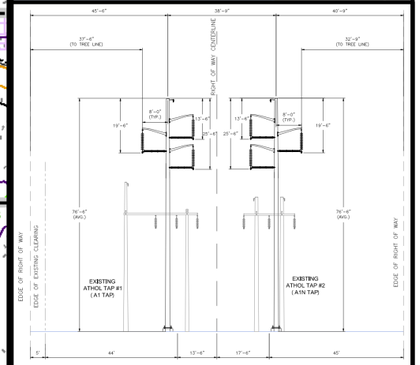
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BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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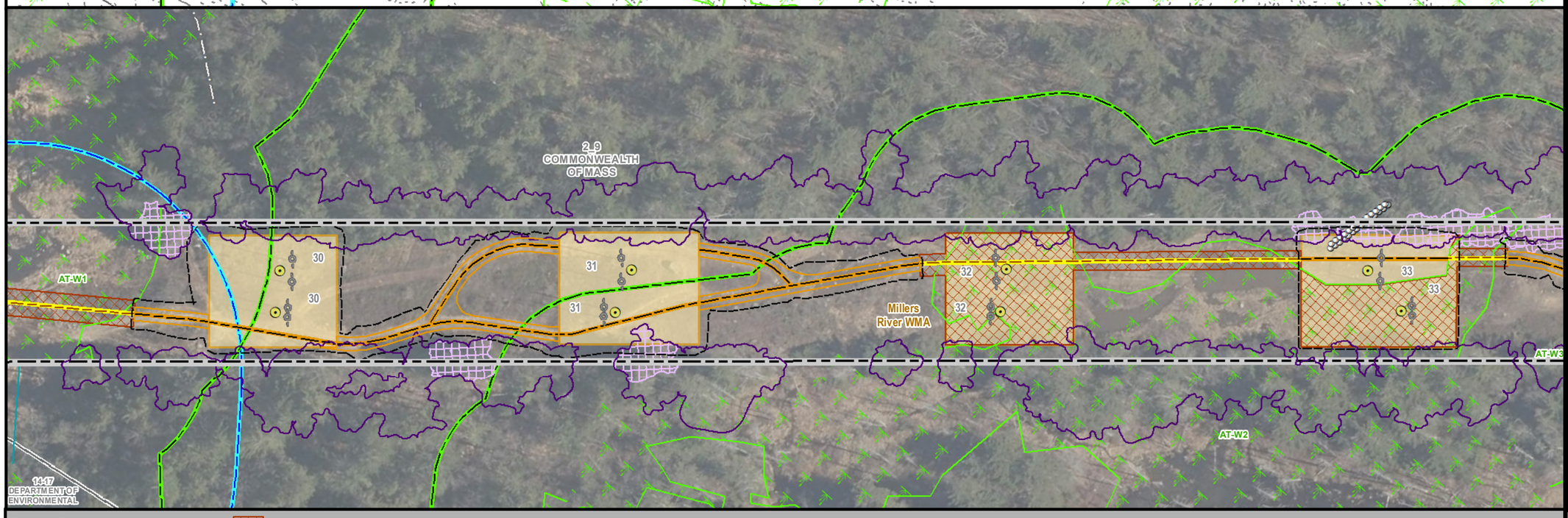
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LOOKING TOWARDS CHESTNUT HILL STATION
ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ROYALSTON & ATHOL, MA
PAGE 9 OF 25

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0 50 100
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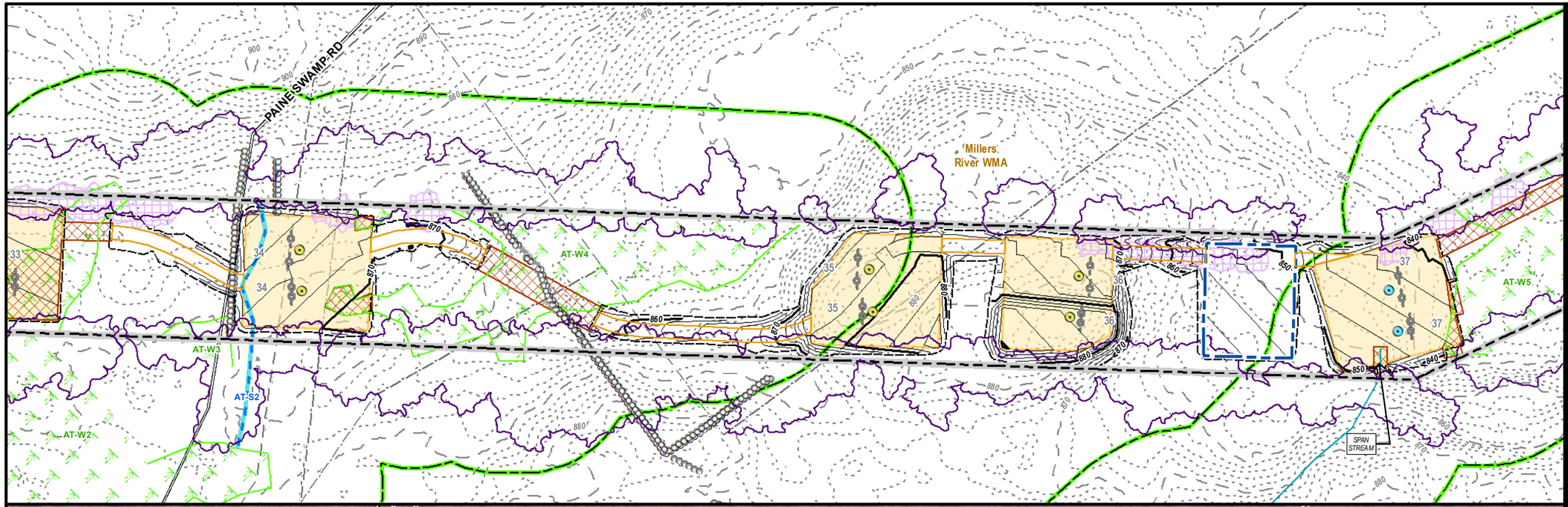
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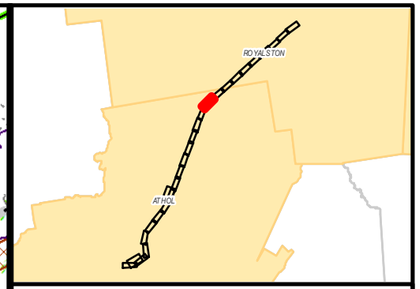
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WALTHAM, MA 02451

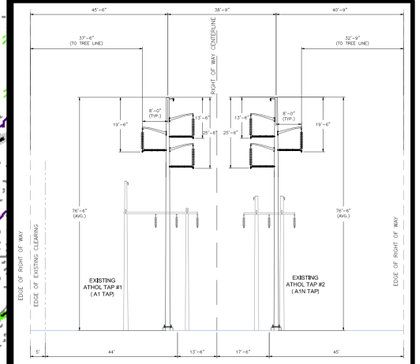
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WORCESTER, MA 01608

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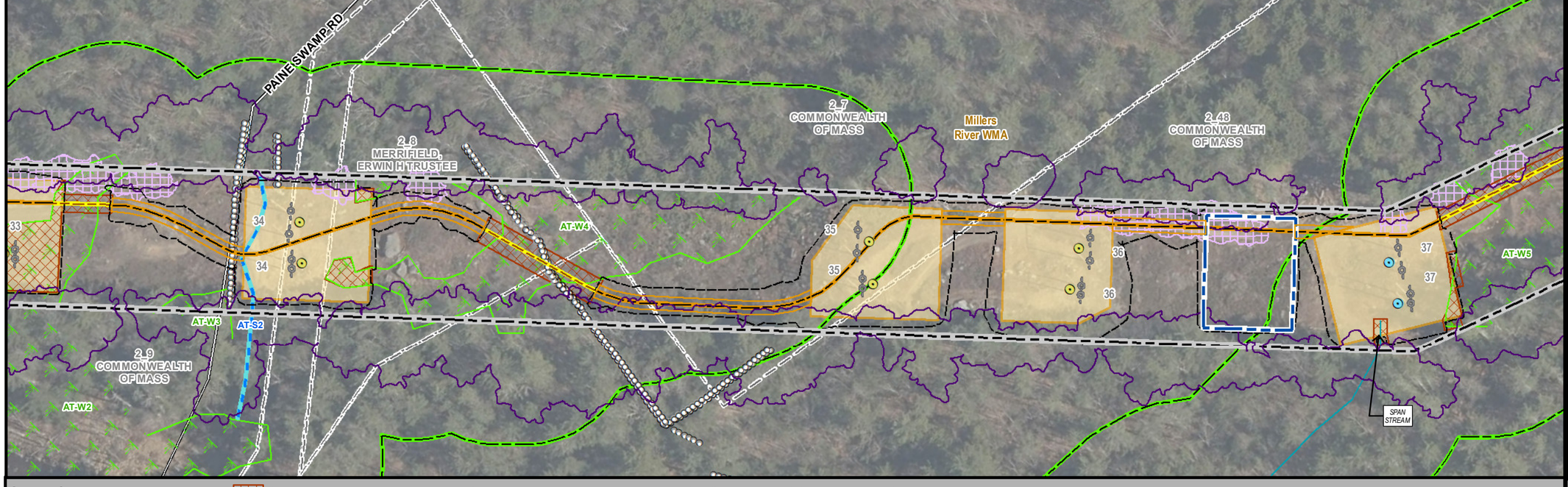
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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 10 OF 25

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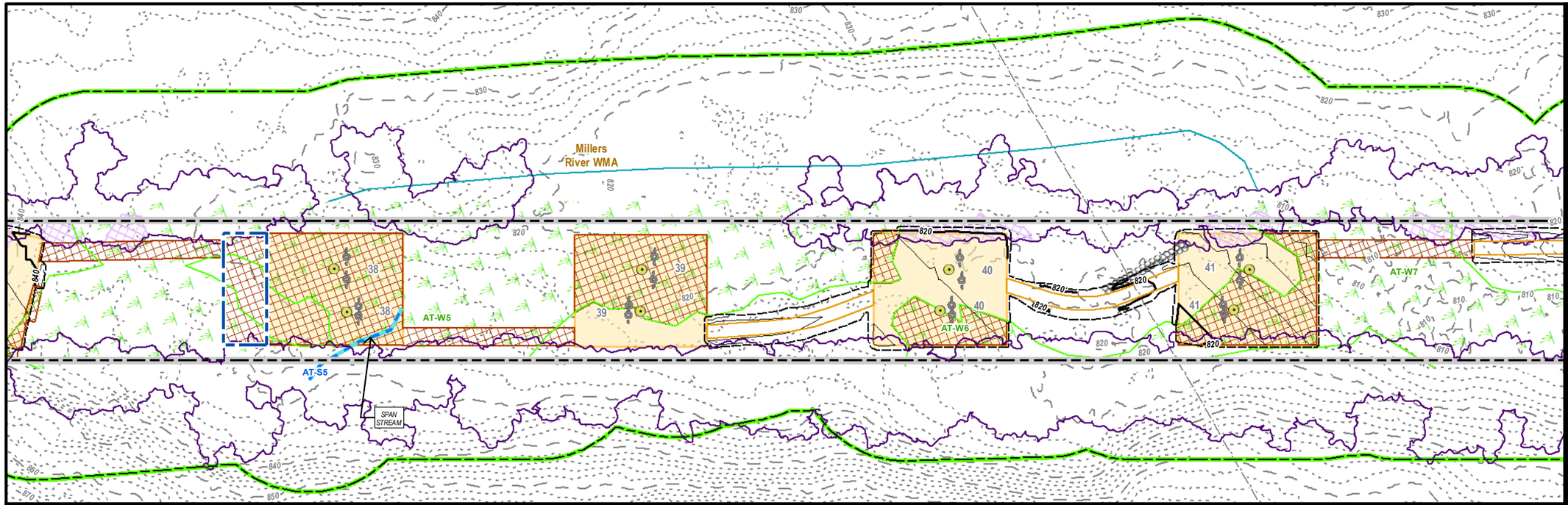
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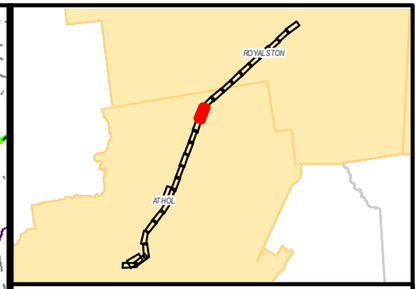
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WALTHAM, MA 02451

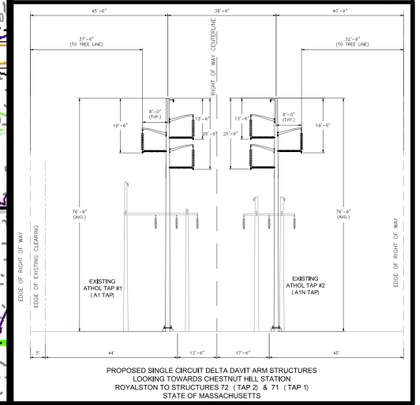
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WORCESTER, MA 01608

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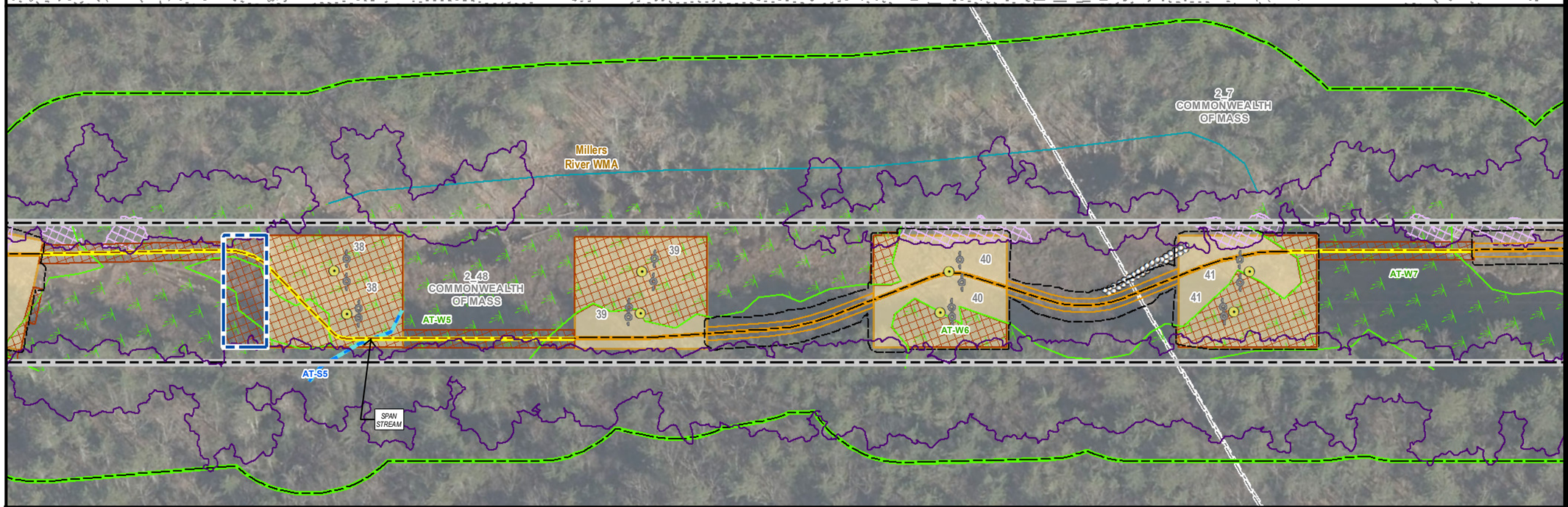
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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 11 OF 25

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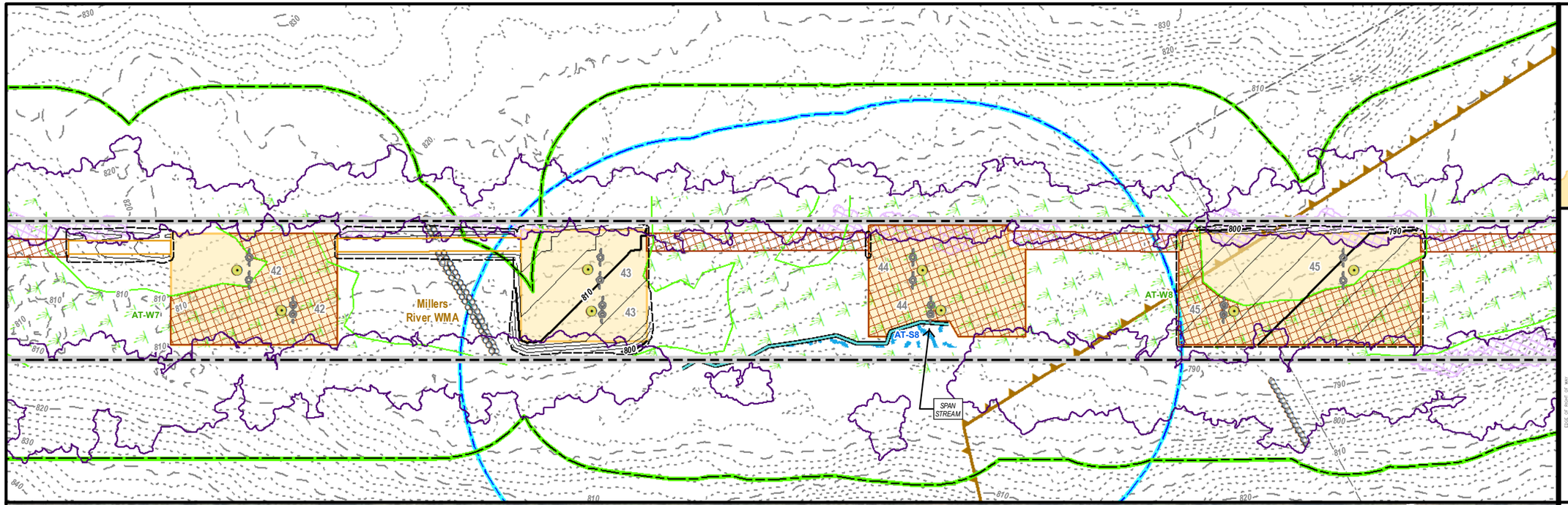
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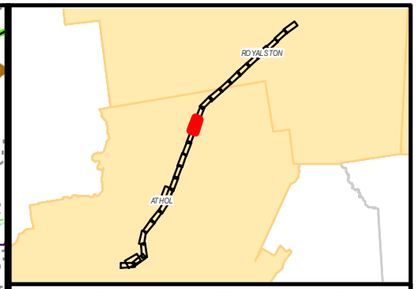
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170 DATA DRIVE
WALTHAM, MA 02451

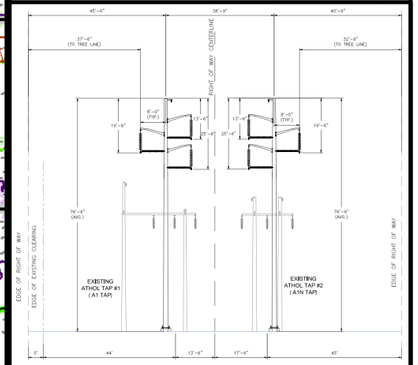
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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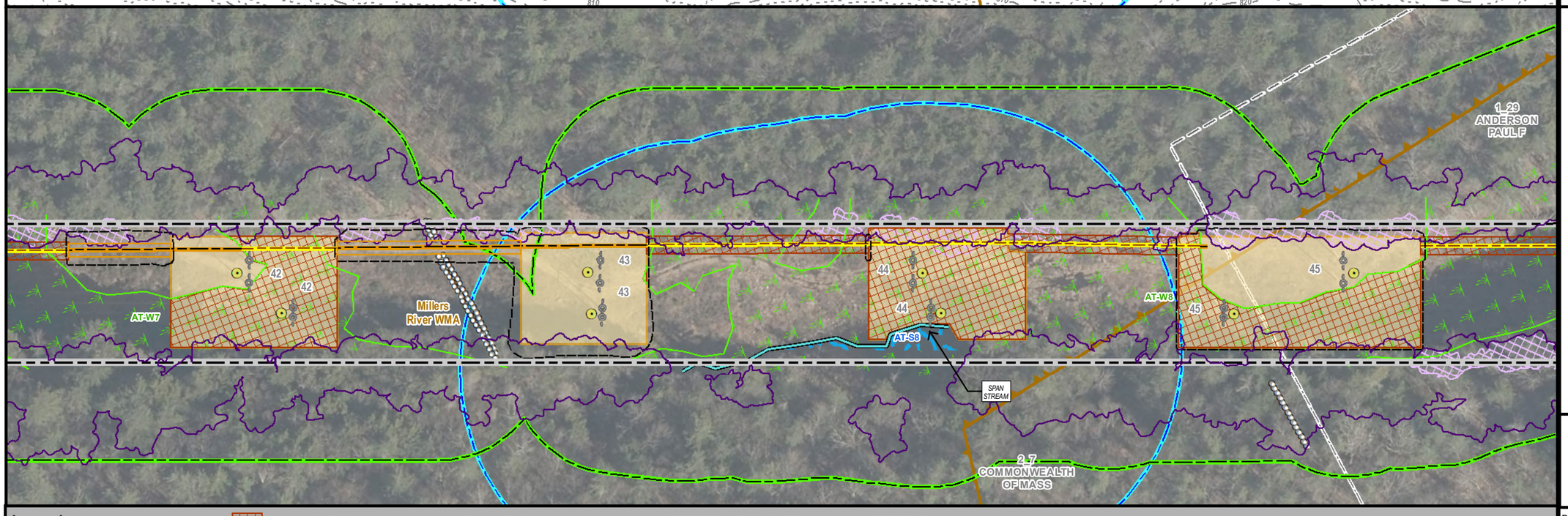
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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 12 OF 25

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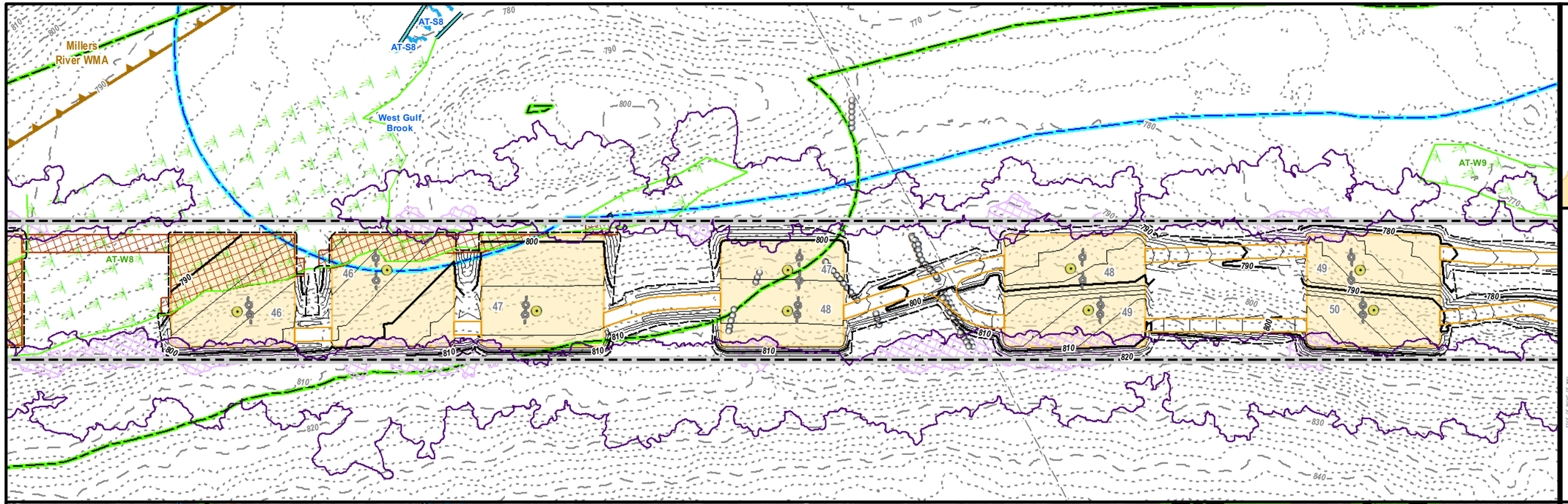
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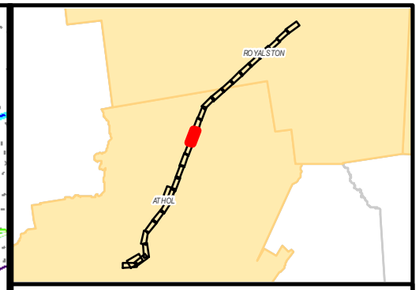
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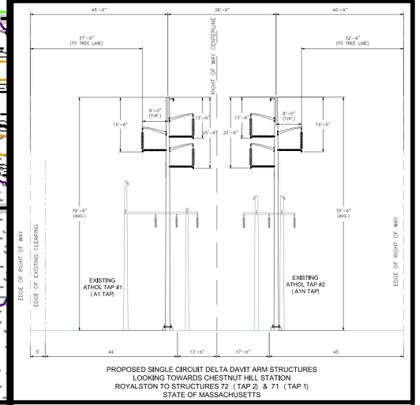
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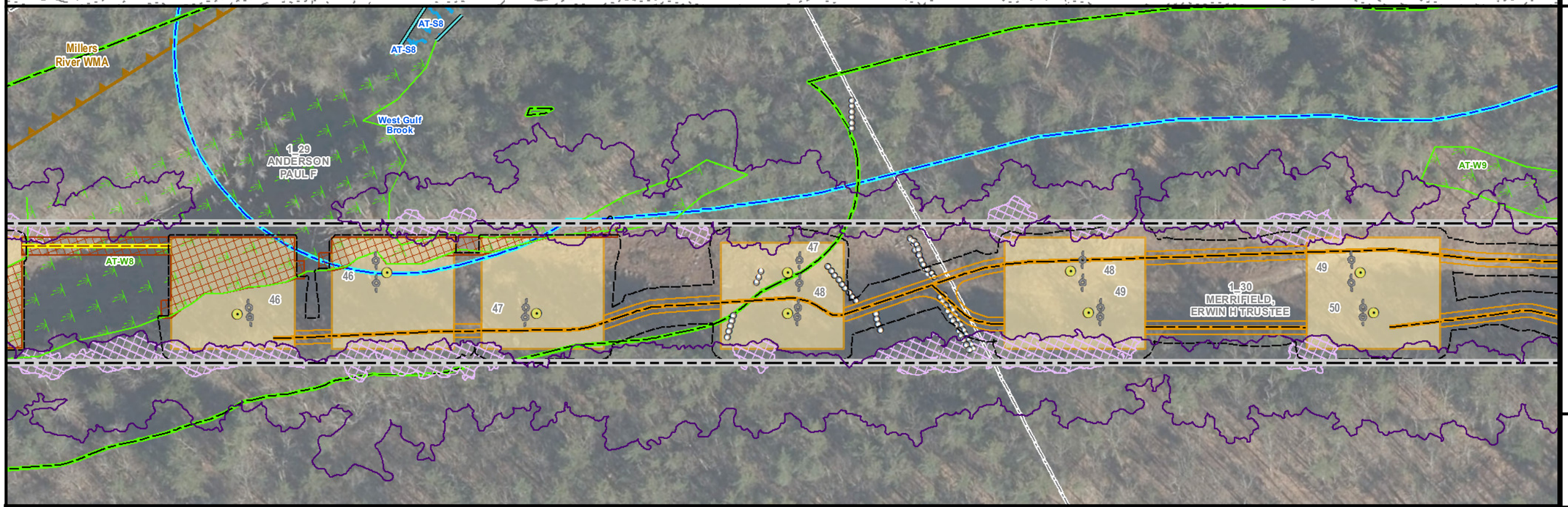
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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ATHOL, MA
PAGE 13 OF 25

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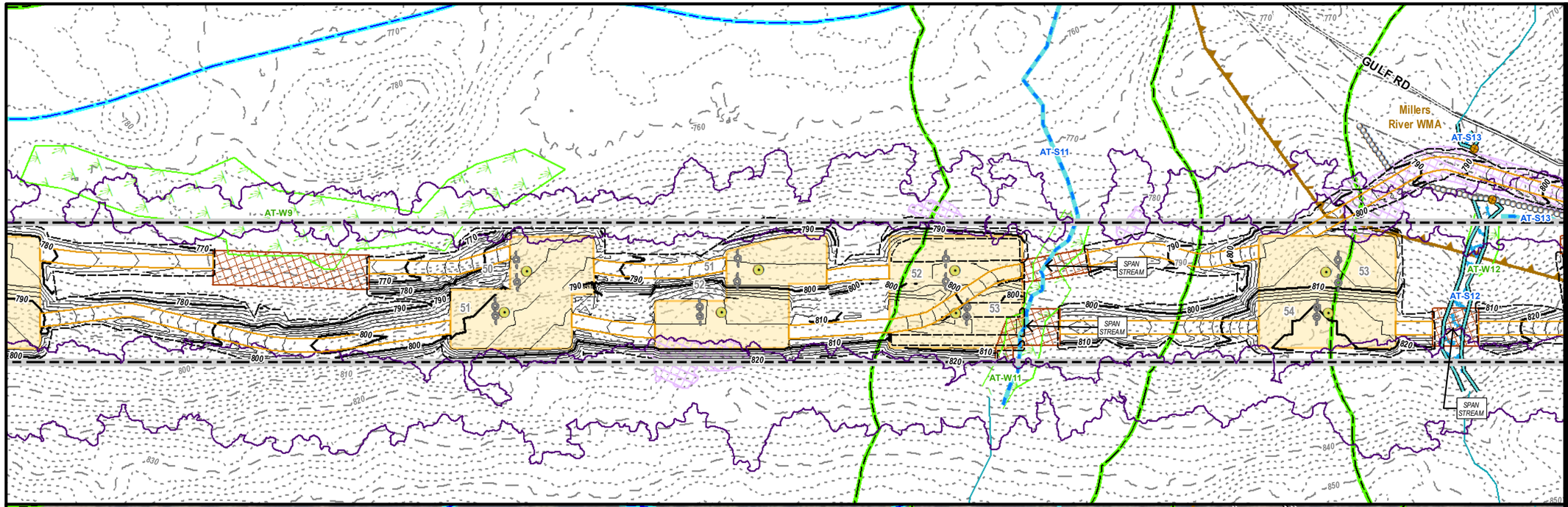
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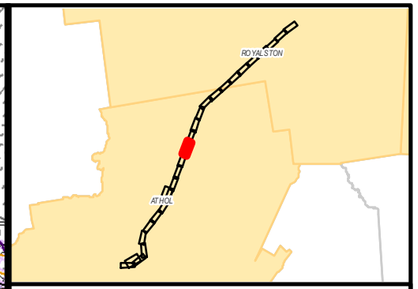
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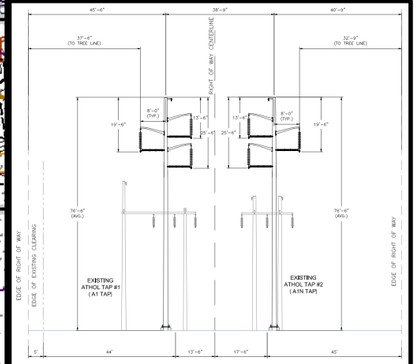
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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 14 OF 25

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
- Stream Centerline
- Ordinary High Water
- Approximate Stream Bank
- Approximate Centerline
- Approximate Ordinary High Water
- Approximate Swale
- State Stream
- Open Water
- 100ft Buffer to Wetlands & Streams
- 200ft Riverfront Area
- FEMA 100yr Floodplain*
- Certified Vernal Pools
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- MADEP (21E) Site
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- Long Distance Trails
- Railroad
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- Town Boundary
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- Gate
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- Guardrail
- Existing Minor Contour
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Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

***Hybrid work envelopes (part temp. construction matting and part gravel) may display contours within a wetland that are representative of matted work area elevations.*

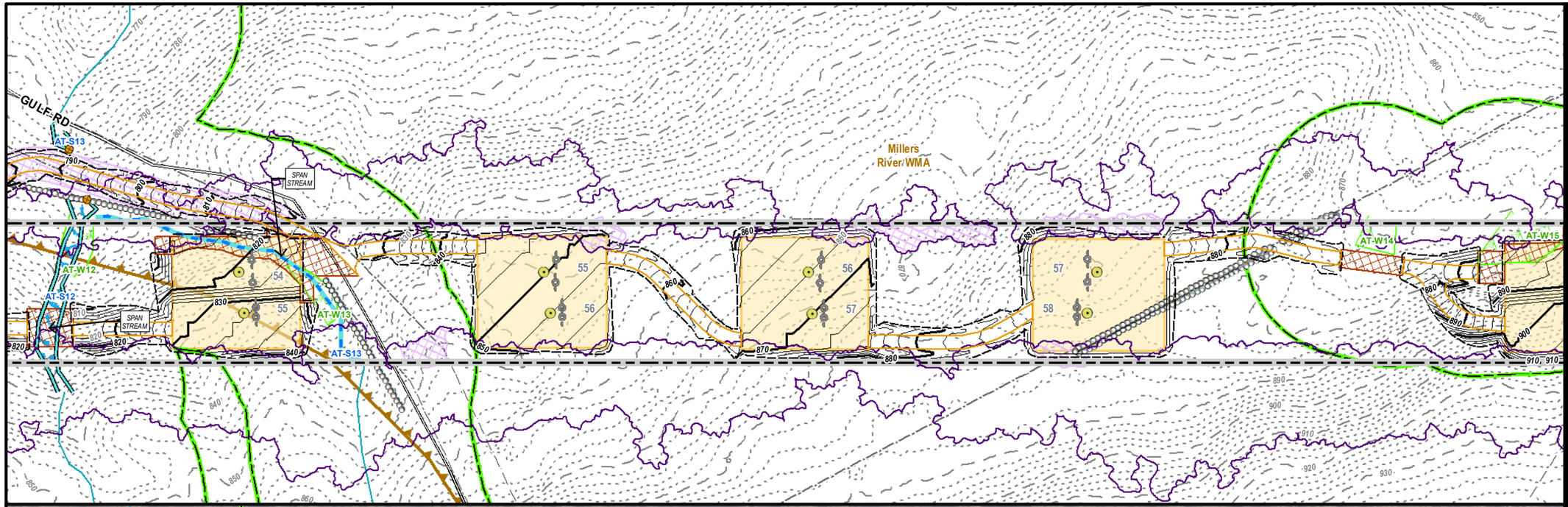
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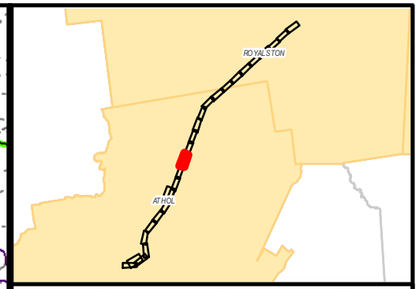
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170 DATA DRIVE
WALTHAM, MA 02451

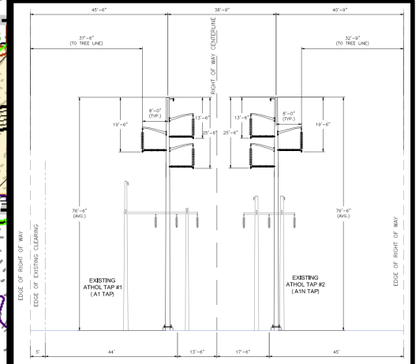
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
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LOOKING TOWARDS CHESTNUT HILL STATION
ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS

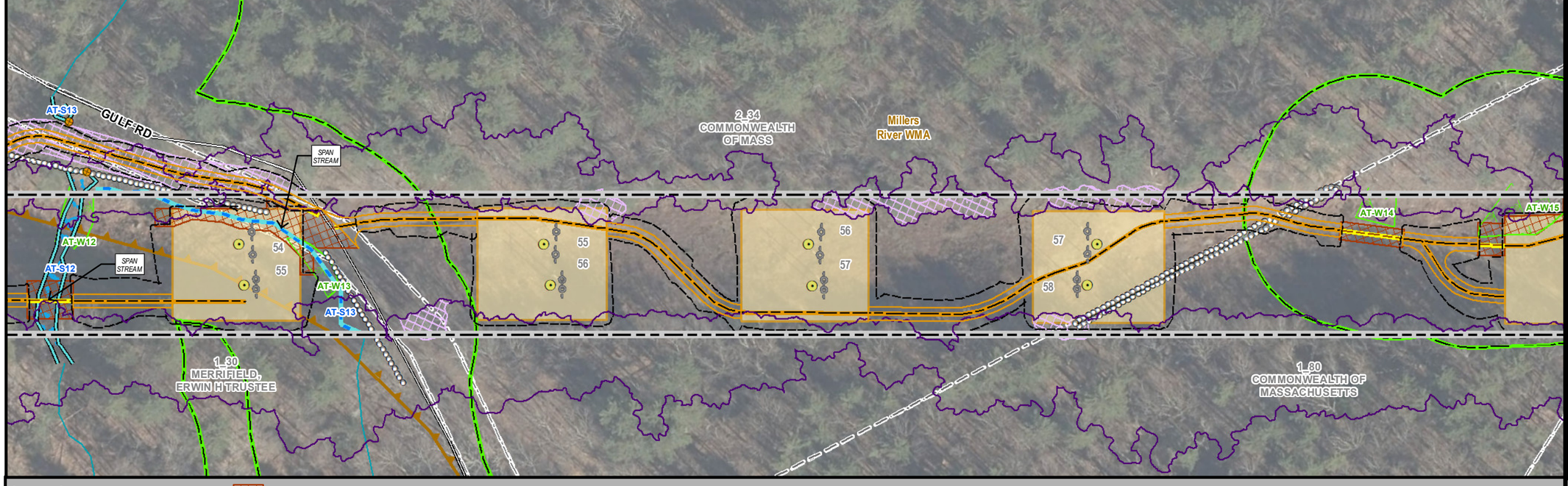
MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 15 OF 25

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Feet



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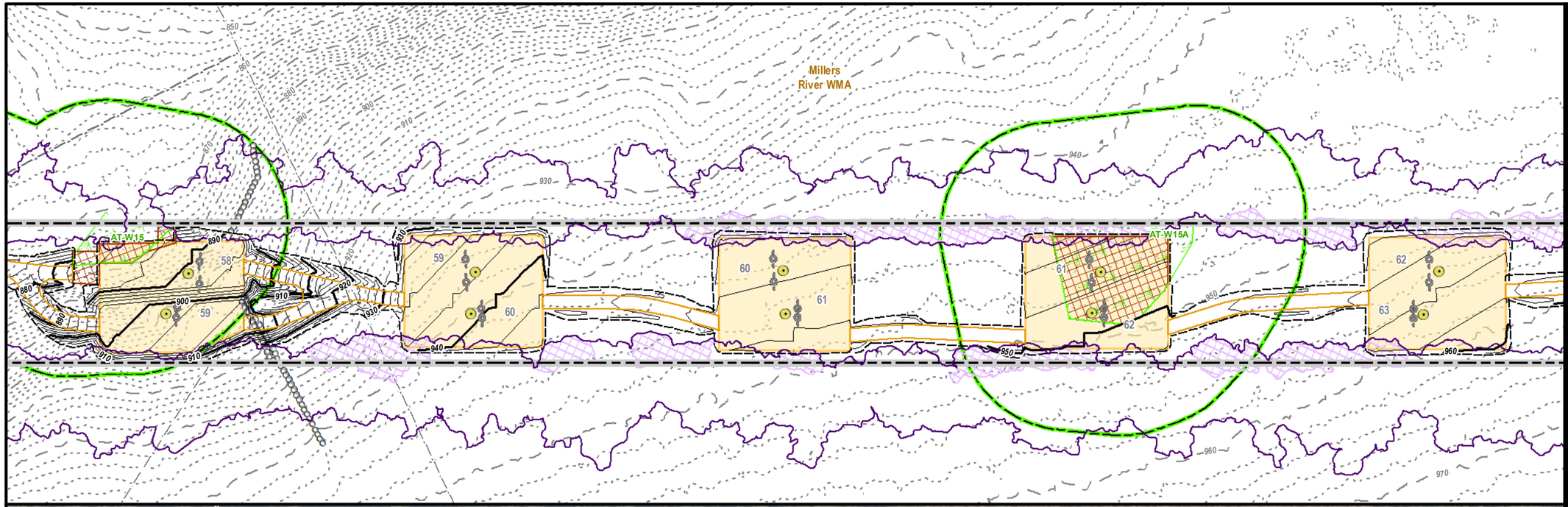
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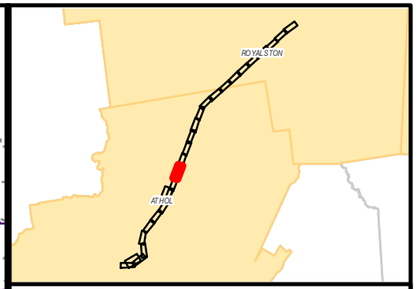
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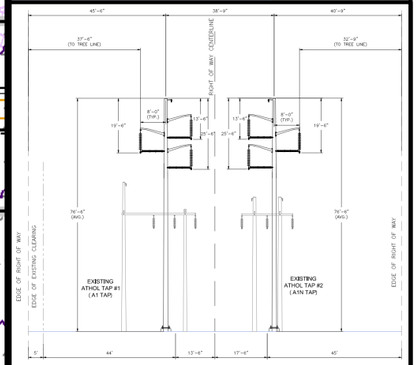
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WORCESTER, MA 01608

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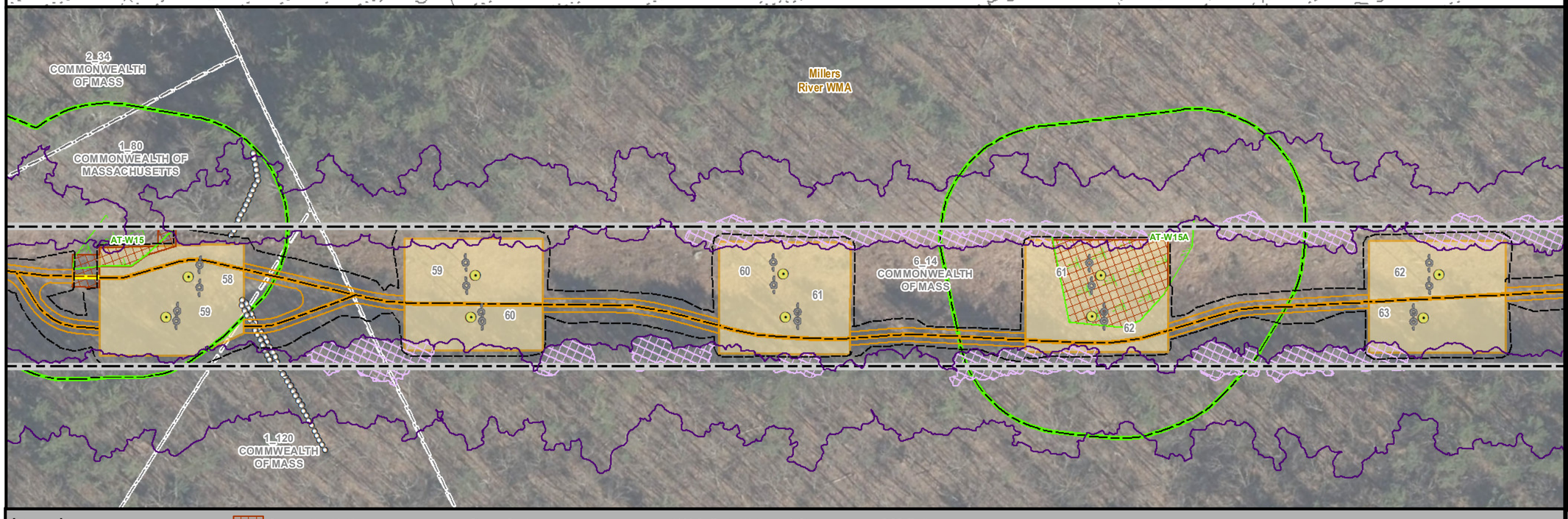
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LOOKING TOWARDS CHESTNUT HILL STATION
ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 16 OF 25

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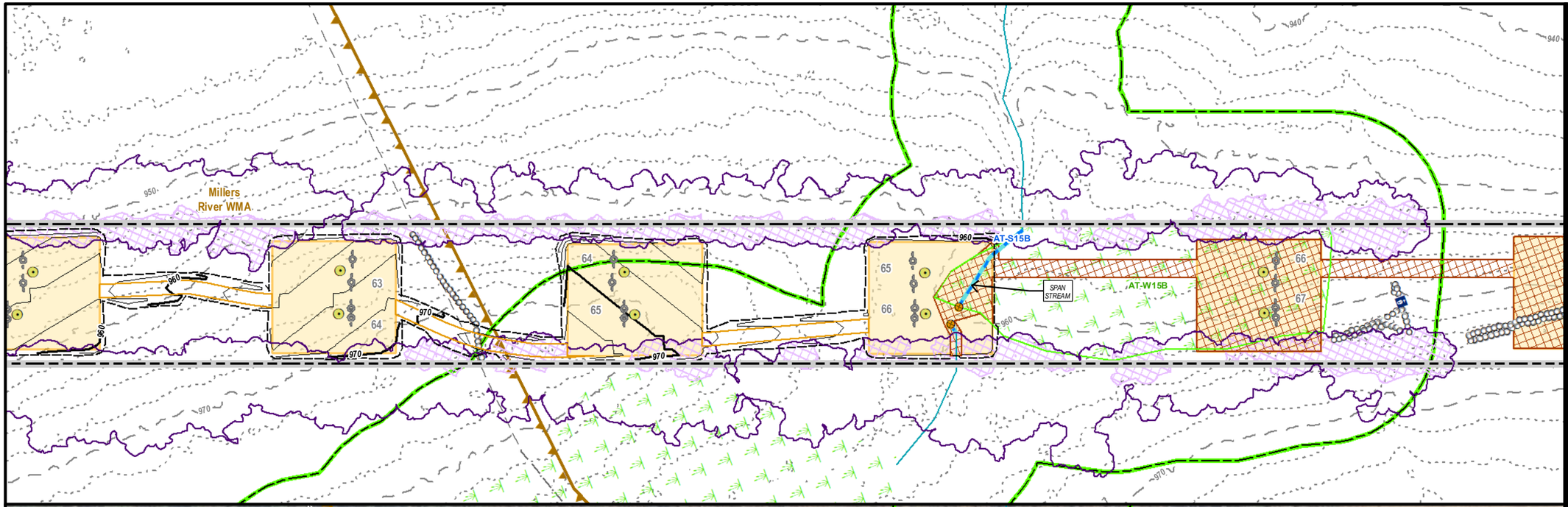
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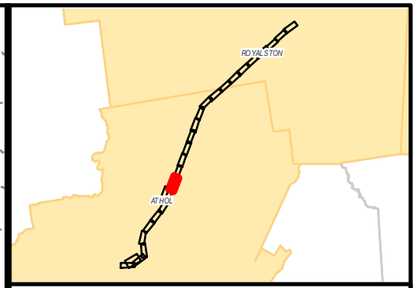
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WALTHAM, MA 02451

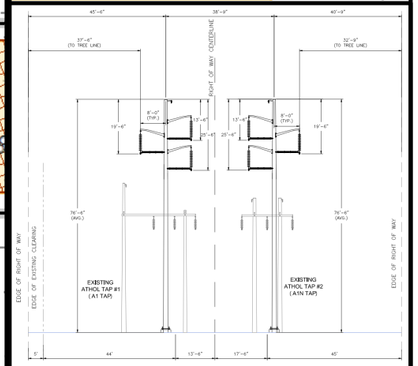
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BSC GROUP
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WORCESTER, MA 01608

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ROYALSTON TO STRUCTURES 72 (TAP 2) & 71 (TAP 1)
STATE OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
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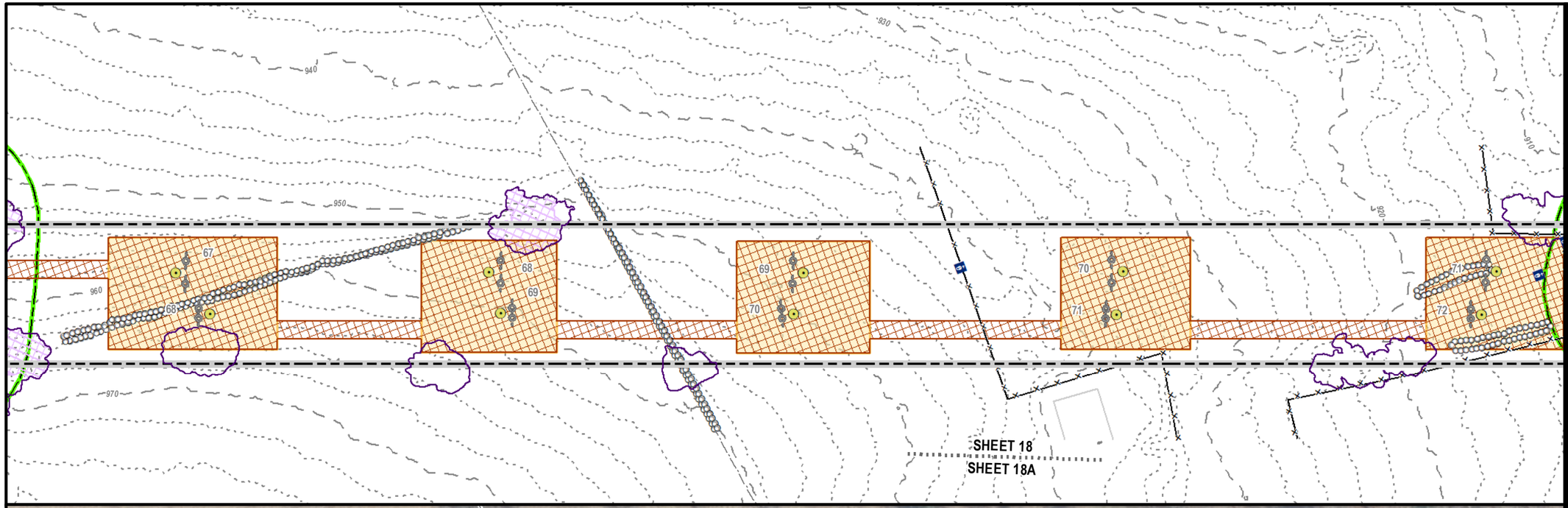
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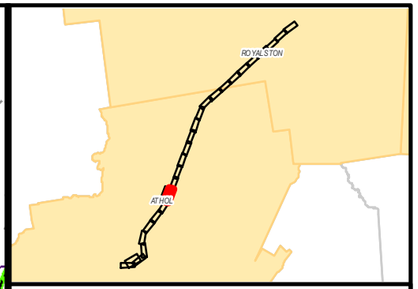
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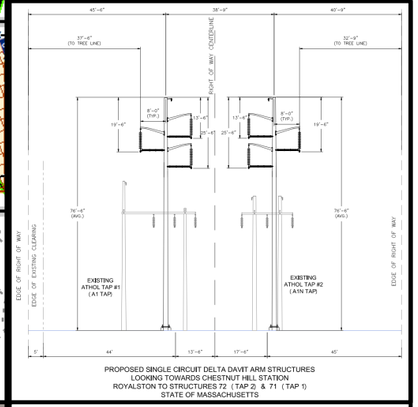
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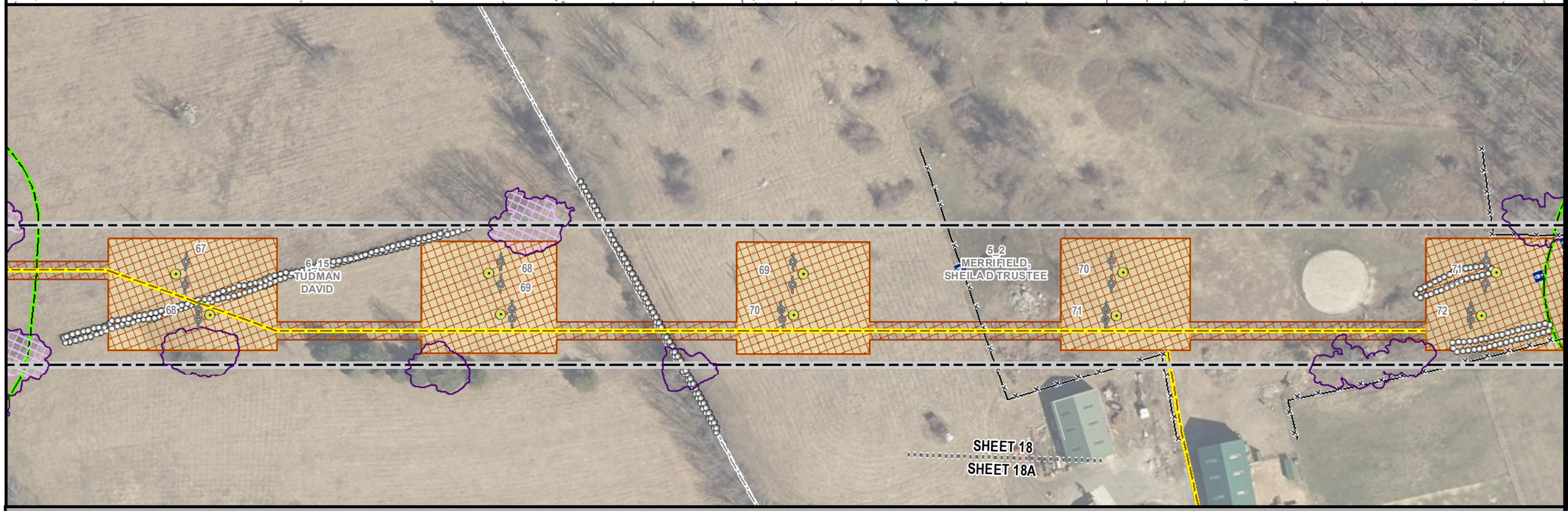
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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ATHOL, MA
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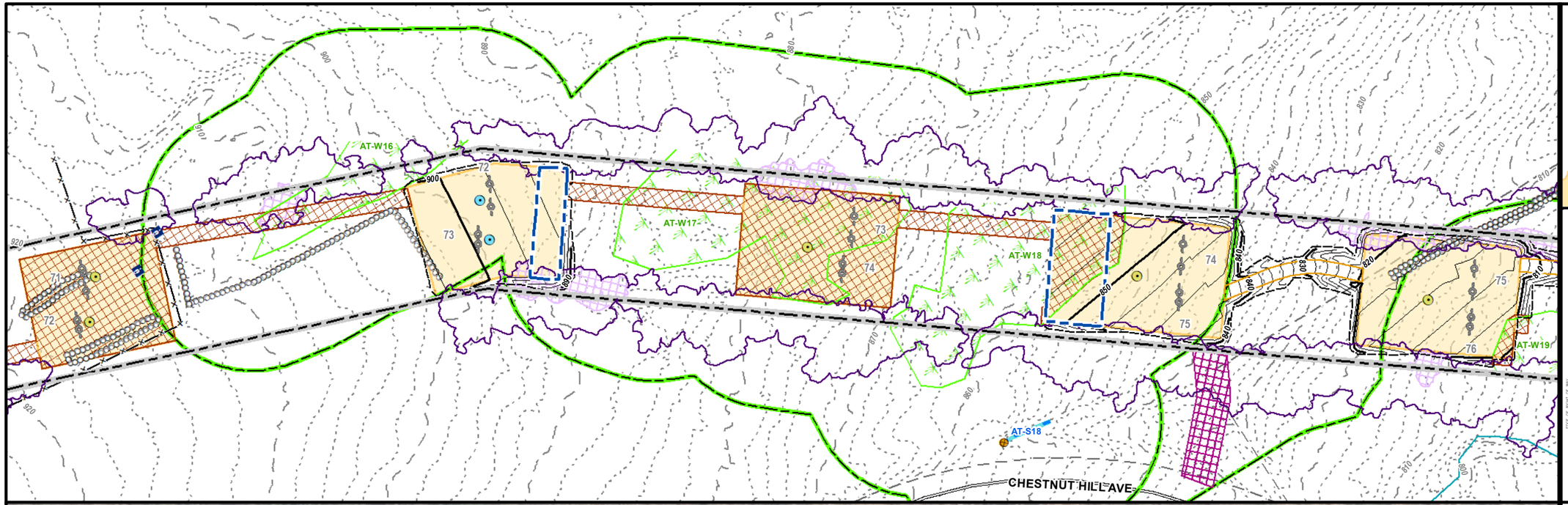
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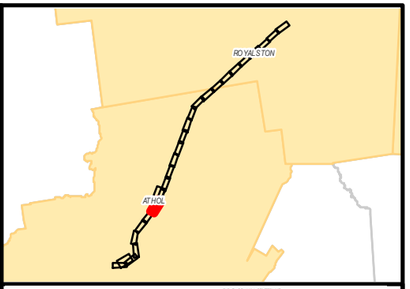
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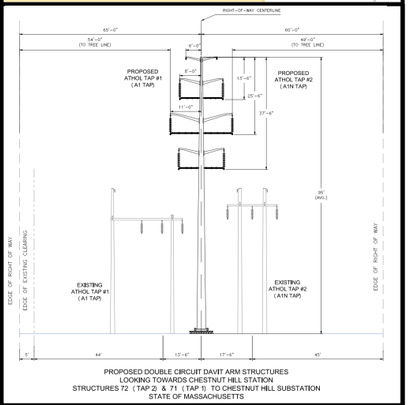
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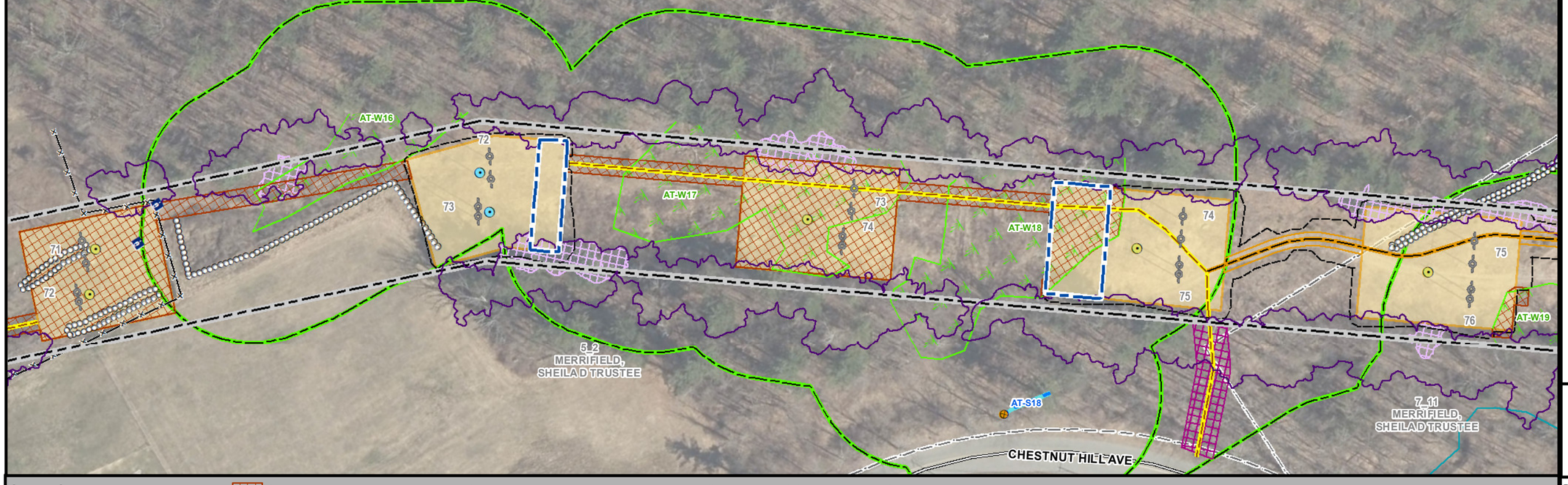
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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
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STRUCTURES 72 (TAP 2) & 71 (TAP 1) TO CHESTNUT HILL SUBSTATION
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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ATHOL, MA
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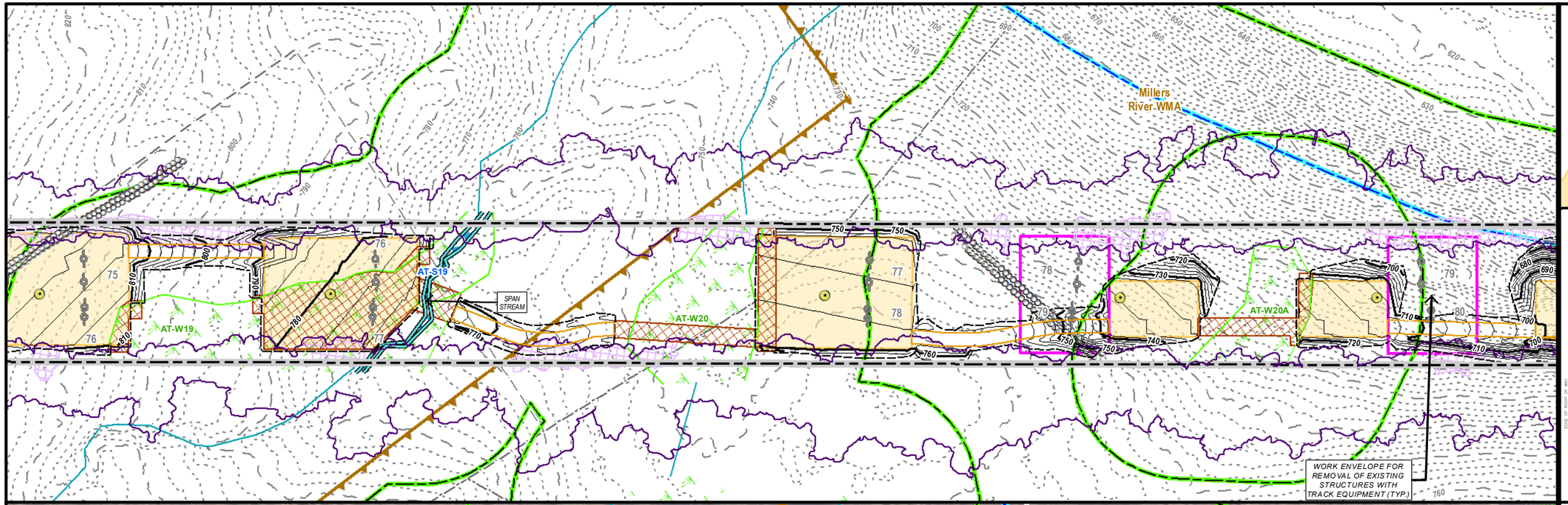
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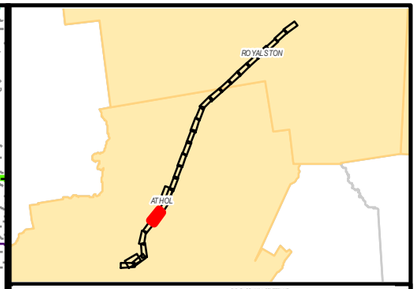
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

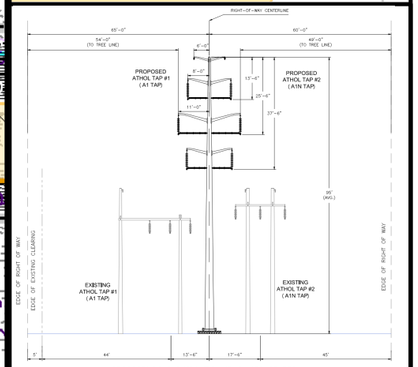
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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PROPOSED DOUBLE CIRCUIT DAVIT ARM STRUCTURES
LOOKING TOWARDS CHESTNUT HILL STATION
STRUCTURES 72 (TAP 2) & 71 (TAP 1) TO CHESTNUT HILL SUBSTATION
STATE OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 20 OF 25

1 inch = 100 feet
0 50 100
Feet

Legend

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- Existing Structure to be Removed
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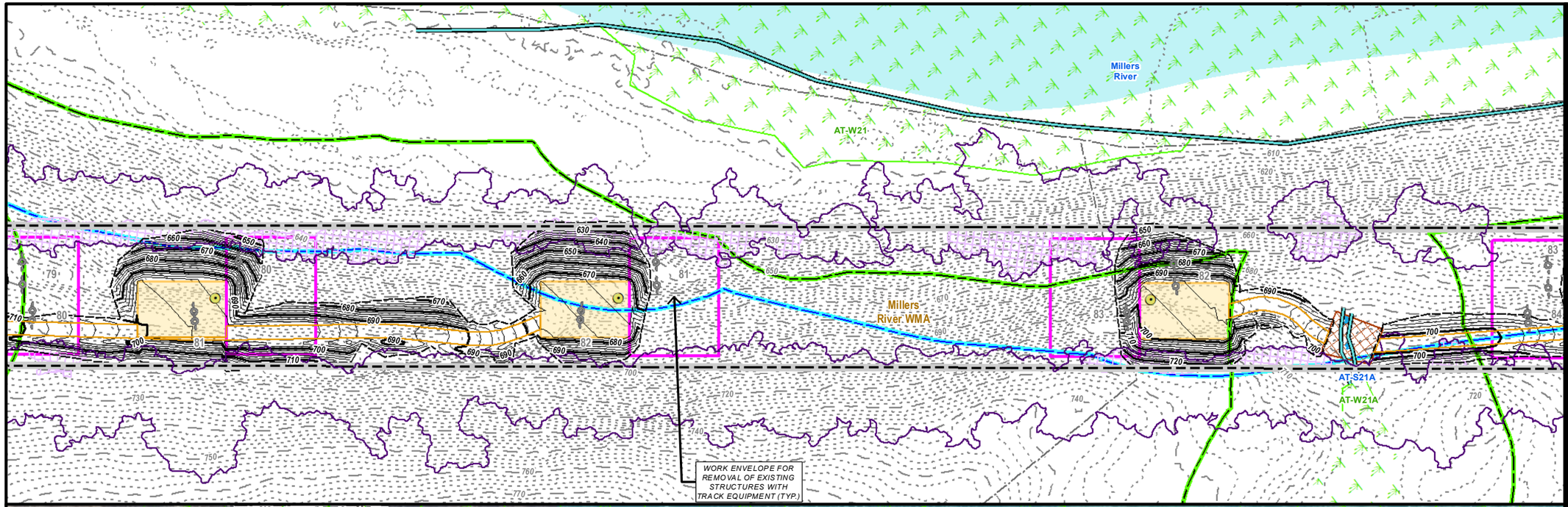
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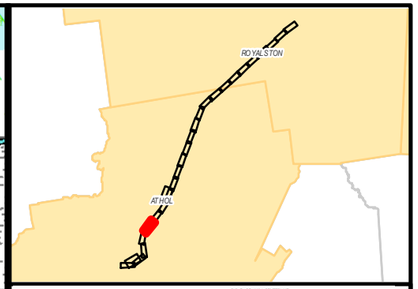
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

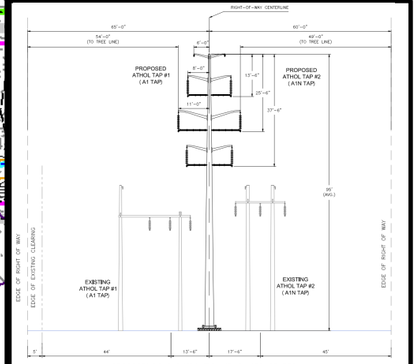
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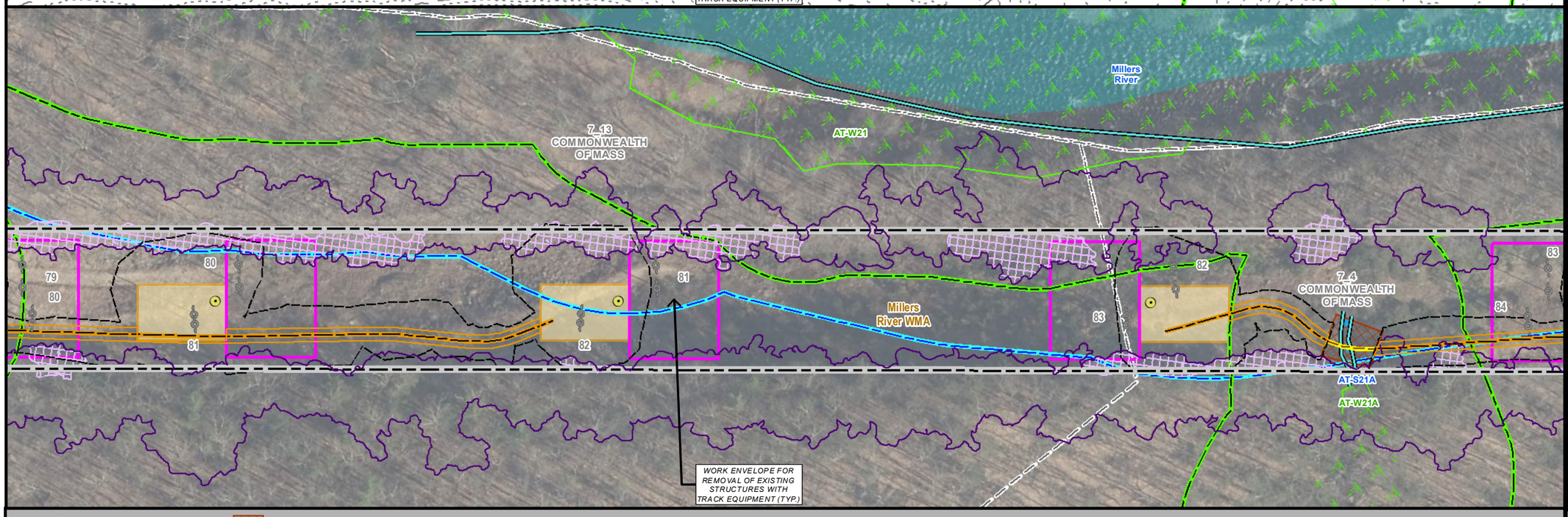
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STRUCTURES 72 (TAP 2) & 71 (TAP 1) TO CHESTNUT HILL SUBSTATION
STATE OF MASSACHUSETTS



MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 21 OF 25

1 inch = 100 feet
0 50 100
Feet

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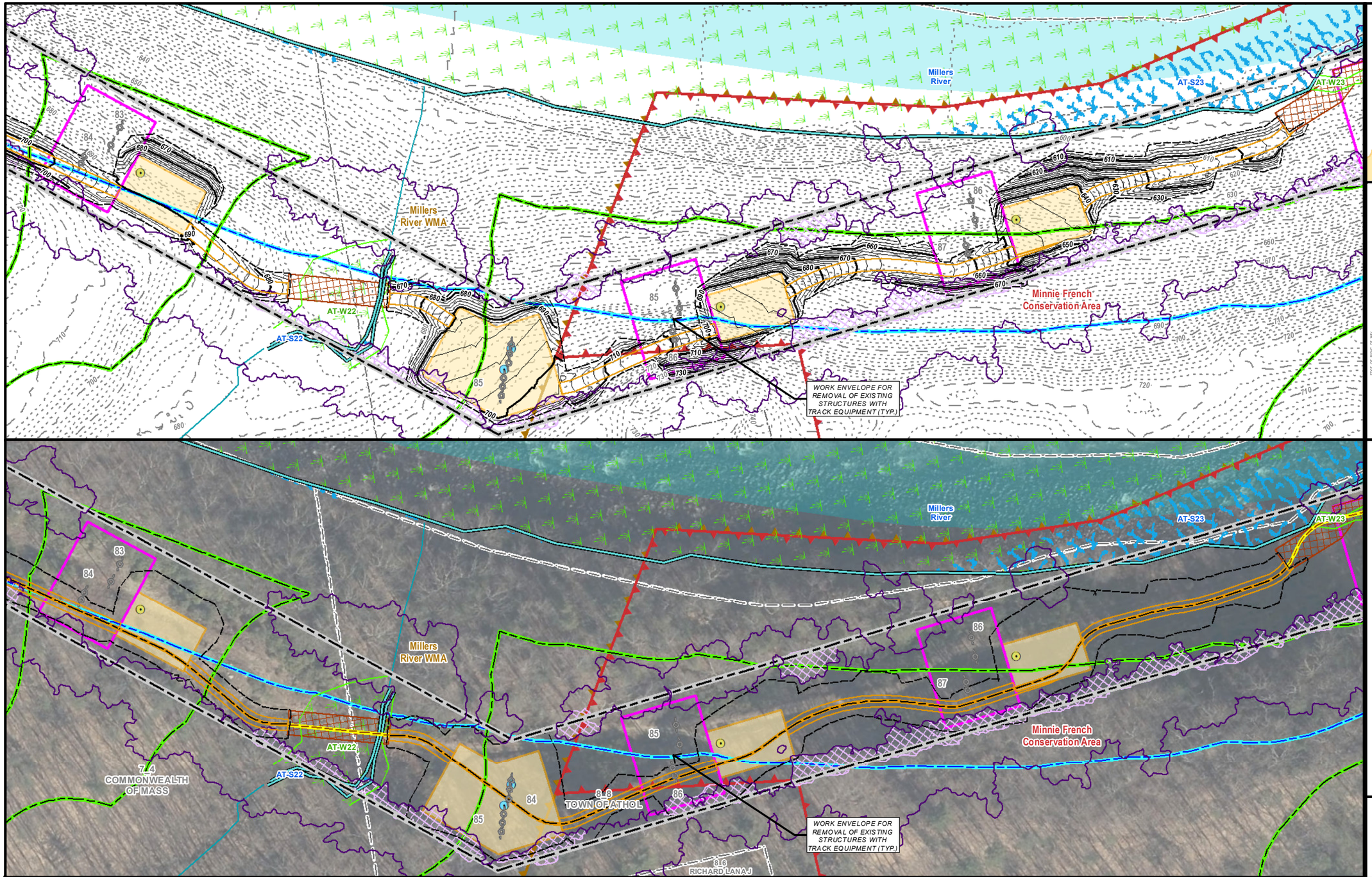
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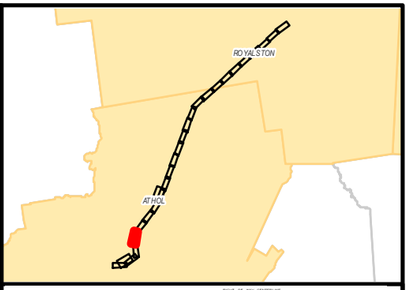
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

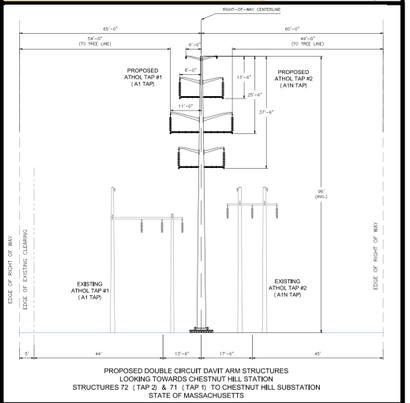
PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 22 OF 25

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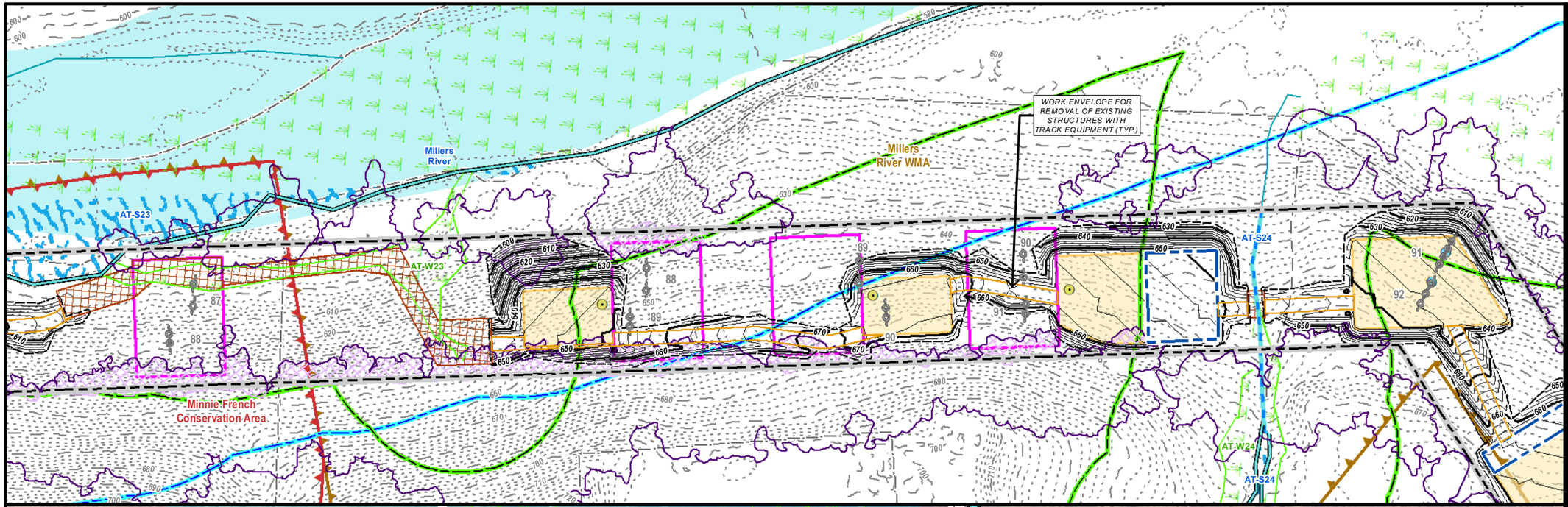
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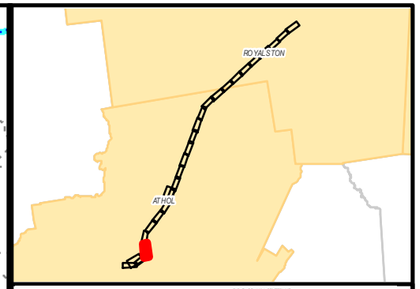
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

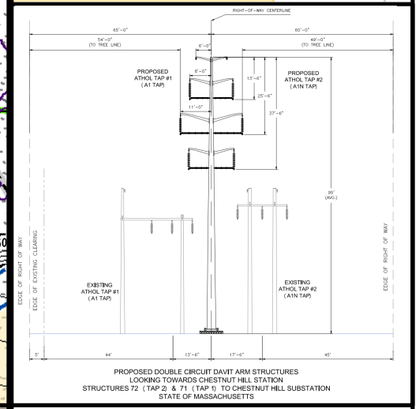
PREPARED BY:
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1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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STATE OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 23 OF 25

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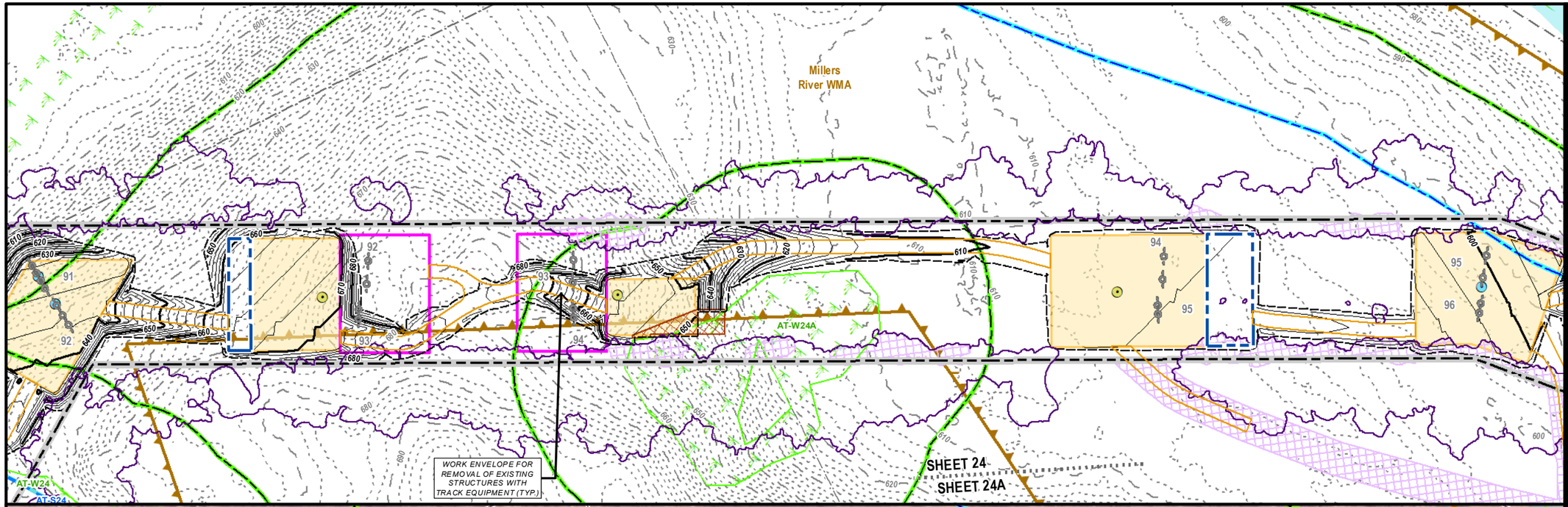
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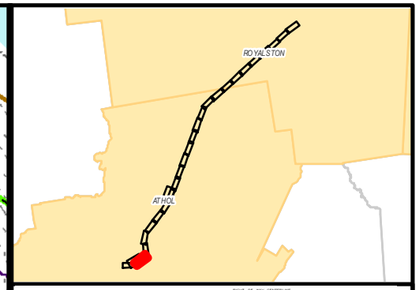
PREPARED FOR:
nationalgrid
170 DATA DRIVE
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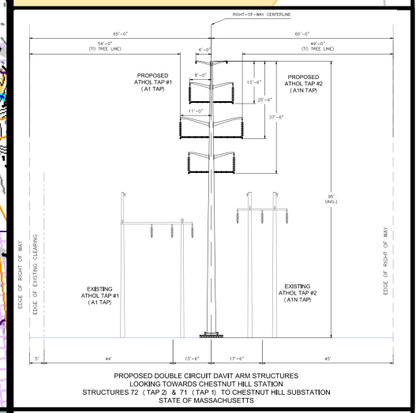
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

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ATHOL, MA
PAGE 24 OF 25

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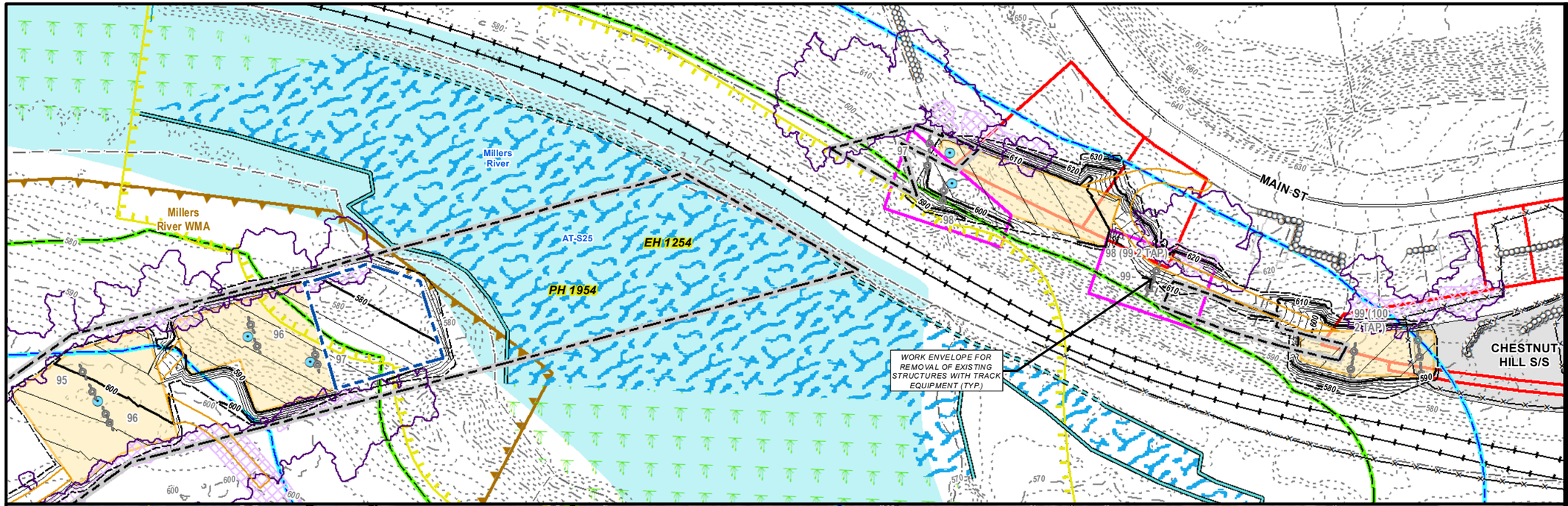
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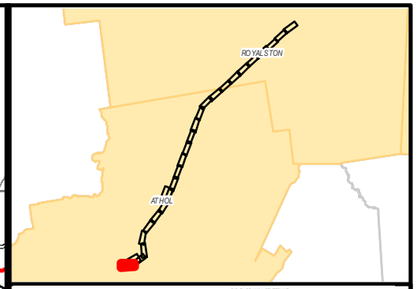
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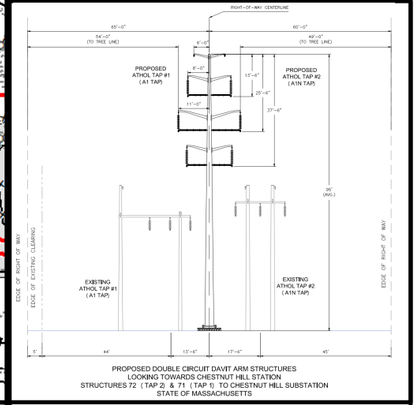
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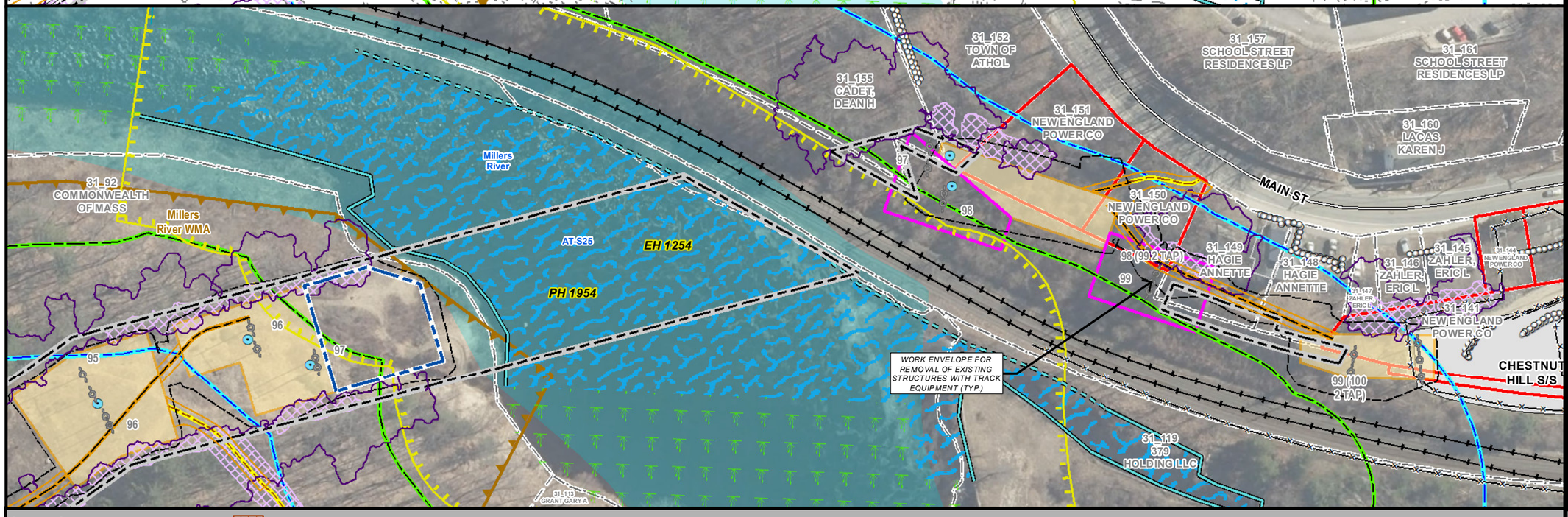
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ATHOL, MA
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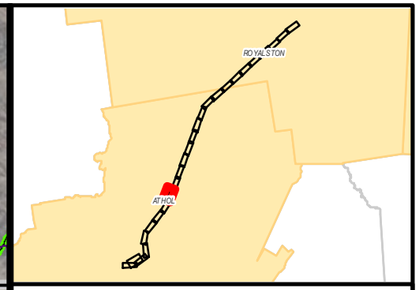
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PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - ATHOL TAP LINES

ATHOL, MA
PAGE 18A OF 25

1 inch = 100 feet
0 50 100
Feet

Legend

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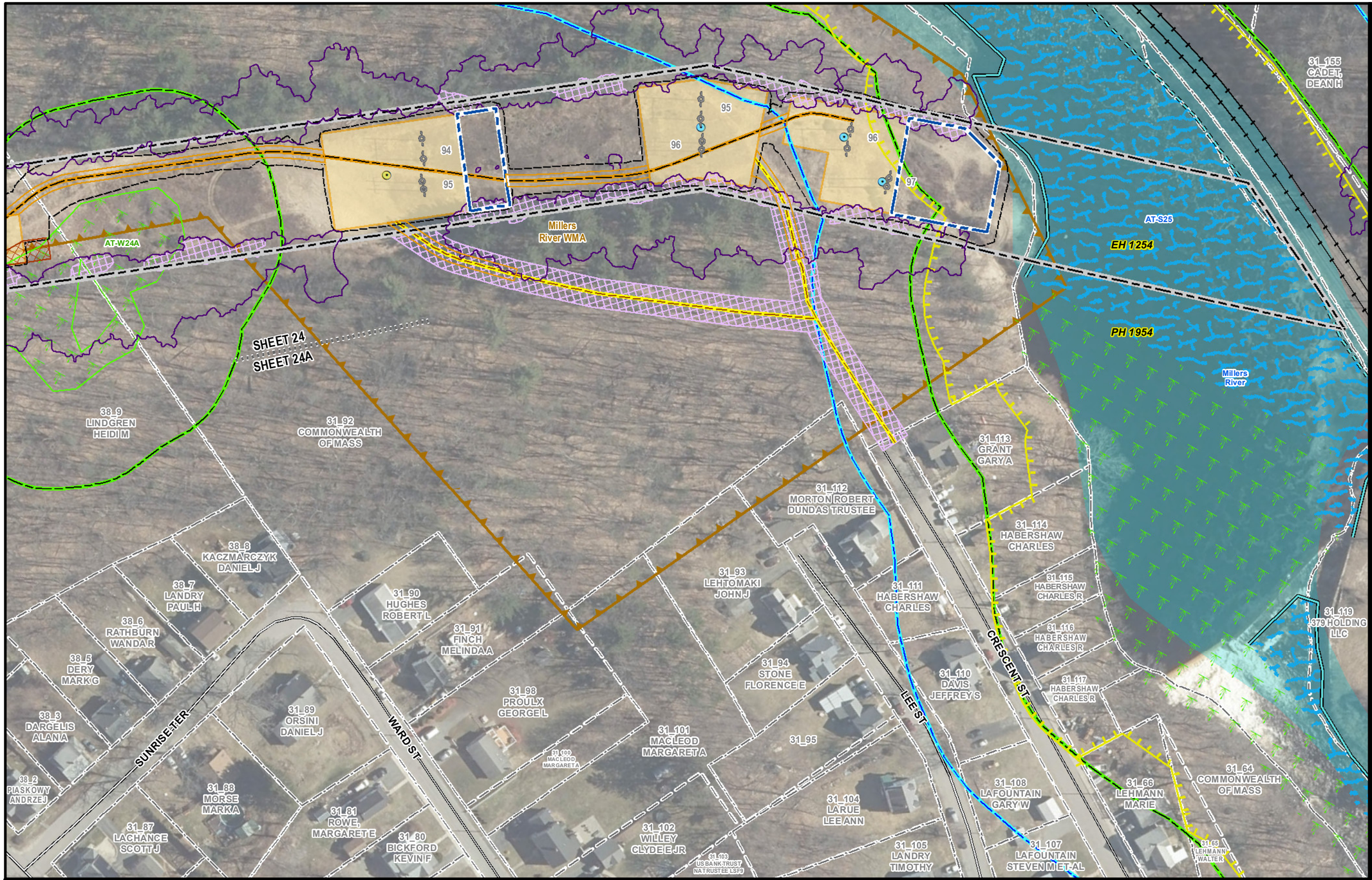
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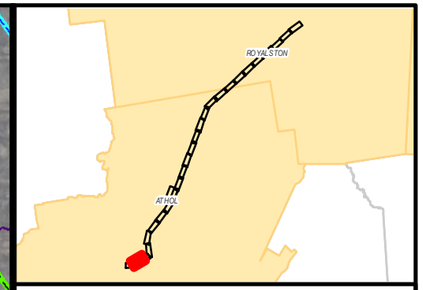
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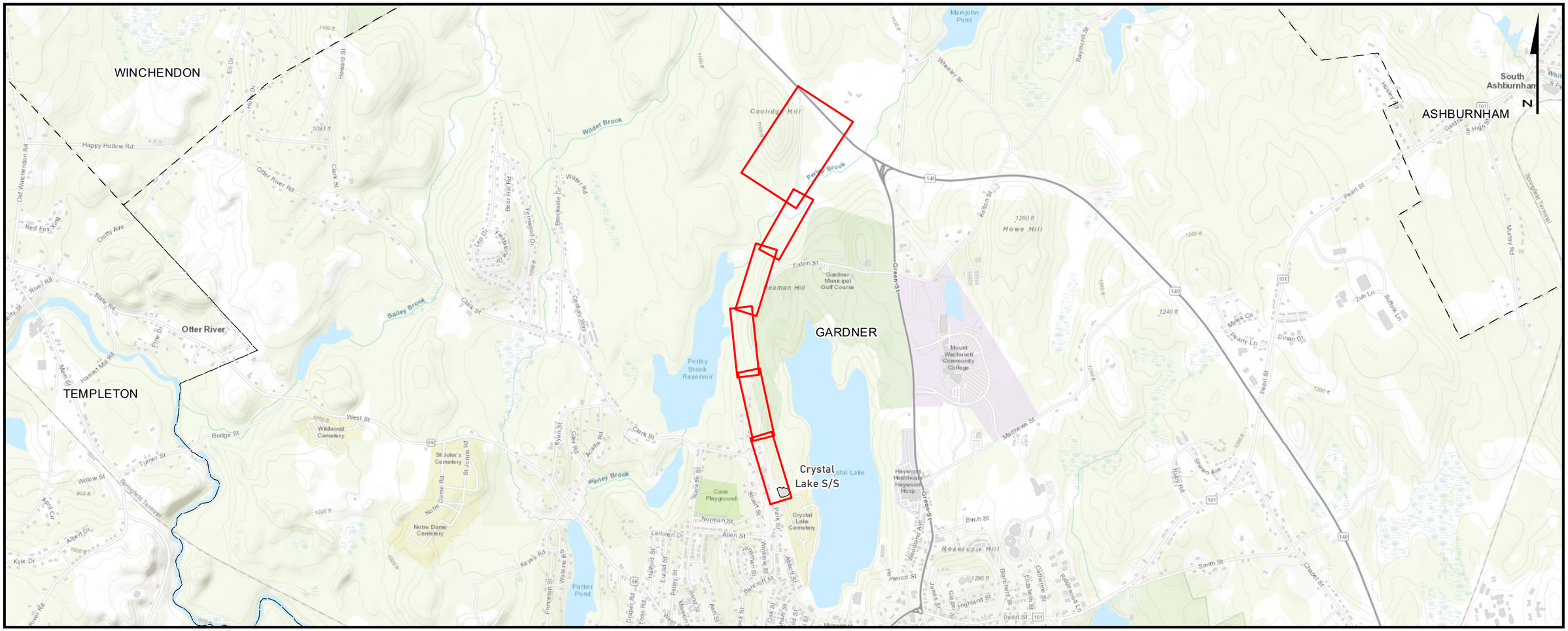
BSC Project Number: 89620.66

Asset Condition Refurbishment (ACR) Project - Crystal Lake Tap Lines

Gardner, MA

MEPA General Purpose Plans - 75% Design

July 17, 2024



PREPARED FOR:

nationalgrid

170 Data Drive
Waltham, MA 02451

INDEX OF FIGURES

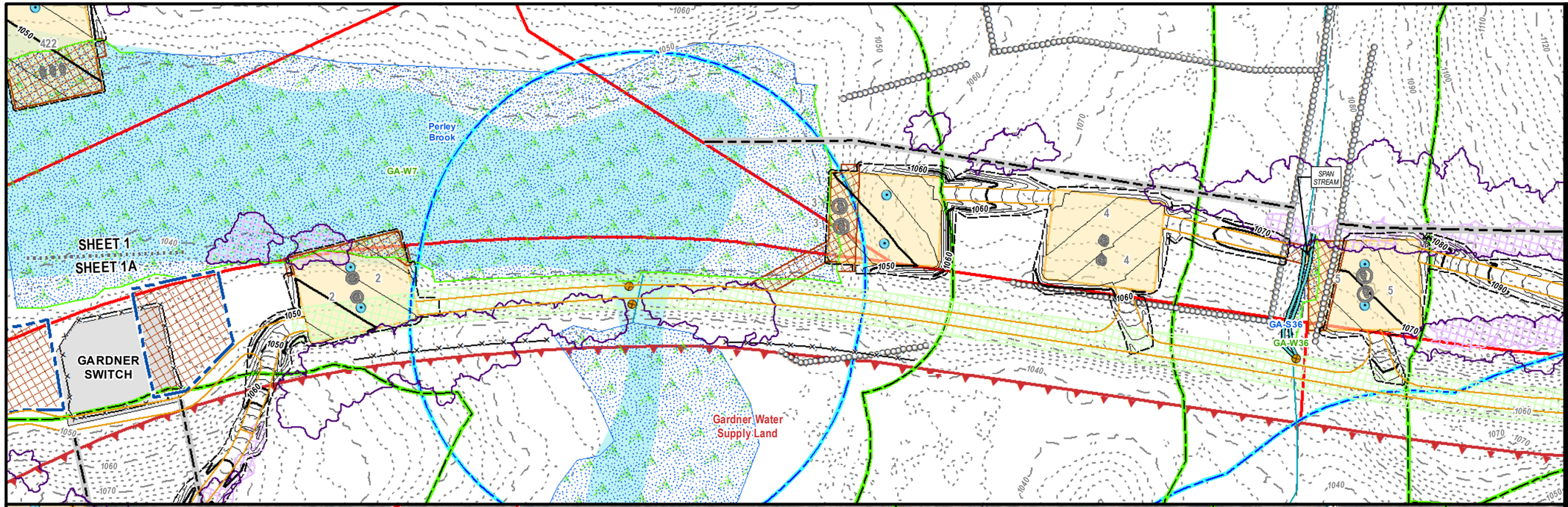
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1 - 5 - MAP SHEETS
1A - OFF ROW ACCESS SHEETS

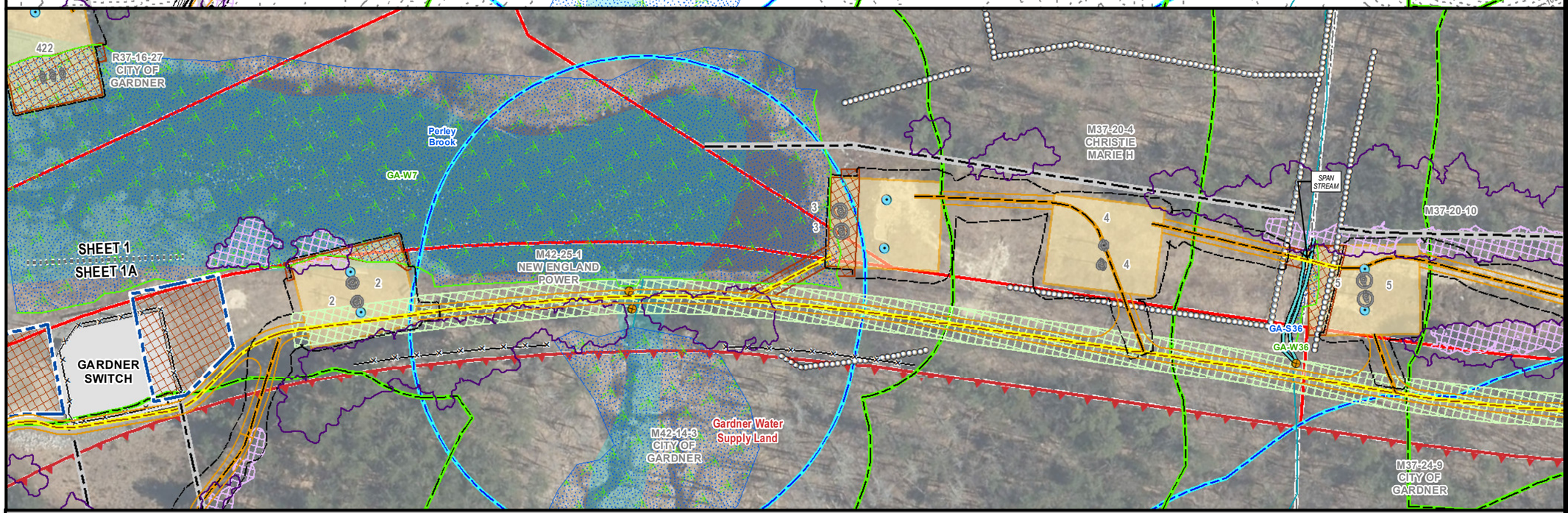
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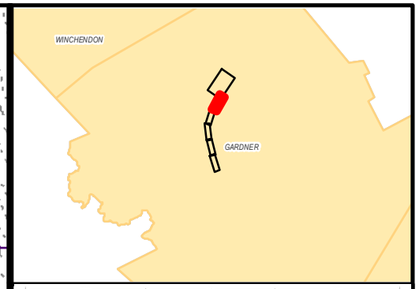
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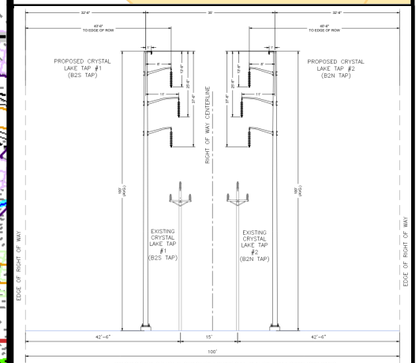
BSC GROUP

1 Mercantile Street Suite 601
Worcester, MA 01608









PROPOSED SINGLE CIRCUIT VERTICAL DAVIT ARM STRUCTURES
LOOKING TOWARD CRYSTAL LAKE STATION
TYPICAL
STATE OF MASSACHUSETTS

MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - CRYSTAL LAKE TAP LINES

GARDNER, MA
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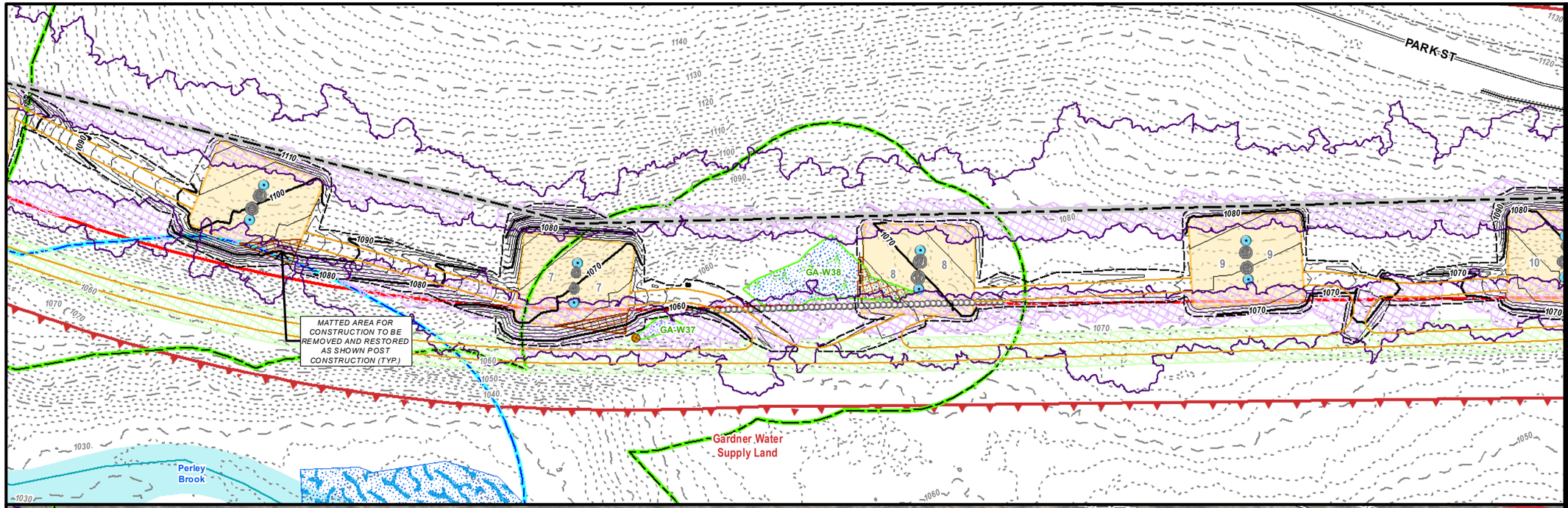
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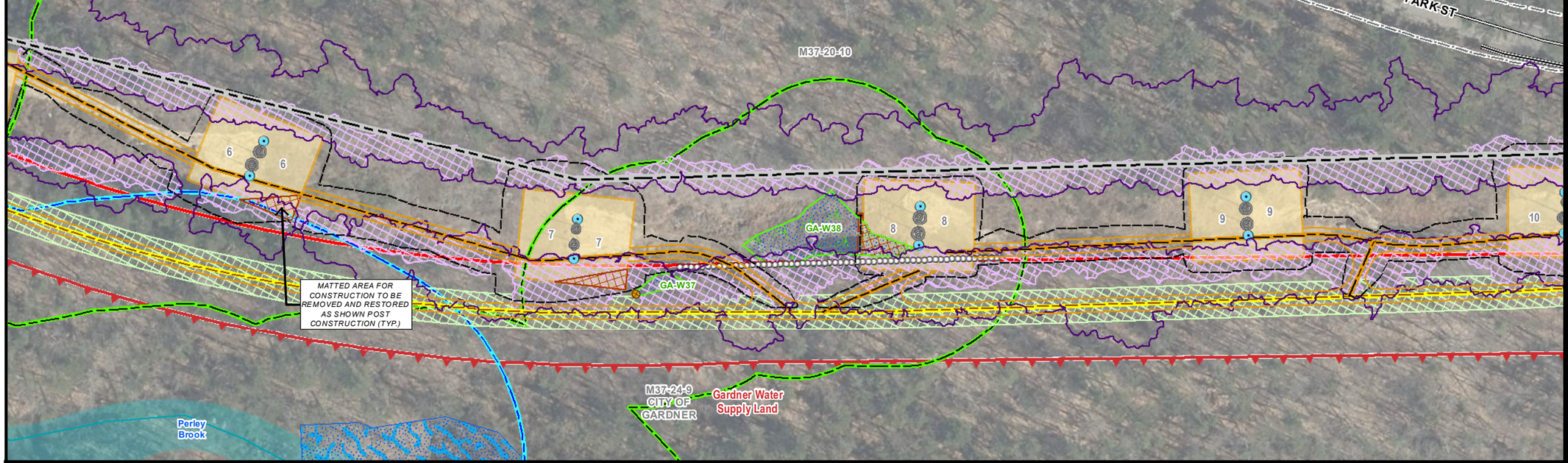
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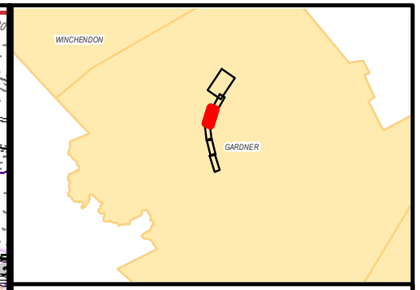
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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - CRYSTAL LAKE TAP LINES

GARDNER, MA
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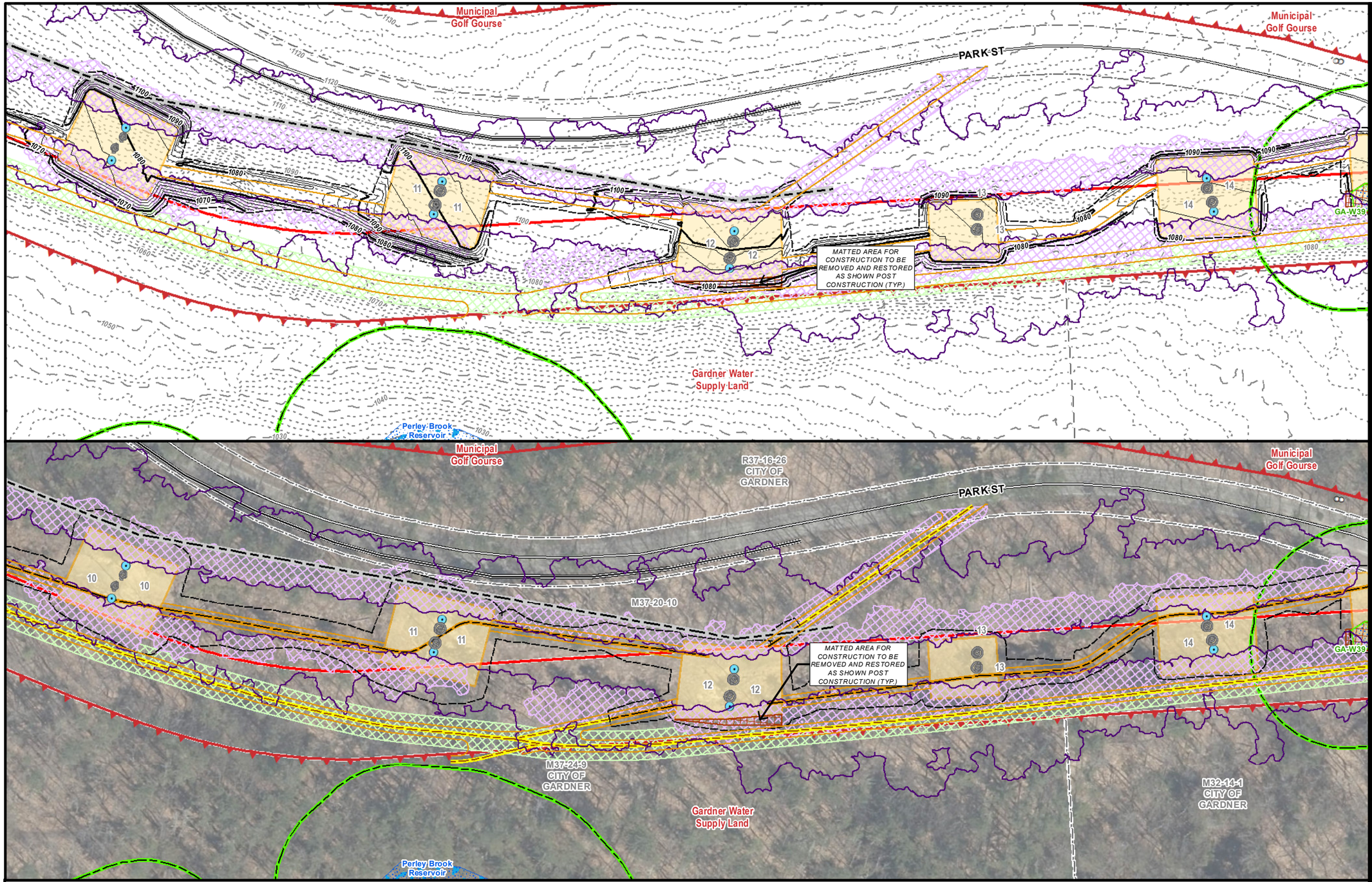
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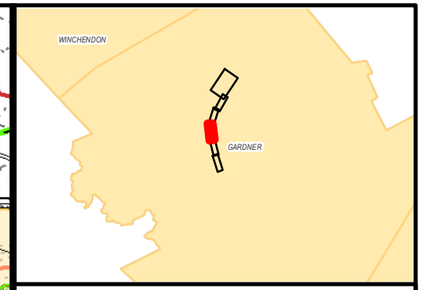
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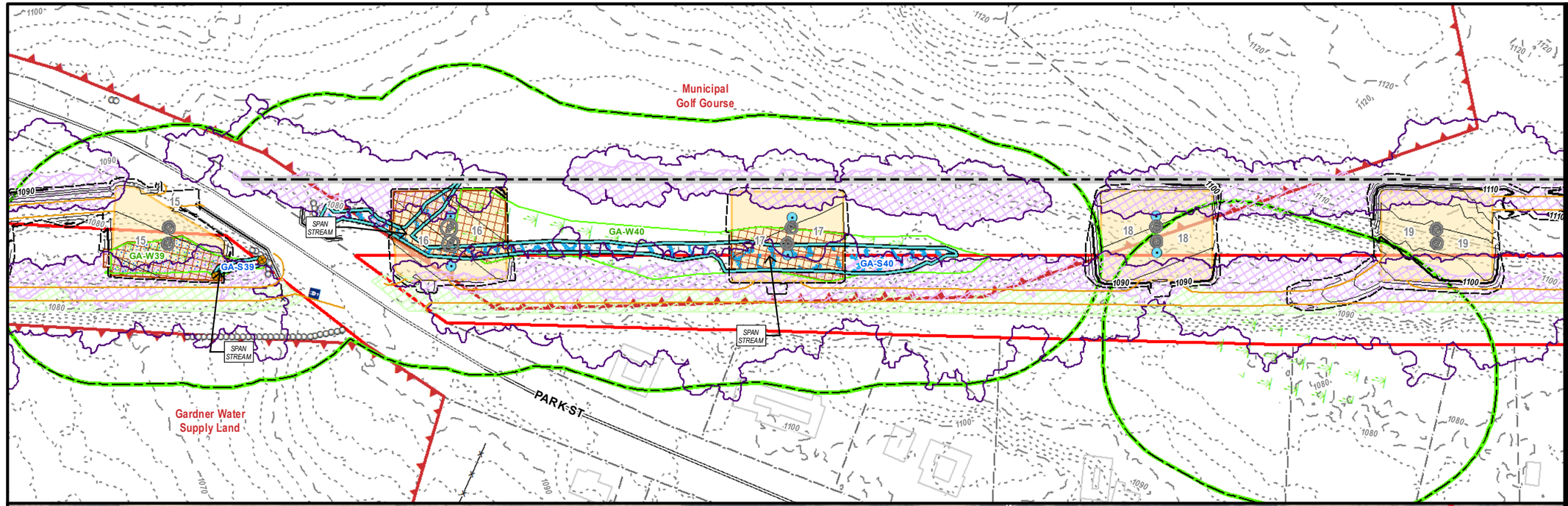
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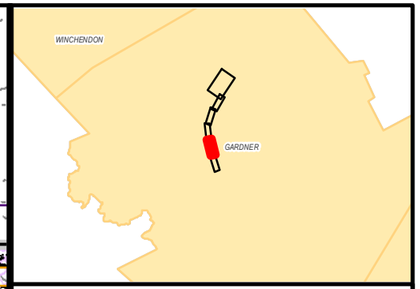
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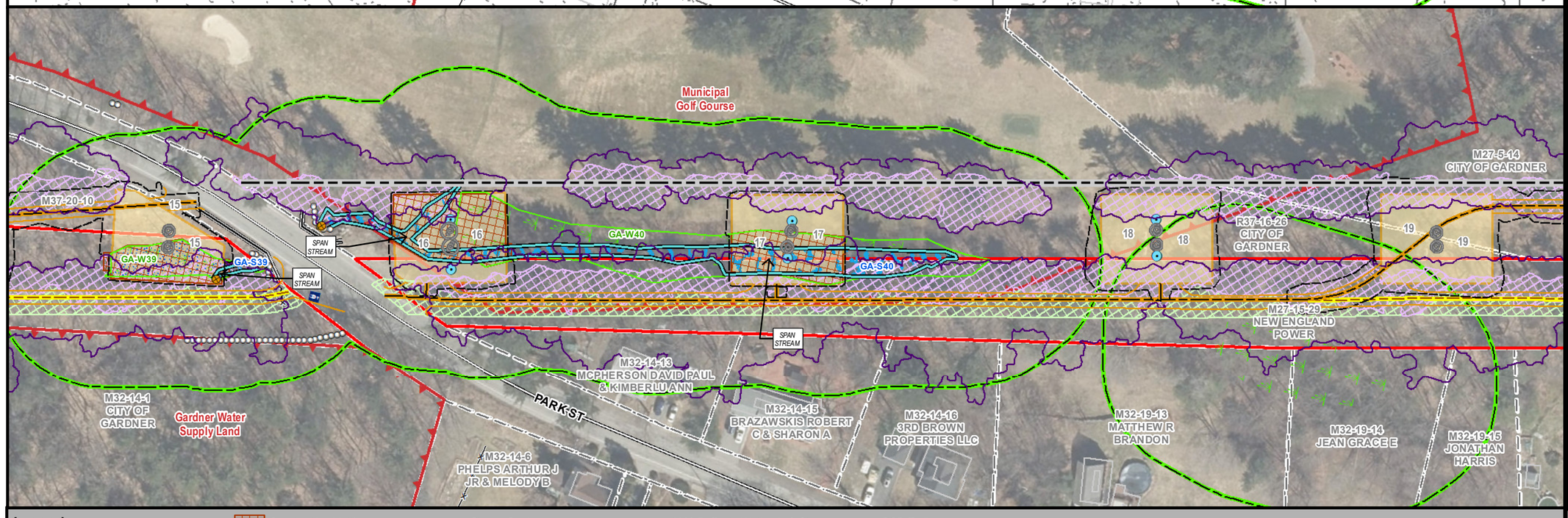
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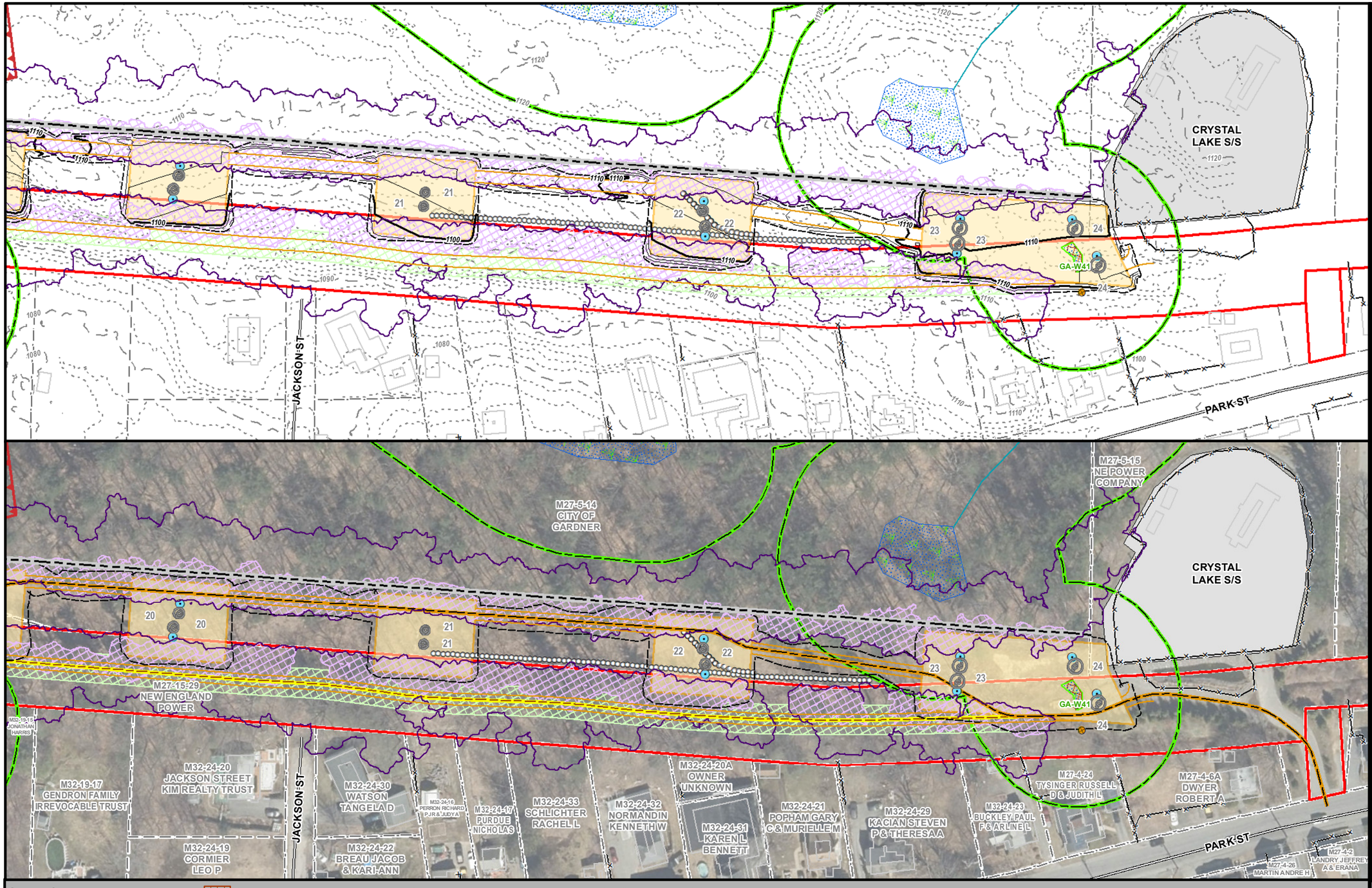
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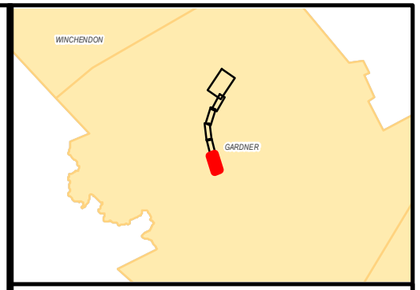
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MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; Certified Vernal Pools; Potential Vernal Pools; NHESP Priority Habitats; NHESP Estimated Habitats; NHESP Restricted Data; Hydrography; MADEP Hydrologic Connections; MADEP Wetlands; FEMA 100yr Floodplain; Public Water Supply; Zone II Wellhead Protection Area; Interim Wellhead Protection Area; Surface Water Protection Zone; Outstanding Resource Water; Areas of Critical Environmental Concern; Watershed Protection Act Zones; Ch. 91 Tidelands Jurisdiction; Article 97 Land; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed)

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MEPA General Purpose Plans

PLANIMETRIC & AERIAL

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - CRYSTAL LAKE TAP LINES

GARDNER, MA
PAGE 5 OF 5

1 inch = 100 feet
0 50 100
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
- Wetland Edge
- Wetland Area*
- Vernal Pool Extent*
- Stream Bank
- Stream Centerline
- Ordinary High Water
- Approximate Stream Bank
- Approximate Centerline
- Approximate Ordinary High Water
- Approximate Swale
- State Stream
- Open Water
- 100ft Buffer to Wetlands & Streams
- 200ft Riverfront Area
- FEMA 100yr Floodplain*
- Certified Vernal Pools
- Potential Vernal Pools
- NHESP Priority & Estimated Habitat
- Outstanding Resource Water
- MADEP (21E) Site
- MADEP AUL Site
- DCR Trails
- Hiking Trails
- Long Distance Trails
- Railroad
- Streets
- Town Boundary
- State Boundary
- National Grid Property
- Parcel Boundary
- Existing Tree Line
- Tree Removal
- Selective Tree Removal
- Pruning
- Gate
- Culvert
- Fence
- Stonewall
- Guardrail
- Existing Minor Contour
- Existing Major Contour
- Proposed Major Contour
- Proposed Minor Contour

Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

***Hybrid work envelopes (part temp. construction matting and part gravel) may display contours within a wetland that are representative of matted work area elevations.*

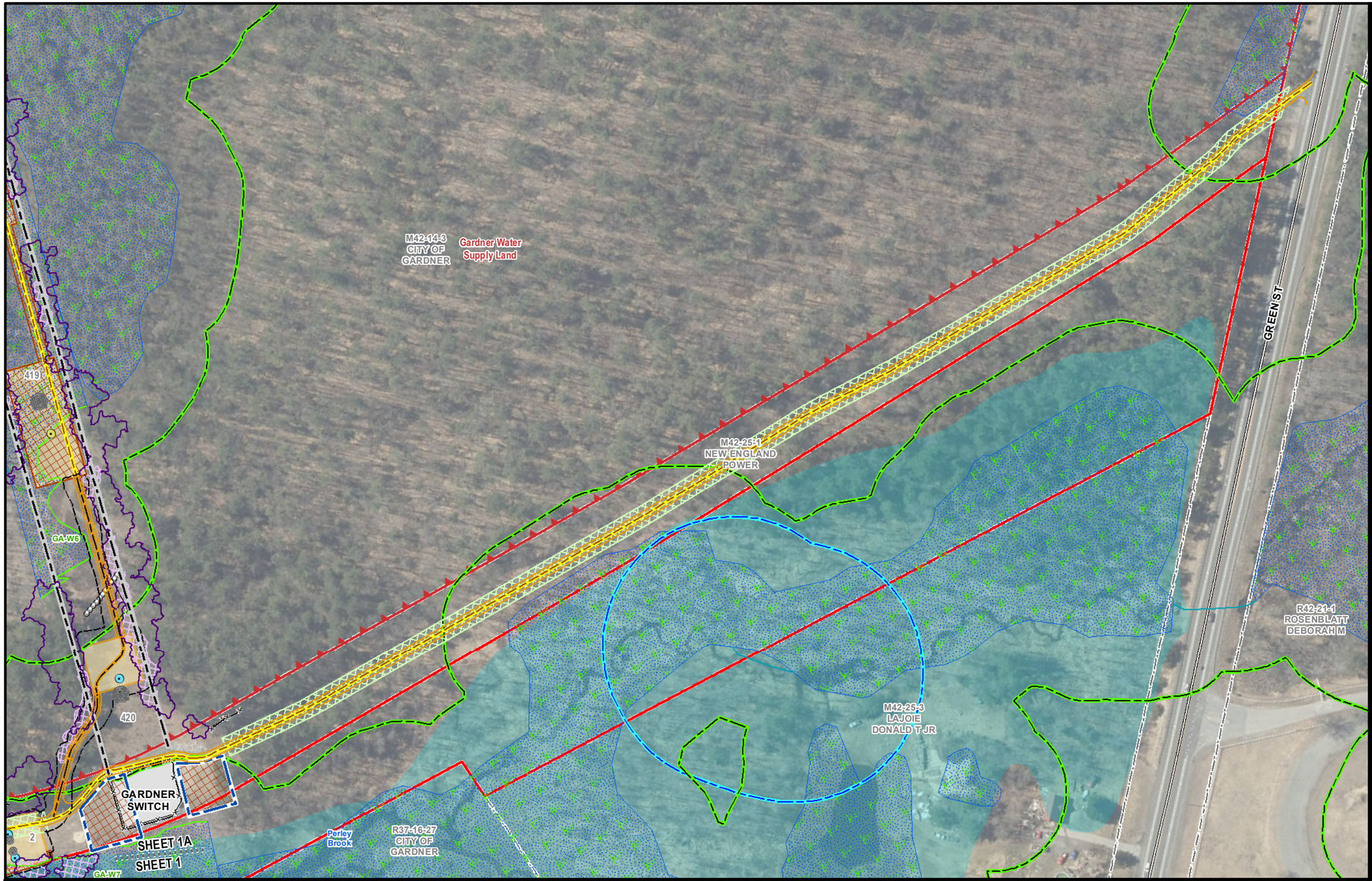
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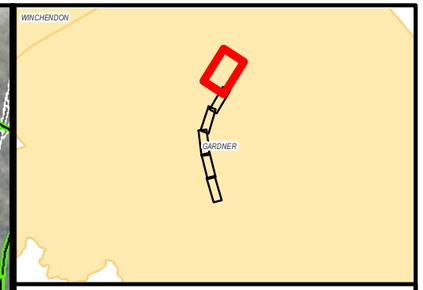
PREPARED FOR:
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; Certified Vernal Pools; Potential Vernal Pools; NHESP Priority Habitats; NHESP Estimated Habitats; NHESP Restricted Data; Hydrography; MADEP Hydrologic Connections; MADEP Wetlands; FEMA 100yr Floodplain; Public Water Supply; Zone II Wellhead Protection Area; Interim Wellhead Protection Area; Surface Water Protection Zone; Outstanding Resource Water; Areas of Critical Environmental Concern; Watershed Protection Act Zones; Ch. 91 Tidelands Jurisdiction; Article 97 Land; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed)

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MEPA General Purpose Plans

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - CRYSTAL LAKE TAP LINES

GARDNER, MA
PAGE 1A OF 5

1 inch = 150 feet
0 80 160
Feet

Legend

- Install Structure (Concrete Caisson)
- Install Structure (Direct Embed)
- Existing Structure to be Removed
- Edge of ROW
- Designed Road Type 3-5
- Standard Road Type 1 & 2
- Existing Access
- Proposed Road Limits
- Construction Matting
- Work Envelope**
- Track Equipment Only
- Pull Pad
- Limit of Cut/Fill
- Temporary Access to be Restored
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- Parcel Boundary
- Existing Tree Line
- Tree Removal
- Selective Tree Removal
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- Gate
- Culvert
- Fence
- Stonewall
- Guardrail
- Existing Minor Contour
- Existing Major Contour
- Proposed Major Contour
- Proposed Minor Contour

Article 97 Lands

- DCR-State Parks & Recreation
- Department of Fish & Game
- Land Trust
- Municipal
- Private

***Hybrid work envelopes (part temp. construction matting and part gravel) may display contours within a wetland that are representative of matted work area elevations.*

**Indicates Layers Set to Transparency*

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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

PREPARED BY:
BSC GROUP
1 MERCANTILE STREET SUITE 601
WORCESTER, MA 01608

Resource Areas Reviewed:
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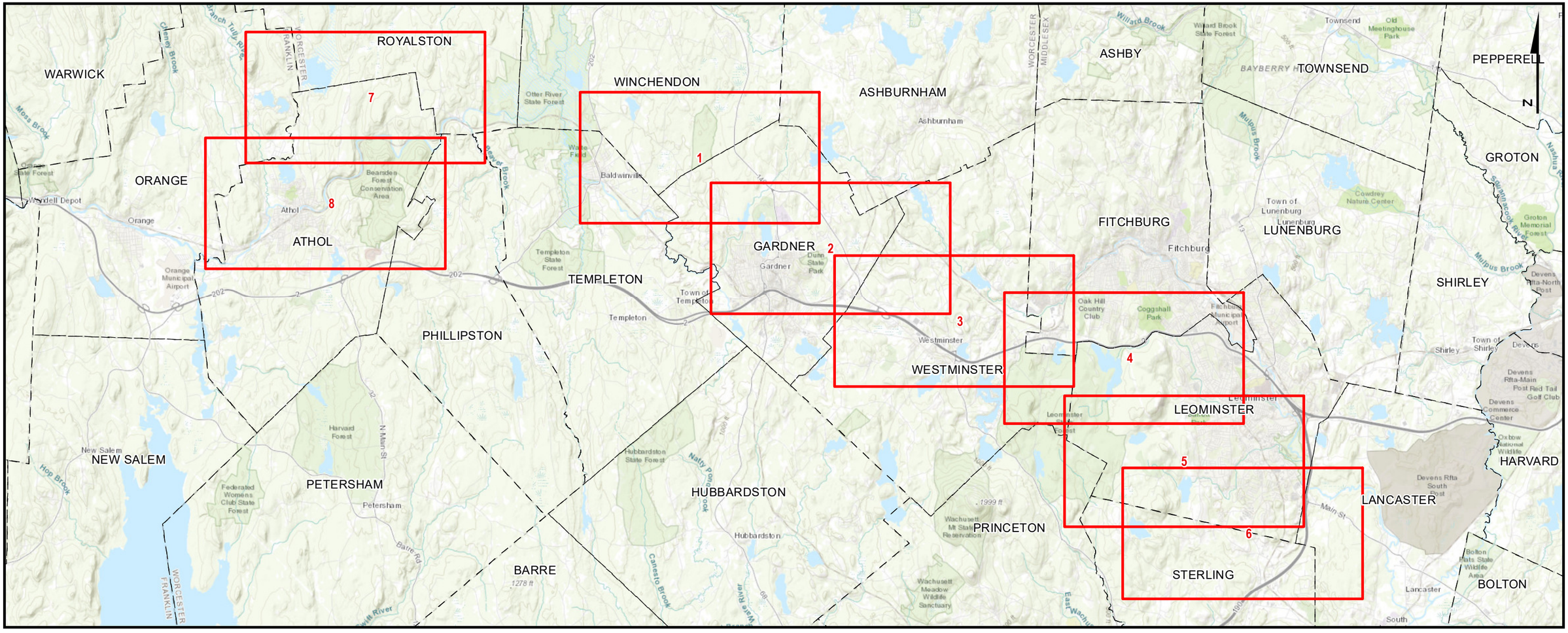
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Appendix A – Figures and Plans
Figure 3 Proposed Tree Removal in Environmental Justice Communities and Hot Spots

BSC Project Number: 89620.66

Asset Condition Refurbishment (ACR) Project - A1/B2

Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Gardner, Fitchburg, Leominster, Sterling, & Athol, MA
May 2, 2024



PREPARED FOR:

nationalgrid

170 Data Drive
Waltham, MA 02451

INDEX OF FIGURES

T1 - TITLE SHEET
S1 - SITE LOCATION MAP
1 - 8 - MAP SHEETS
S2 - TREE REMOVAL OVERLAP IN EJ POPULATIONS AND HOT SPOTS (500 FEET)

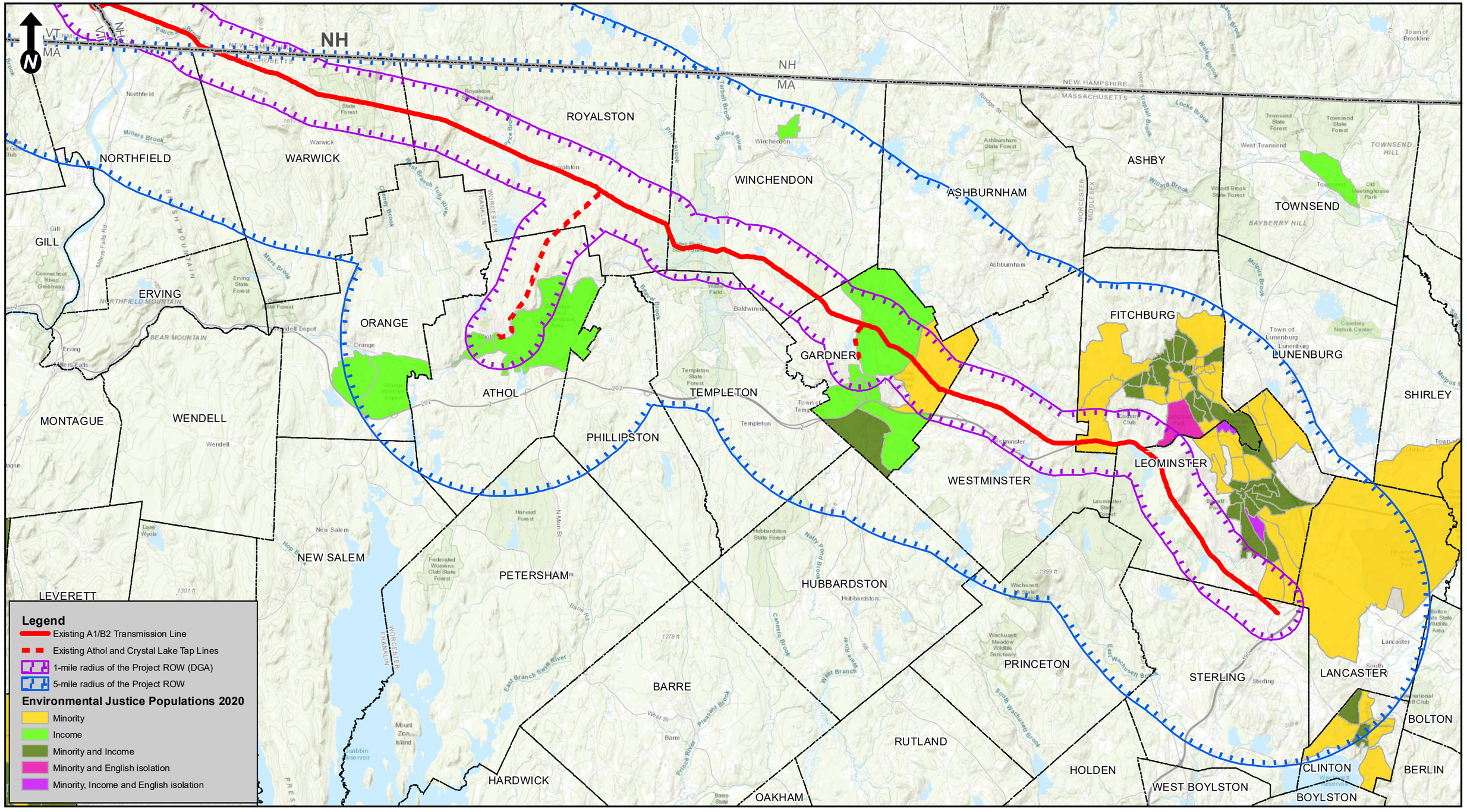
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NOT CONSTRUCTION

PREPARED BY:

BSC GROUP

1 Mercantile Street Suite 601
Worcester, MA 01608

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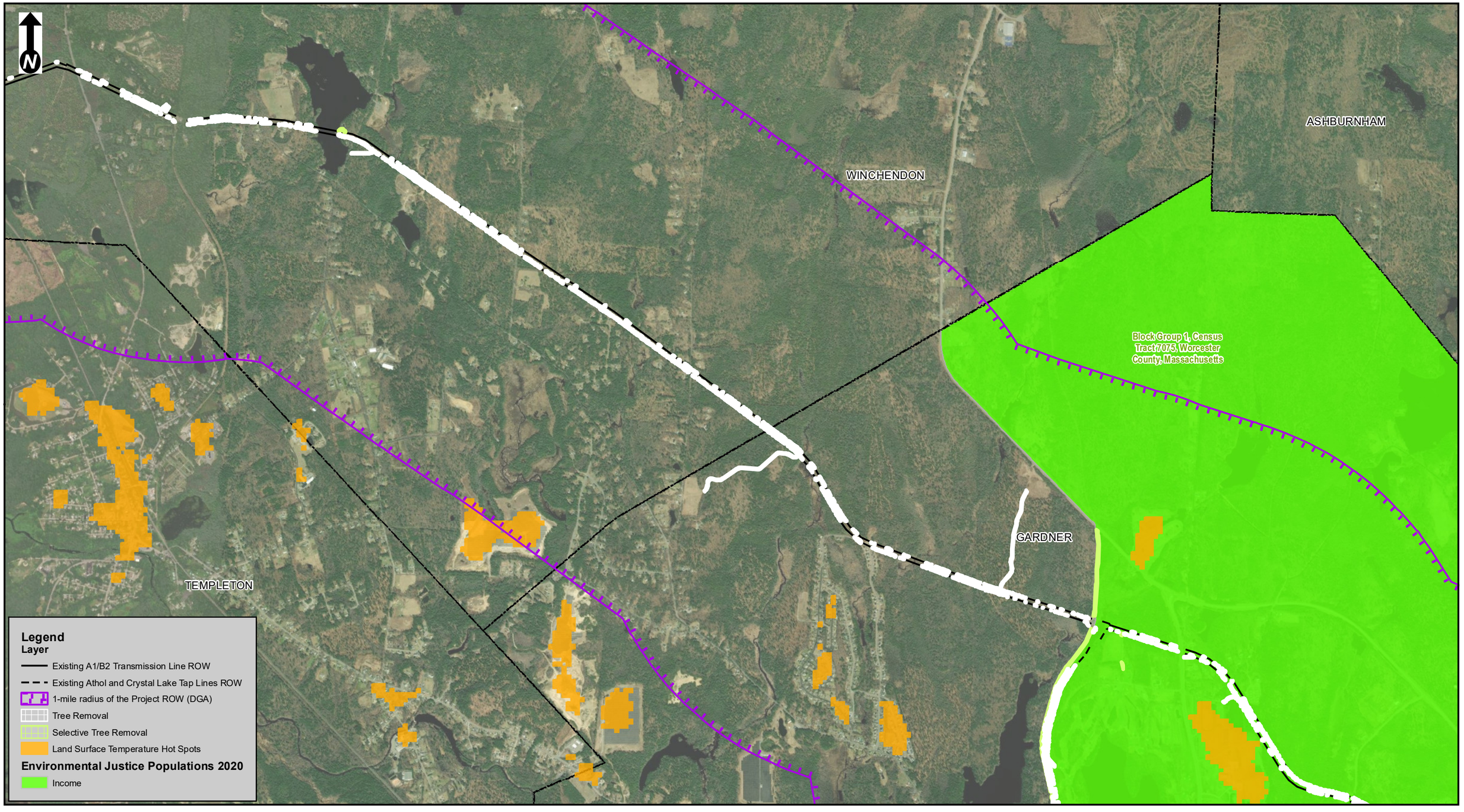
ASSET CONDITION REFURBISHMENT PROJECT (ACR) - A1/B2
Environmental Justice Populations Site Location Map
Warwick, Royalston, Athol, Winchendon, Gardner, Westminster, Fitchburg, Leominster, & Sterling, MA

Source: 2013 National Geographic Society, i-cubed

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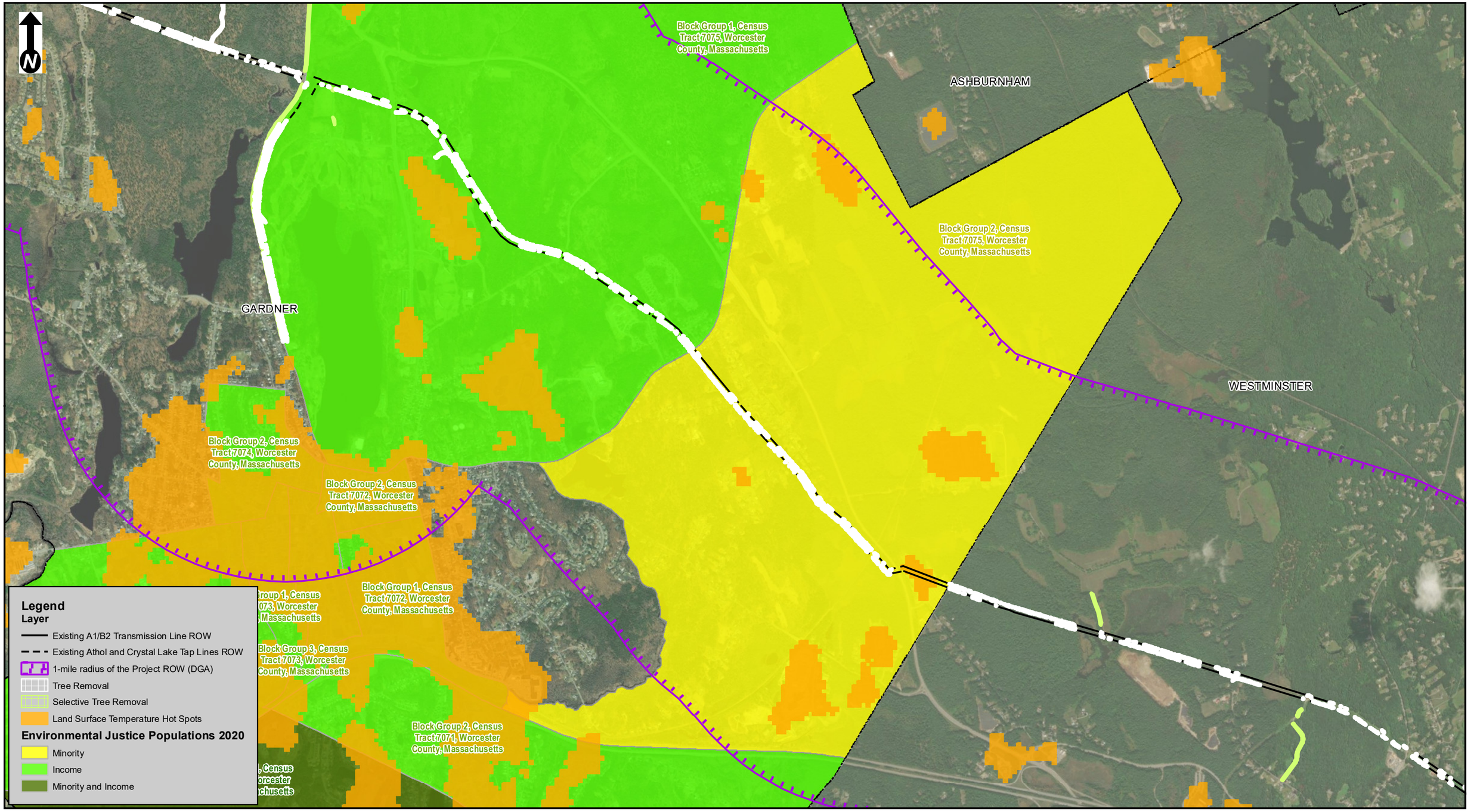
ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Winchendon & Gardner, MA
Page 1 of 8

Source: 2013 National Geographic Society, i-cubed

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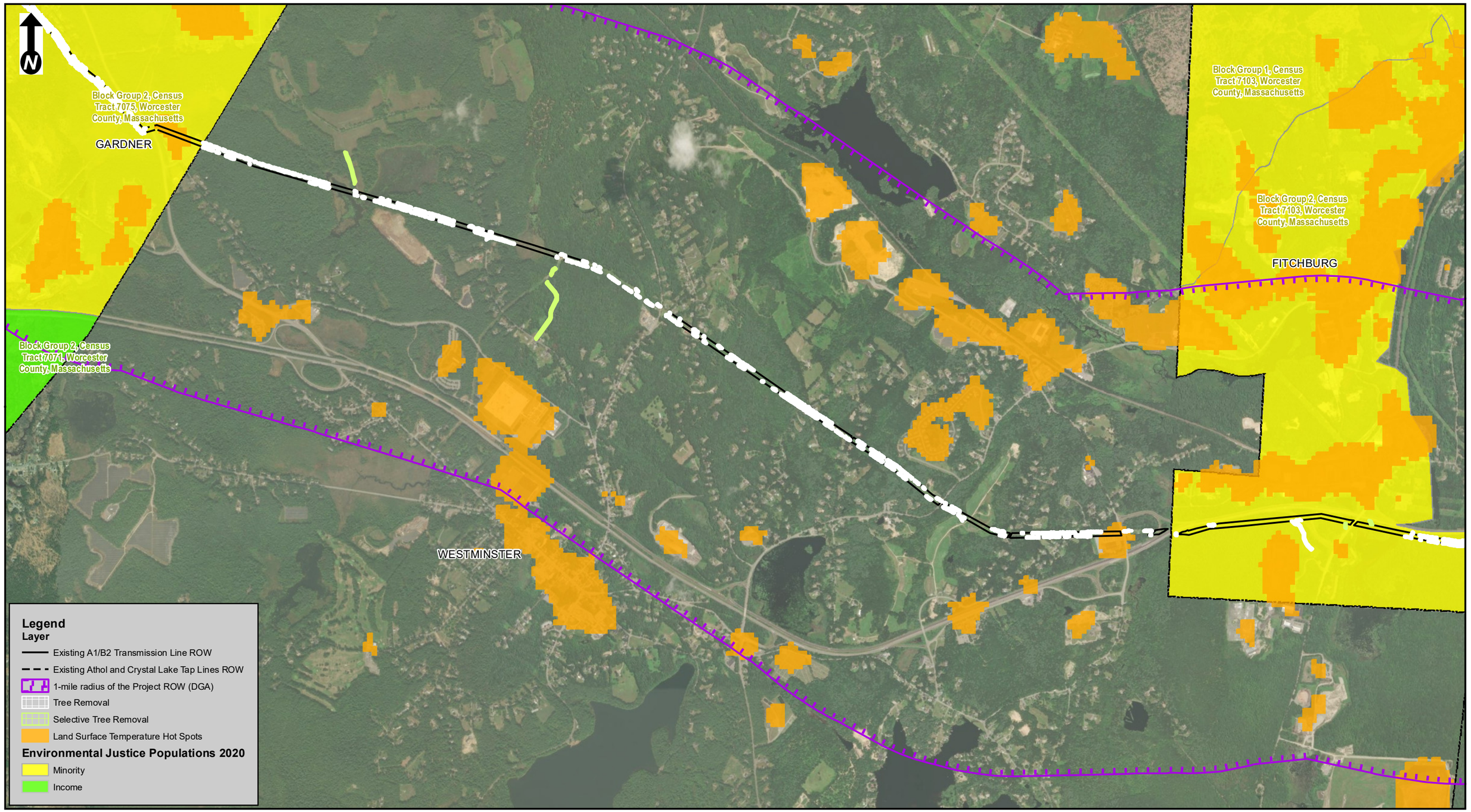
ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Gardner & Westminster, MA
Page 2 of 8

Source: 2013 National Geographic Society, i-cubed

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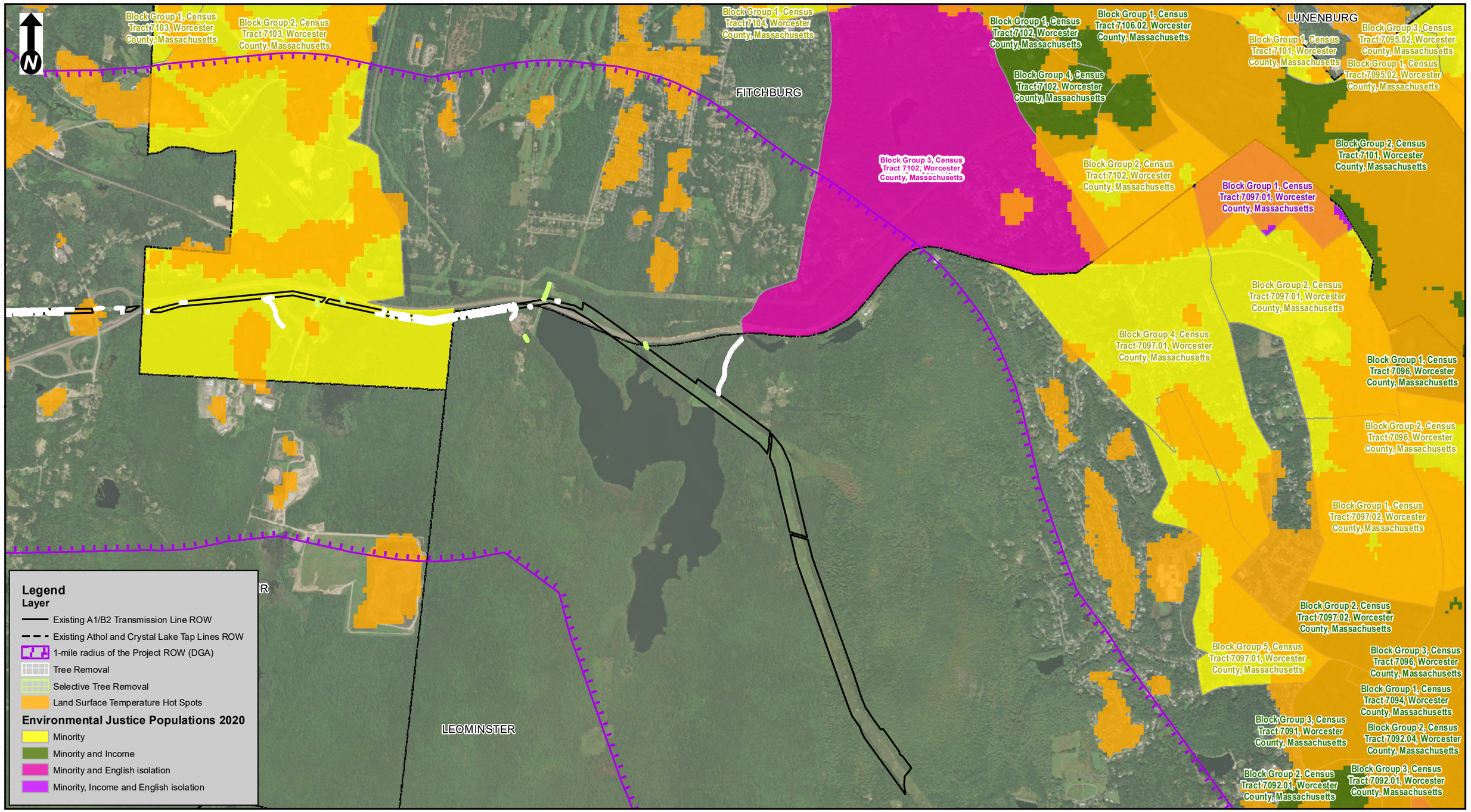
ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Gardner, Westminster, & Fitchburg, MA
Page 3 of 8

Source: 2013 National Geographic Society, i-cubed

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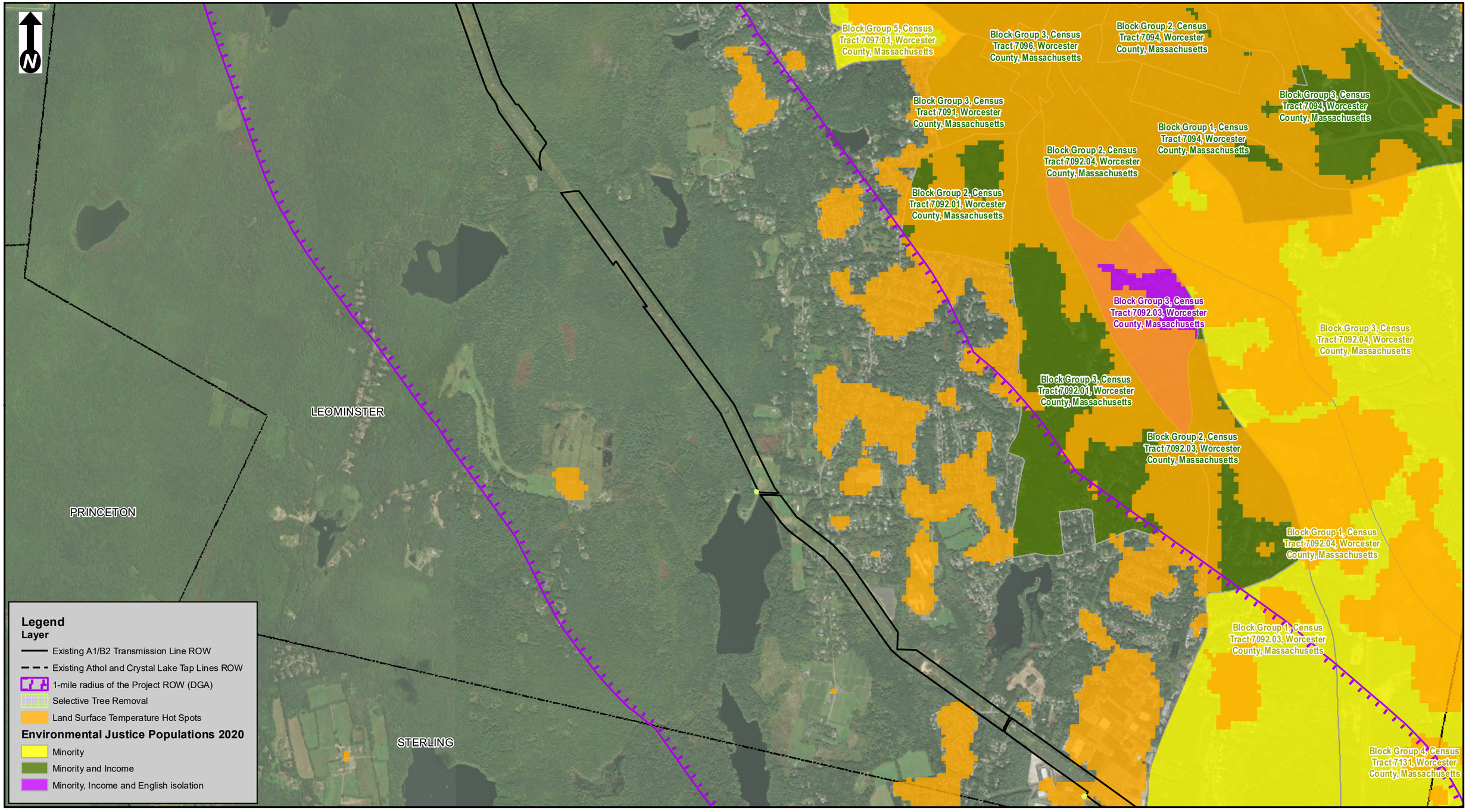
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ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Westminster, Fitchburg, & Leominster, MA
Page 4 of 8

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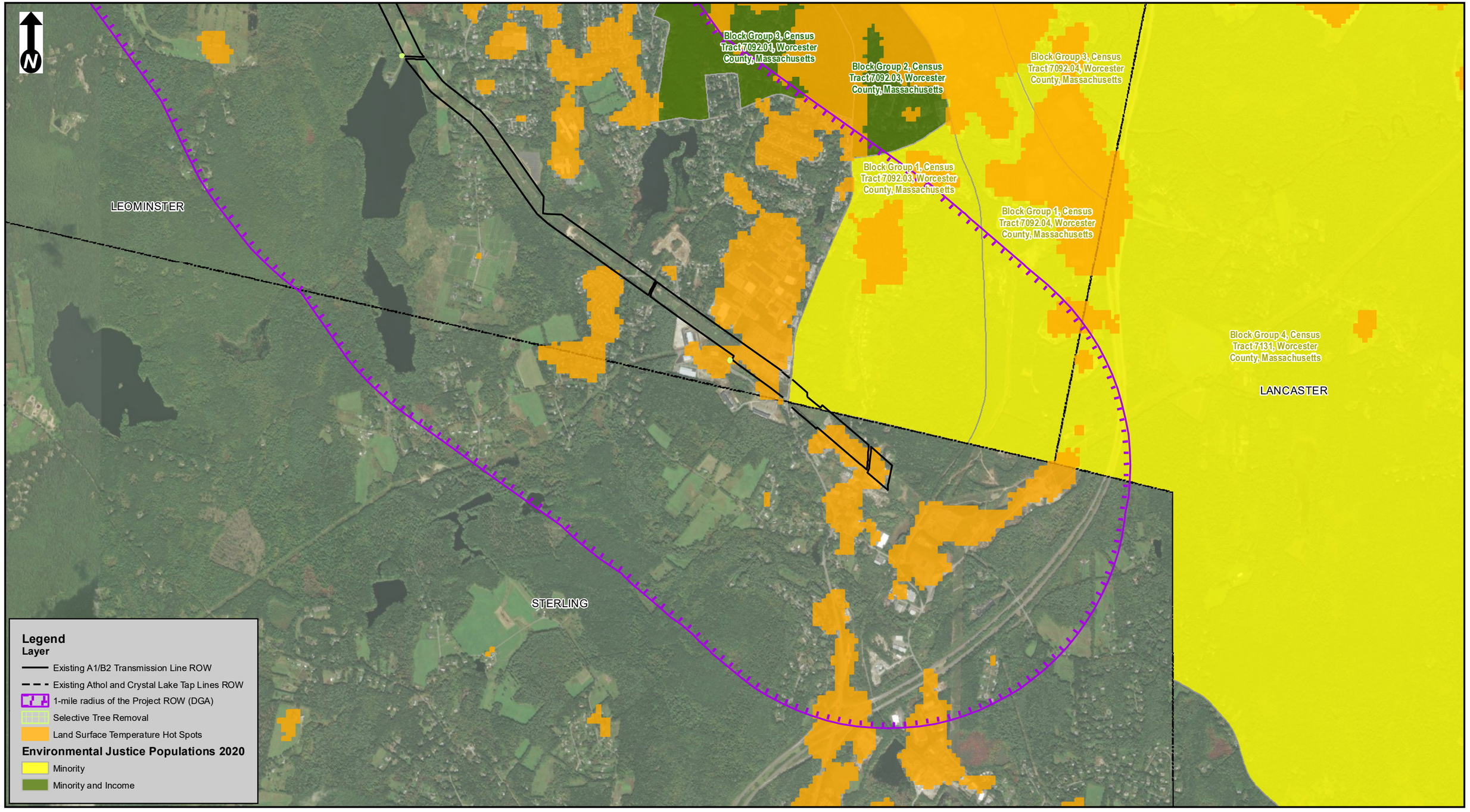
ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Leominster, MA
Page 5 of 8

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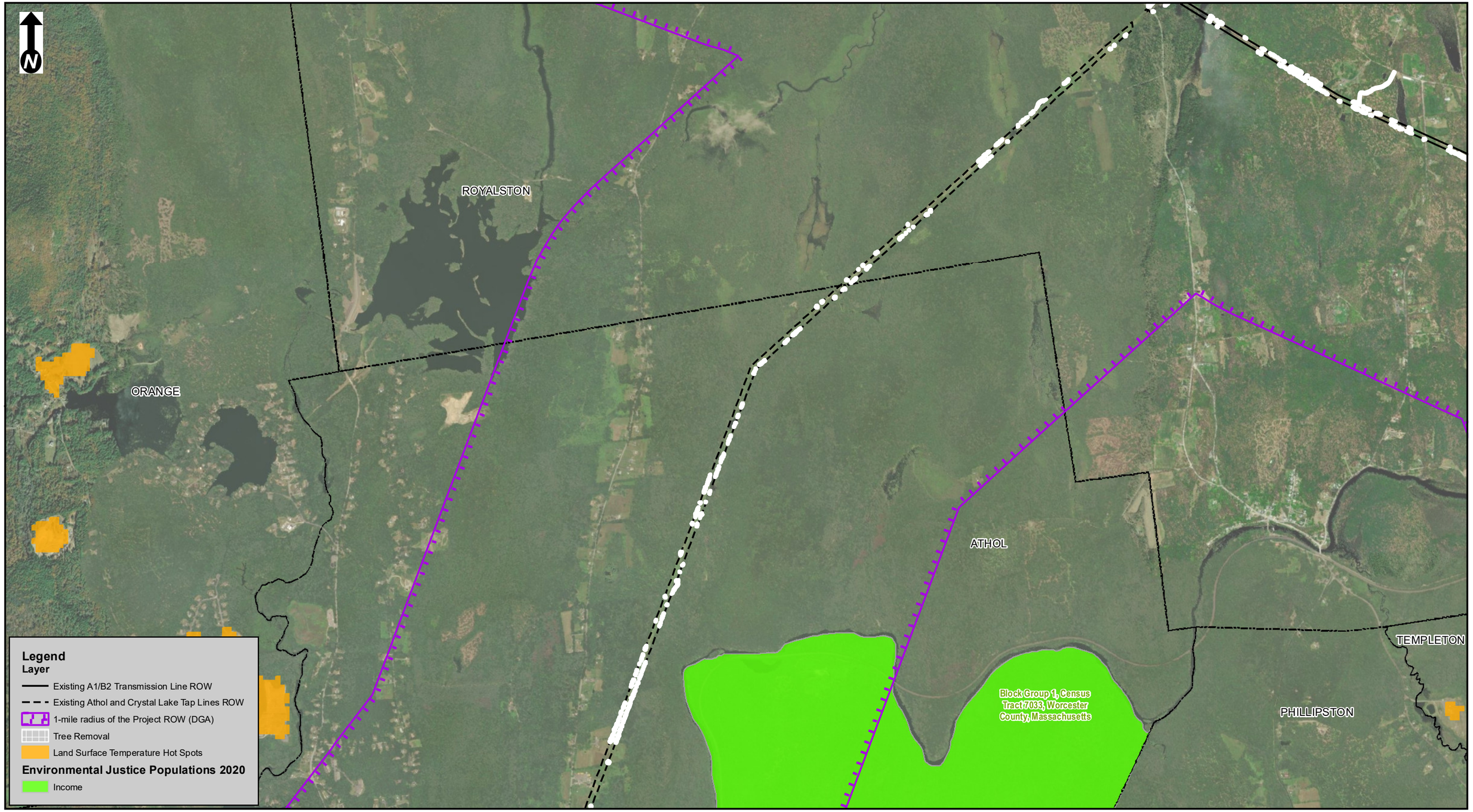
ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Leominster & Sterling, MA
Page 6 of 8

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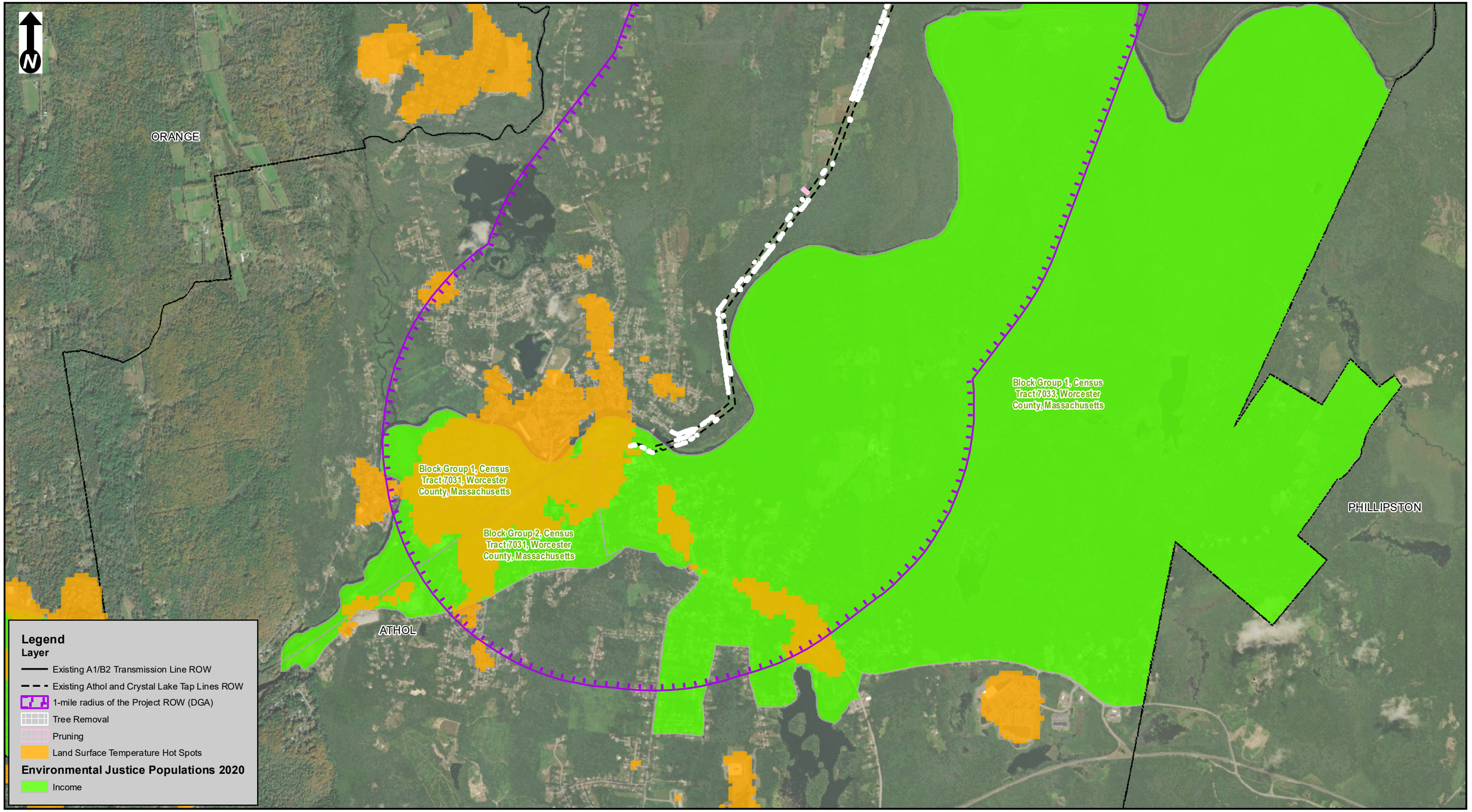
ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Royalston & Athol, MA
Page 7 of 8

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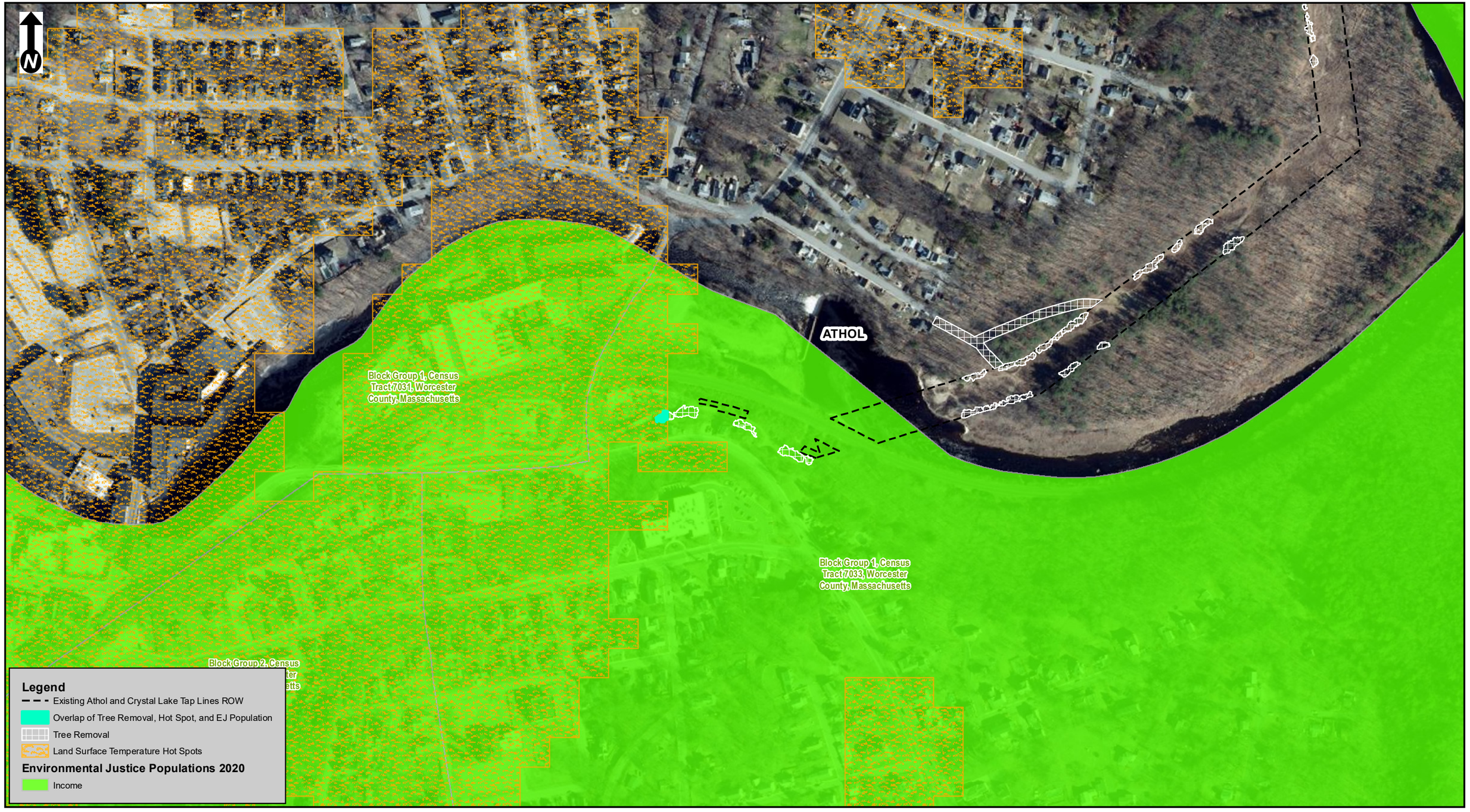
ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2
Proposed Tree Removal in EJ Block Groups and Hot Spots within 1-mile DGA
Athol, MA
Page 8 of 8

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Feet

ASSET CONDITION REFURBISHMENT (ACR) PROJECT - A1/B2

Proposed Tree Removal in EJ Block Groups and Hot Spots within 500ft of Project Area
Athol, MA

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Attachment B

Final Environmental Impact Report
A1/B2 Asset Condition Refurbishment (ACR) Project

Distribution List

BSC GROUP
BUILD | SUPPORT | CONNECT

A1/B2 Line Asset Condition Refurbishment (ACR) Project – Massachusetts

Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, & Sterling

State/Regulatory Agencies[1]

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	Catherine.Skiba@mass.gov Sean.Gonsalves@mass.gov	**DEP/Western Regional Office** Attn: MEPA Coordinator State House West - 4th floor 436 Dwight Street, Springfield, MA 01103
	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	bao.lang@dot.state.ma.us garrett.postema@dot.state.ma.us	**District #2** Attn: MEPA Coordinator 811 North King Street, Northampton, MA 01060
	Eric.Nascimento@dot.state.ma.us Kevin.R.Robenhymer@dot.state.ma.us	**District #3** Attn: MEPA Coordinator 499 Plantation Parkway, Worcester, MA 01605
Massachusetts Historical Commission	Mail a hard copy of the filing to MHC.	**The MA Archives Building** 220 Morrissey Boulevard, Boston, MA 02125
If the Project is located within five miles of an Environmental Justice Population	MEPA-EJ@mass.gov	**MEPA Office** Attn: EEA EJ Director 100 Cambridge Street, Suite 900 Boston, MA 02144
If the project site has been in agricultural use within the last fifteen years	barbara.hopson@mass.gov	**Department of Agricultural Resources** Attn: MEPA Coordinator 138 Memorial Avenue, Suite 42, West Springfield, MA 01089

[1] Retrieved from MEPA website revised 5/1/2024.

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
If the Project affects DCR roadways, watersheds or other properties or an ACEC	andy.backman@mass.gov	**DCR** Attn: MEPA Coordinator 251 Causeway St. Suite 600 Boston MA 02114
If the Project is subject to Greenhouse Gas Emissions Policy or to review by Energy Facilities Siting Board	andrew.greene@mass.gov geneen.bartley@mass.gov	**Energy Facilities Siting Board** Attn: MEPA Coordinator One South Station Boston, MA 02110
	paul.ormond@mass.gov	**Department of Energy Resources** Attn: MEPA Coordinator 100 Cambridge Street, 10th floor Boston, MA 02114
If the Project is in a municipality served by the Massachusetts Water Resources Authority (MWRA)	Hillary.Monahan@mwra.com	**Massachusetts Water Resource Authority** Attn: MEPA Coordinator 100 First Avenue Charlestown Navy Yard Boston, MA 02129

Regional Planning Agencies

Regional Planning Agency	Email and/or Mailing Address
Central Massachusetts Regional Planning Commission (CMRPC)	mepafiling@cmrpc.org
Franklin Regional Council of Governments (FRCoG)	KMacPhee@frcog.org PSloan@frcog.org and 2 hard copies to: Kimberly MacPhee and Peggy Sloan FRCOG, 12 Olive Street, Greenfield, MA 01301
Montachusett Regional Planning Commission (MRPC)	mrpc@mrpc.org

LOCAL BOARDS/COMMISSIONS/LIBRARIES

Municipality	Email Address	Address
Athol, MA	Board of Selectmen barmentrout@townofathol.org	584 Main Street, Athol, MA 01331
	Planning Board esmith@townofathol.org	
	Conservation Commission conservation@townofathol.org	
	Health Department dvondal@townofathol.org	

	Historical Commission jshaughnessy@cwmars.org	
	Library info@athollibrary.org	Athol Library Trustees Athol Public Library 568 Main Street Athol, MA 01331
Fitchburg, MA	City Council cityclerk@fitchburgma.gov	Fitchburg Legislative Building 700 Main Street Fitchburg, MA 01420
	Board of Health scurry@fitchburgma.gov	
	Community Development aleblanc@fitchburgma.gov	718 Main Street Fitchburg, MA 01420
	Conservation Commission Hjaime@fitchburgma.gov	
	Historical Commission HistoricCommission@fitchburgma.gov	
	Library fplref@cwmars.org	Fitchburg Library Trustees Fitchburg Public Library 610 Main St. Fitchburg, MA 01420
	Department of Public Works dpwdispatch@fitchburgma.gov	Fitchburg Commission of Public Works 301 Broad Street Fitchburg, MA 01420
Gardner, Ma	City Council ekazinskas@gardner-ma.gov	Gardner City Council Chamber of City Hall 95 Pleasant Street Gardner, MA 01440
	Board of Health mblondeau@gardner-ma.gov	
	Cultural Council jderoy@gardner-ma.gov	
	Conservation Commission ddillon@gardner-ma.gov	115 Pleasant Street Gardner, MA 01440
	Planning Board cfucile@gardner-ma.gov	
	Zoning Board mnegron@gardner-ma.gov	
	Library syoung@cwmars.org	Levi Heywood Memorial Library 55 West Lynde St. Gardener, MA 01440
Leominster, MA	City Council mnadeau@Leominster-MA.gov tardinger@leominster-ma.gov	25 West Street, Leominster, MA 01453
	Planning and Development mnadeau@Leominster-MA.gov JSouza@leominster-ma.gov	
	Conservation Commission c/o City Clerk	

	mnadeau@Leominster-MA.gov nkremp@leominster-ma.gov	
	Health Department mpowell@leominster-ma.gov	
	Historical Commission nkremp@leominster-ma.gov	
	Cultural Council lcc01453@gmail.com	
	Zoning Board eirvine@leominster-ma.gov	
	Library alent@leominster-ma.gov	Leominster Public Library 30 West Street, Leominster, MA01453
Sterling, MA	Select Board c/o Town Administrator bcaldwell@sterling-ma.gov	1 Park Street Sterling, MA 01564
	Planning Board swallace@sterling-ma.gov	
	Conservation Commission Mmarro@sterling-ma.gov	
	Board of Health knickerson@sterling-ma.gov	
	Cultural Council doherty_bwp@yahoo.com	
	Historical Commission c/o Kama Jayne kjayne@sterling-ma.gov	
	Zoning Board ppage@sterling-ma.gov	
	Conant Free Public Library dorr@cwmars.org	
Warwick, MA	Selectboard c/o Town Clerk townclerk@town.warwick.ma.us	12 Athol Rd, Warwick, MA 01378
	Planning Board c/o Town Clerk townclerk@town.warwick.ma.us	
	Conservation Commission gbrodski@gmail.com	
	Department/Board of Health c/o Town Clerk townclerk@town.warwick.ma.us	
	Historical Commission c/o Town Clerk townclerk@town.warwick.ma.us	
	Open Space Committee c/o Town Clerk townclerk@town.warwick.ma.us	
	Zoning Board c/o Town Clerk	

	townclerk@town.warwick.ma.us	
	Library wpladmin@warwicklibrary.org	Warwick Public Library 4 Hotel Road Warwick, MA 01378
Westminster, MA	Select Board c/o Town Clerk esheehan@westminster-ma.gov	Department of Public Works 2 Oakmont Avenue PO Box 376 Westminster, MA 01473
	Planning Board rforgues@westminster-ma.gov	
	Conservation Commission mmarro@westminster-ma.gov	
	Health Department aconlin@westminster-ma.gov	
	Historical Commission nlanghart@westminster-ma.gov	
	Cultural Council c/o Town Clerk esheehan@westminster-ma.gov	
	Zoning Board c/o Town Clerk esheehan@westminster-ma.gov	
	Department of Public Works jhall@westminster-ma.gov	Department of Public Works 2 Oakmont Avenue PO Box 376 Westminster, MA 01473
	Library nlanghart@westminster-ma.gov	Forbush Memorial Library 118 Main Street PO Box 468 Westminster, MA 01473
Winchendon, MA	Board of Selectmen alabrie@townofwinchendon.com	109 Front Street Winchendon, MA 01475
	Planning and Development nroberts@townofwinchendon.com	
	Conservation Commission MMarro@townofwinchendon.com	
	Board of Health jabare@townofwinchendon.com	
	Historical Commission historicommission@winchendon-ma.gov	
	Community Park Committee tnewton@townofwinchendon.com	
	Department of Public Works bellis@townofwinchendon.com	
	Zoning Board nroberts@townofwinchendon.com	
	Library bealsmemoriallibrary@gmail.com	Beals Memorial Library, Library Trustees 50 Pleasant St. Winchendon, MA 01475

List of commenters on the EENF

Agency	Email Address
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MA DCR	Andy.backman@mass.gov
Massachusetts Division of Fisheries and Wildlife (DFW) Natural heritage and Endangered Species Program (NHESP)	lauren.glorioso@state.ma.us
MassDOT	Curtis.B.Wiemann@dot.state.ma.us
Executive Office of Energy and Environmental Affairs	josbel.mejia@state.ma.us

List of commenters on the DEIR

Agency	Email Address
Massachusetts Department of Environmental Protection (MassDEP) Waterways Program	DEP.Waterways@mass.go
MassAudubon	hricci@massaudubon.org
Massachusetts Division of Fisheries and Wildlife (DFW) Natural Heritage and Endangered Species Program (NHESP)	lauren.glorioso@state.ma.us
Massachusetts Department of Transportation (MassDOT)	lionel.lucien@dot.state.ma.us; William.M.Simon@dot.state.ma.us.
Massachusetts Department of Conservation and Recreation (DCR)	jennifer.howard@mass.gov; andy.backman@mass.gov
MassDEP, Western & Central Regional Offices (WERO & CERO)	Christina.Y.Wu@mass.gov

Attachment C

Final Environmental Impact Report
A1/B2 Asset Condition Refurbishment (ACR) Project

Updated Environmental Justice Reference List

BSC GROUP
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Statewide Environmental Justice Community Based Organizations					
First Name	**Last Name**	**Title**	**Phone**	**Email**	**Affiliation**
Claire	B.W. Muller	Movement Building Director	(508) 308-9261	claire@uumassaction.org	Unitarian Universalist Mass Action Network
Julia Gretech	Blatt McClain	Executive Director	(617) 714-4272	JuliaBlatt@MassRiversAlliance.org GretchenMcClain@MassRiversAlliance.org	Mass Rivers Alliance
Amy Zahra	Boyd Rabin Saifee	Vice President of Policy Policy & Advocacy Coordinator	(631) 221-8258	aboydrabin@environmentalleague.org zsaifee@environmentallleague.org	Environmental League of Massachusetts
Jodi	Valenta	Massachusetts State Director	(617) 367-6200	Jodi.Valenta@tpl.org	The Trust for Public Land
Kerry	Bowie	Board President	Not Provided	kerry@msaadapartners.com	Browning the GreenSpace
Sylvia	Broude	Executive Director	(617) 292-4821	sylvia@communityactionworks.org	Community Action Works
Heather	Clish	Director of Conservation & Recreation Policy	(617) 523-0655	hclish@outdoors.org	Appalachian Mountain Club
Johannes Brittney	Epke Jenkins	Staff Attorney Vice President	(617) 850-1761	jepke@clf.org Bjenkins@clf.org	Conservation Law Foundation
Ben	Hellerstein	MA State Director	(617) 747-4368	ben@environmentmassachusetts.org	Environment Massachusetts
Robb	Johnson	Executive Director	(978) 443-2233	robb@massland.org	Mass Land Trust Coalition
Cindy	Luppi	New England Director	(617) 338-8131 x208	cluppi@cleanwater.org	Clean Water Action
Lena Miles	Entin Gresham	Interim Co-Directors	Not Provided	Lena@N2NMa.org Miles@N2NMa.org	Neighbor to Neighbor Mass.
Rob	Moir	Executive Director	Not Provided	rob@oceanriver.org	Ocean River Institute
Deb	Pasternak	Director, MA Chapter	(617) 423-5775	deb.pasternak@sierraclub.org	Sierra Club MA
Heidi	Ricci	Director of Policy	Not Provided	hricci@massaudubon.org	Mass Audubon
Indigenous Organizations					

Alma	Gordon	President	Not Provided	tribalcouncil@chappaquiddick-wampanoag.org	Chappaquiddick Tribe of the Wampanoag Nation
Bettina	Washington	Tribal Historic Preservation Officer	508-560-9014	thpo@wampanoagtribe-nsn.gov	Wampanoag Tribe of Gay Head (Aquinnah)
Cheryll	Toney Holley	Chair	774-317-9138	crwritings@aol.com	Nipmuc Nation (Hassanamisco Nipmucs)
John	Peters, Jr.	Executive Director	617-573-1292	john.peters@mass.gov	Massachusetts Commission on Indian Affairs (MCIA)
Kenneth	White	Council Chairman	508-347-7829	acw1213@verizon.net	Chaubunagungamaug Nipmuck Indian Council
Melissa	Ferretti	Chair	(508) 304-5023	melissa@herringpondtribe.org	Herring Pond Wampanoag Tribe
Patricia	D. Rocker	Council Chair	Not Provided	rockerpatriciad@verizon.net	Chappaquiddick Tribe of the Wampanoag Nation, Whale Clan
Raquel	Halsey	Executive Director	(617) 232-0343	rhalsey@naicob.org	North American Indian Center of Boston
Federally Recognized Tribes					
Bettina	Washington	Tribal Historic Preservation Officer	508-560-9014	thpo@wampanoagtribe-nsn.gov	Wampanoag Tribe of Gay Head (Aquinnah)
Brian	Weeden	Chair	774-413-0520	Brian.Weeden@mwtribe-nsn.gov	Mashpee Wampanoag Tribe
Nakia	Hendricks Jr.	Office Manager		106Review@mwtribe-nsn.gov	Mashpee Wampanoag Tribe
Project Name: A1/B2 ACR					
Date Revised: 04/05/2024					

Attachment D

Final Environmental Impact Report
A1/B2 Asset Condition Refurbishment (ACR) Project

List of Streams with Matting

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STREAM ID	LOCATION	STREAM TYPE	TOWN	ER MAPS	PAGE # ON ER MAPS
AT-S11	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	14
AT-S12	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	14 - 15
AT-S13	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	15 - 15
AT-S15B	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	17
AT-S15B	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	17
AT-S19	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	20
AT-S21A	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	21
AT-S22	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	22
AT-S24	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	23
AT-S5	On ROW	Intermittent	ATHOL	FIGURE 2C - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -ATHOL TAP LINES	11
FI-S2	On ROW	Intermittent	FITCHBURG	FIGURE 2A - ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	133
GA-S11	Off ROW	Perennial	GARDNER	FIGURE 2A - ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	98
GA-S14	On ROW	Intermittent	GARDNER	FIGURE 2A - ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	101
GA-S15	On ROW	Intermittent	GARDNER	FIGURE 2A - ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	101
GA-S18	On ROW	Intermittent	GARDNER	FIGURE 2A - ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	103
GA-S36	On ROW	Intermittent	GARDNER	FIGURE 2D - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -CRYSTAL LAKE TAP LINES	1
GA-S39	On ROW	Intermittent	GARDNER	FIGURE 2D - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -CRYSTAL LAKE TAP LINES	4
GA-S40	On ROW	Intermittent	GARDNER	FIGURE 2D - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -CRYSTAL LAKE TAP LINES	4
GA-S40	On ROW	Intermittent	GARDNER	FIGURE 2D - ASSET CONDITION REFURBISHMENT (ACR) PROJECT -CRYSTAL LAKE TAP LINES	4
LE-S11A	On ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	11
LE-S12	On ROW	Perennial	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	12 - 13

LE-S19	On ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	18
LE-S21	On ROW	Perennial	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	19
LE-S23	On ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	21
LE-S23	On ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	22
LE-S27	On ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	23 - 24
LE-S31	On ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	24 - 25
LE-S3A	On ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE	2
LE-S4C	Off ROW	Intermittent	LEOMINSTER	FIGURE 2B A1-B2 MAINLINE CENTERLINE CHANGE OFF-ROW	3A
RO-S1	On ROW	Intermittent	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	28
RO-S11	On ROW	Perennial	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	35
RO-S18A	Off ROW	Intermittent	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	40A
RO-S18B	Off ROW	Intermittent	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	40A
RO-S20	On ROW	Perennial	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	41
RO-S21	On ROW	Intermittent	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	42
RO-S24	On ROW	Intermittent	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	44
RO-S24	On ROW	Intermittent	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	44
RO-S26	On ROW	Perennial	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	46
RO-S39	On ROW	Intermittent	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	55 -56
RO-S41	On ROW	Perennial	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	56
RO-S6	On ROW	Perennial	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	31

RO-S6	On ROW	Perennial	ROYALSTON	FIGURE 2A- ASSET CONDITION REFURBISHMENT (ACR) PROJECT -A1/B2MAINLINE	31
ST-S2	On ROW	Perennial	STERLING	Figure 2B A1-B2 Mainline Centerline Change	33
WA-S1	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITION REFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	1
WA-S11	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	7
WA-S13	On ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	8
WA-S16	On ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	9
WA-S17	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	10
WA-S18	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	12 - 11A
WA-S19A	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	14
WA-S1B	Off ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	9
WA-S20	Off ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	14
WA-S21	Off ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	15 - 15A
WA-S21	Off ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	15 - 15A
WA-S21	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	15 - 15A
WA-S22	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	15 - 15A
WA-S22	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	15 - 15A
WA-S23	Off ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	17A
WA-S29	On ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	19
WA-S29D	Off ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	17A
WA-S29D	Off ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	20A
WA-S31	On ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	22
WA-S34	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	23

WA-S35	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	24
WA-S36	On ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	25
WA-S40	On ROW	Perennial	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	27
WA-S6	On ROW	Intermittent	WARWICK	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	3
WIN-S23	On ROW	Perennial	WINCHENDON	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	79 - 80
WIN-S26	On ROW	Perennial	WINCHENDON	FIGURE 2A- ASSET CONDITIONREFURBISHMENT(ACR) PROJECT -A1/B2MAINLINE	81

Attachment E

Final Environmental Impact Report
A1/B2 Asset Condition Refurbishment (ACR) Project

Best Management Practices (BMPs)

NEP's Environmental Guidance (EG) for ROW Access, Maintenance and Construction Best Management Practices (EG 303),
Release Notification in Massachusetts (EG-501MA),
Spill Response Procedures and Notification (EG-502MA), and
Excess Soil Management from Construction Projects on Rights-of-Way (EG-1707).

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Appendix E - Best Management Practices (BMPs) NEP's Environmental Guidance (EG) for ROW Access, Maintenance and Construction Best Management Practices (EG 303)

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SUBJECT	REFERENCE
ROW Access, Maintenance and Construction Best Management Practices for New England	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.

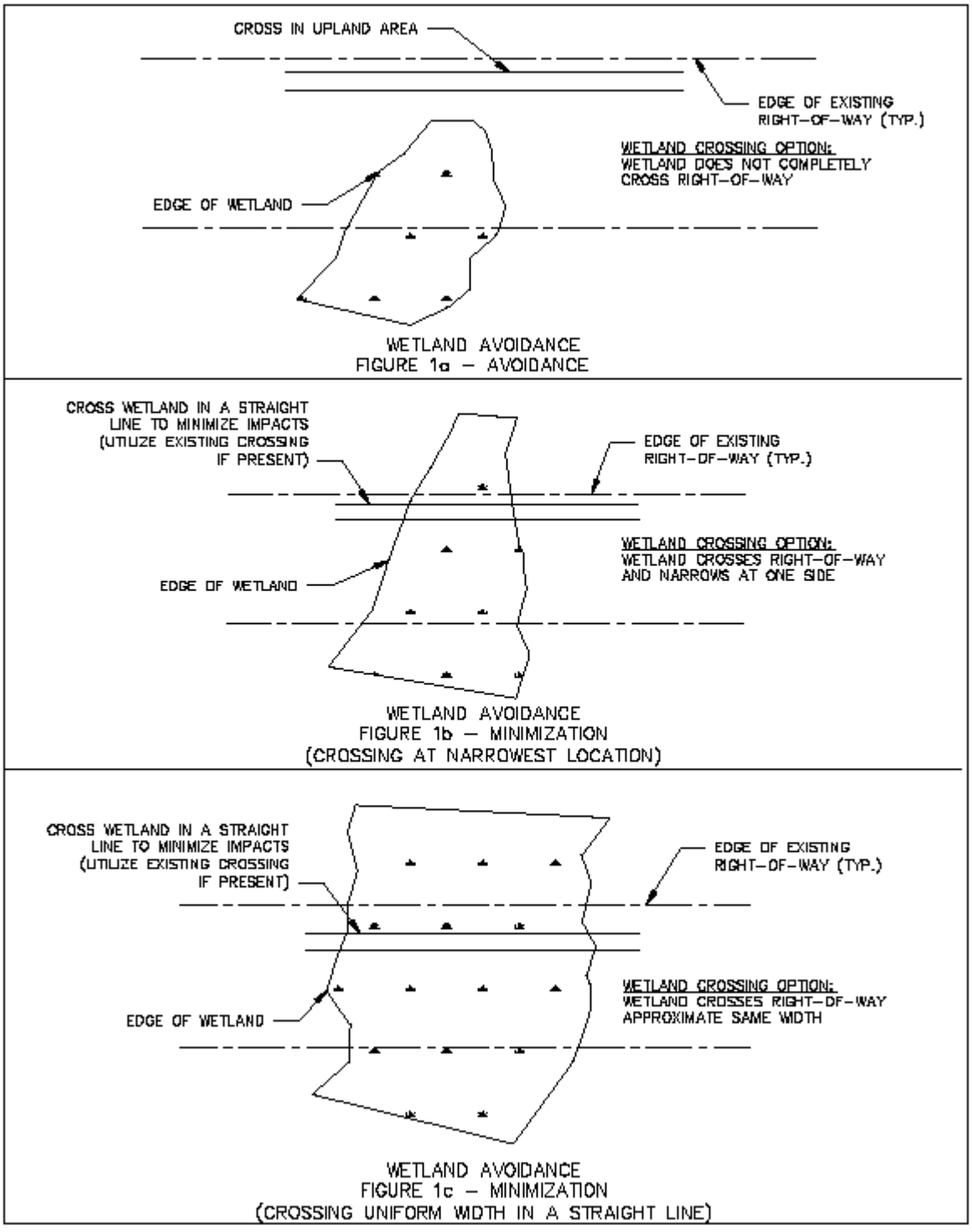
All new construction and maintenance projects shall follow clear and enforceable environmental performance standards, which is the purpose for which these BMPs have been compiled.

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.

- 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.


CROSS IN UPLAND AREA
EDGE OF EXISTING RIGHT-OF-WAY (TYP.)
WETLAND CROSSING OPTION:
WETLAND DOES NOT COMPLETELY CROSS RIGHT-OF-WAY
EDGE OF WETLAND
WETLAND AVOIDANCE
FIGURE 1a – AVOIDANCE
CROSS WETLAND IN A STRAIGHT LINE TO MINIMIZE IMPACTS (UTILIZE EXISTING CROSSING IF PRESENT)
EDGE OF EXISTING RIGHT-OF-WAY (TYP.)
WETLAND CROSSING OPTION:
WETLAND CROSSES RIGHT-OF-WAY AND NARROWS AT ONE SIDE
EDGE OF WETLAND
WETLAND AVOIDANCE
FIGURE 1b – MINIMIZATION
(CROSSING AT NARROWEST LOCATION)
CROSS WETLAND IN A STRAIGHT LINE TO MINIMIZE IMPACTS (UTILIZE EXISTING CROSSING IF PRESENT)
EDGE OF EXISTING RIGHT-OF-WAY (TYP.)
WETLAND CROSSING OPTION:
WETLAND CROSSES RIGHT-OF-WAY APPROXIMATE SAME WIDTH
EDGE OF WETLAND
WETLAND AVOIDANCE
FIGURE 1c – MINIMIZATION
(CROSSING UNIFORM WIDTH IN A STRAIGHT LINE)

Appı

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.

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

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

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

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

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

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

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 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

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 functioning[1]. 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.

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

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 requirements[2]. 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.

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

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.

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 another[3]. **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.

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:

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

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:

- 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.

ACOE New England District General Permit Requirements

State	Restrictions	Maximum PSI (when loaded) for Use without Mats	Reference
MA	*One of the following must apply:* 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	*One of the following must apply:* 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	*One of the following must apply:* 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	*One of the following must apply:* 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

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

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

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.

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

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.

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.

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.

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.

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.

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

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

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 stabilized[4] 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 clean[5] 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 another[6]. **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.

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

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

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

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 - **C**onstruction, 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.

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

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.

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

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.

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 now 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).

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

VT DEC	Vermont Department of Environmental Conservation
Zone II	Massachusetts Groundwater Protection district – see glossary

Appendix 3

See EG303NE_Appendix3_Reporting Form published separately

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:

Appendix 4 – BMPs

See EG303NE_Form1 for a list of BMPS

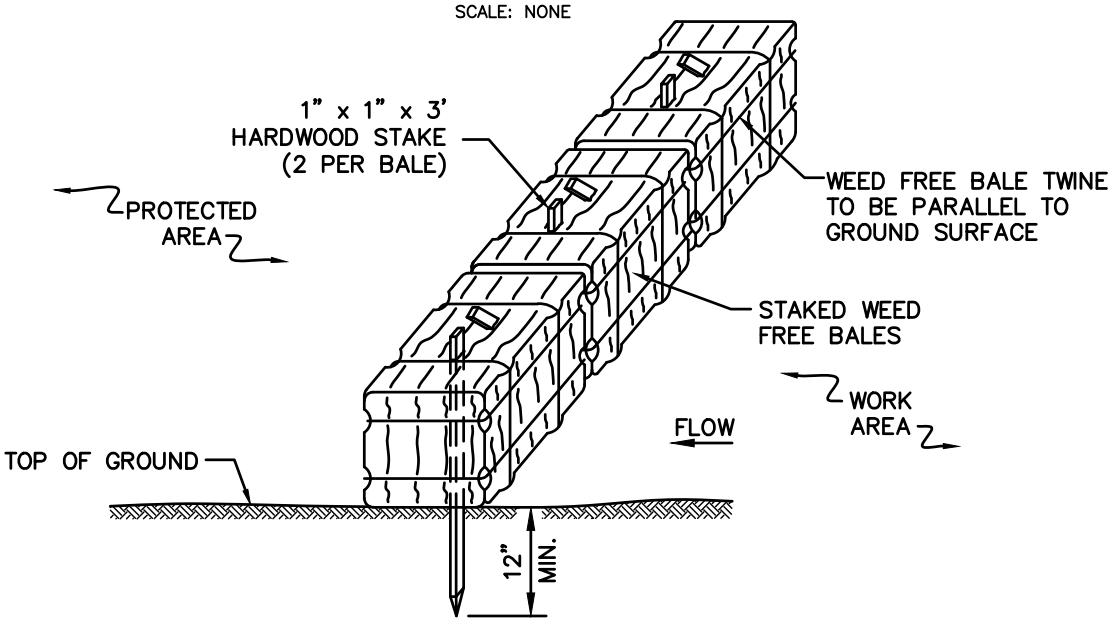
See EG303NE_Form2 for BMP details

	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

	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

BMP DETAIL

SCALE: NONE



NOTES:

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

BMP PICTURE



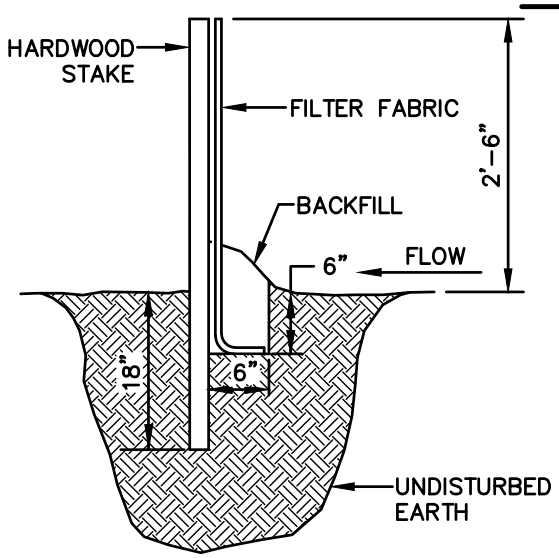
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SEC-1
WEED FREE BALE BARRIER

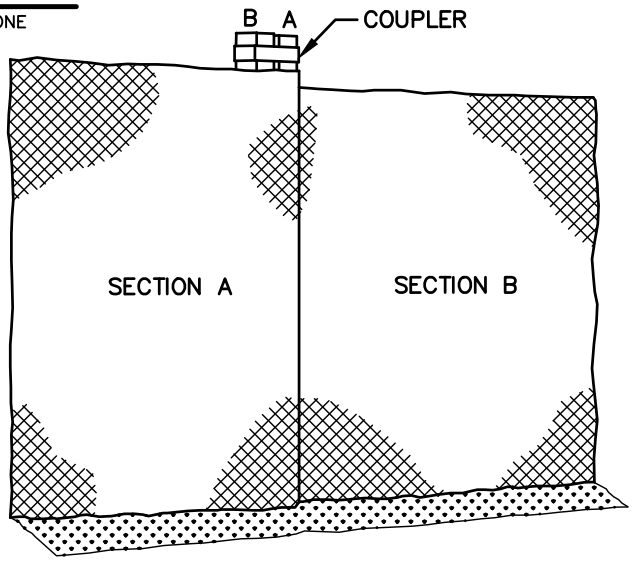
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BMP DETAIL

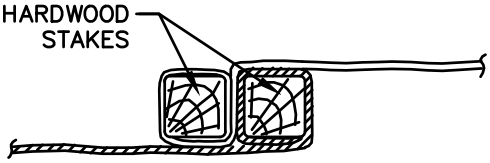
SCALE: NONE



PROFILE



SECTION



PLAN

BMP PICTURE

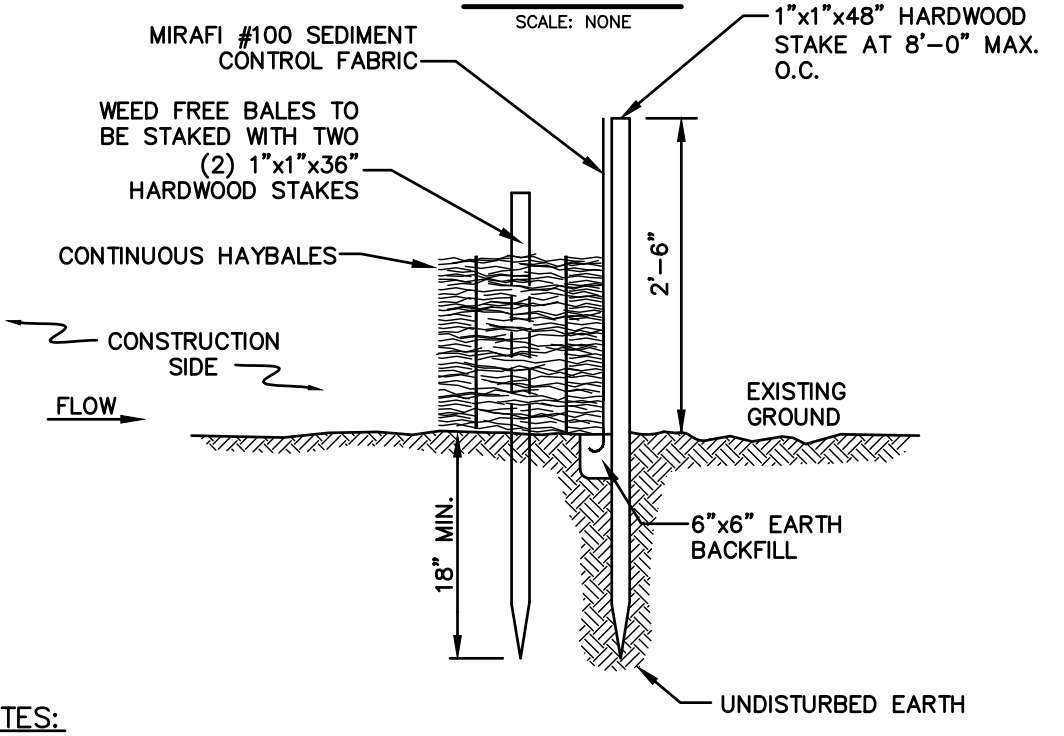


SEC-2
SEDIMENT CONTROL FENCE

File: Sediment_Fence.dwg

BMP DETAIL

SCALE: NONE



NOTES:

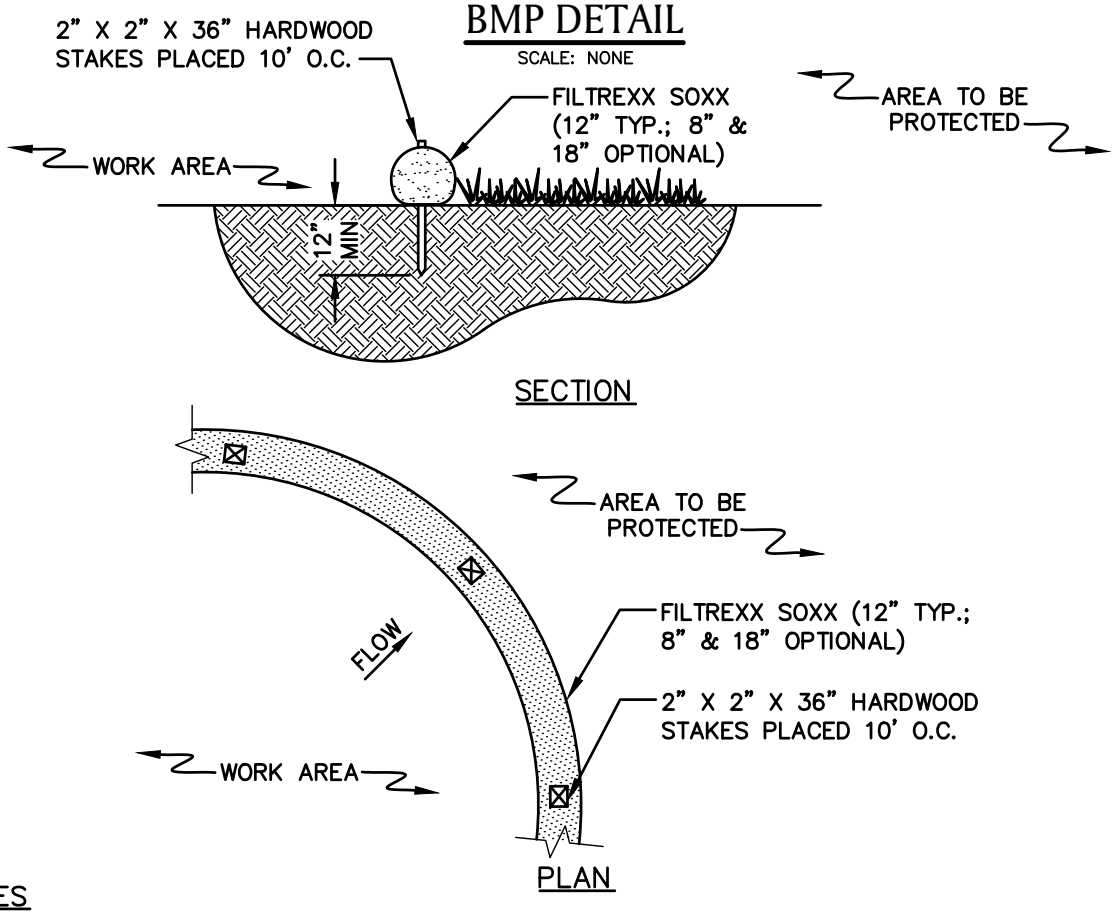
1. BALES SHALL BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY TWO (2) 1"X1"X36" HARDWOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
3. INSPECTION 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.

BMP PICTURE



BMP DETAIL

SCALE: NONE



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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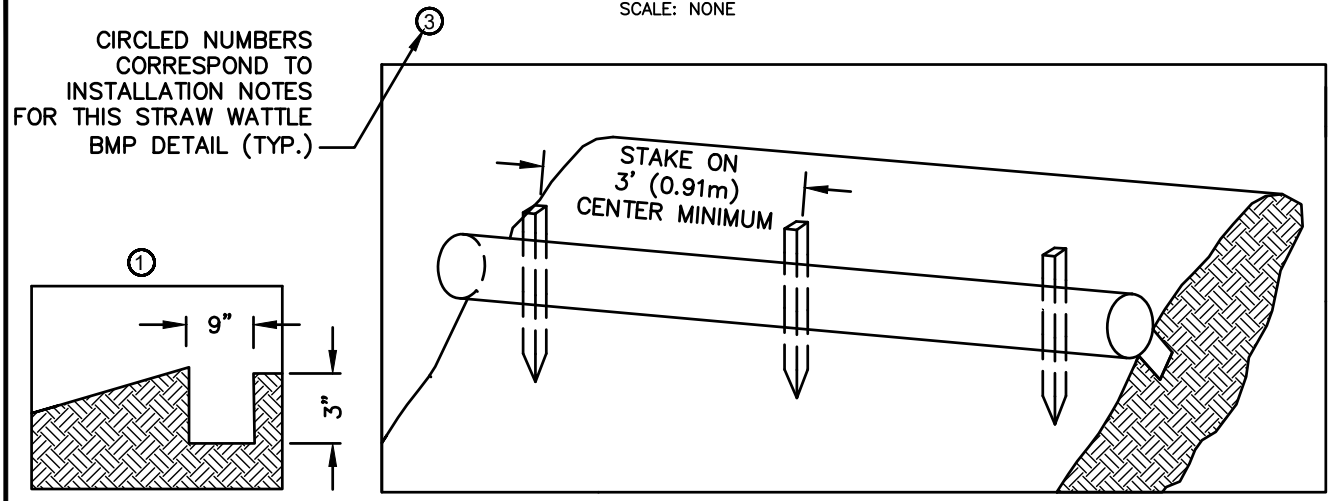
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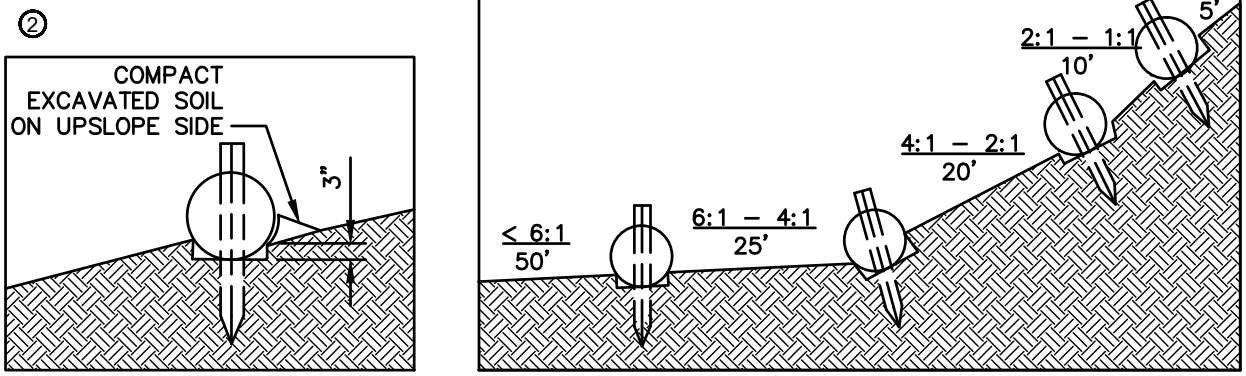
SEC-4
SILT SOXX *

File: SiltSOXX.dwg

BMP DETAIL

SCALE: NONE





TYPICAL WATTLE SPACING DETAIL

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)

File: Straw_Wattle.dwg

BMP PICTURE



STRAW WATTLE – SHALLOW SLOPE (≤4:1)
(ALTERNATE STAKING)

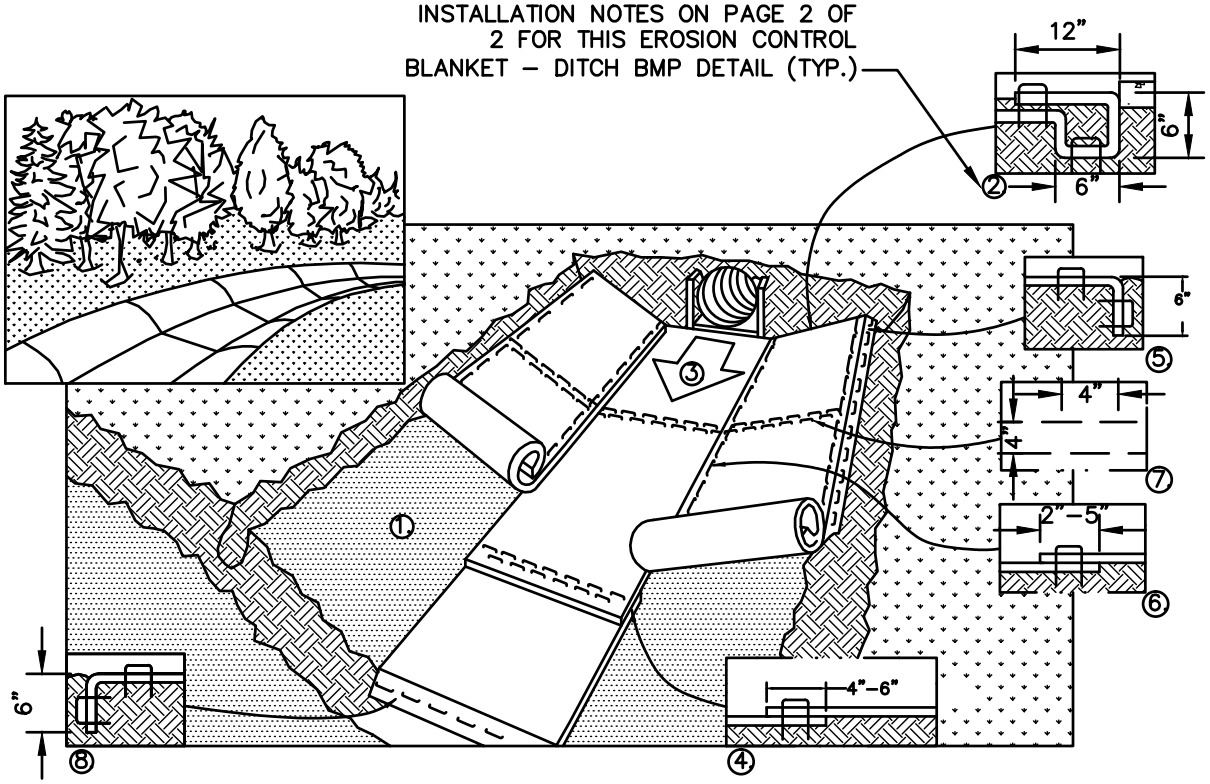
ALTERNATE STAKING INSTALLATION NOTES:

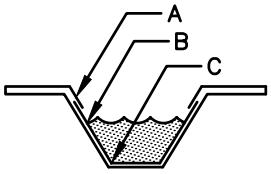
1. ON SHALLOW SLOPES (≤4:1), STRAW WATTLE MAY BE SECURED WITH 18–24" HARDWOOD STAKES DRIVEN AGAINST THE SIDES OF THE WATTLE INSTEAD OF THROUGH. STAKES SHALL ALTERNATE SIDES, AND BE SPACED 3–4' MAX.
2. TWINE SHALL BE TIED FROM STAKE TO STAKE, CRISS–CROSSING THE STRAW WATTLE. TIE TWINE TO STAKES BELOW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

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).

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 COMAPCT 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



*** PICTURE AND DETAIL PROVIDED BY TENSAR NORTH AMERICAN GREEN**
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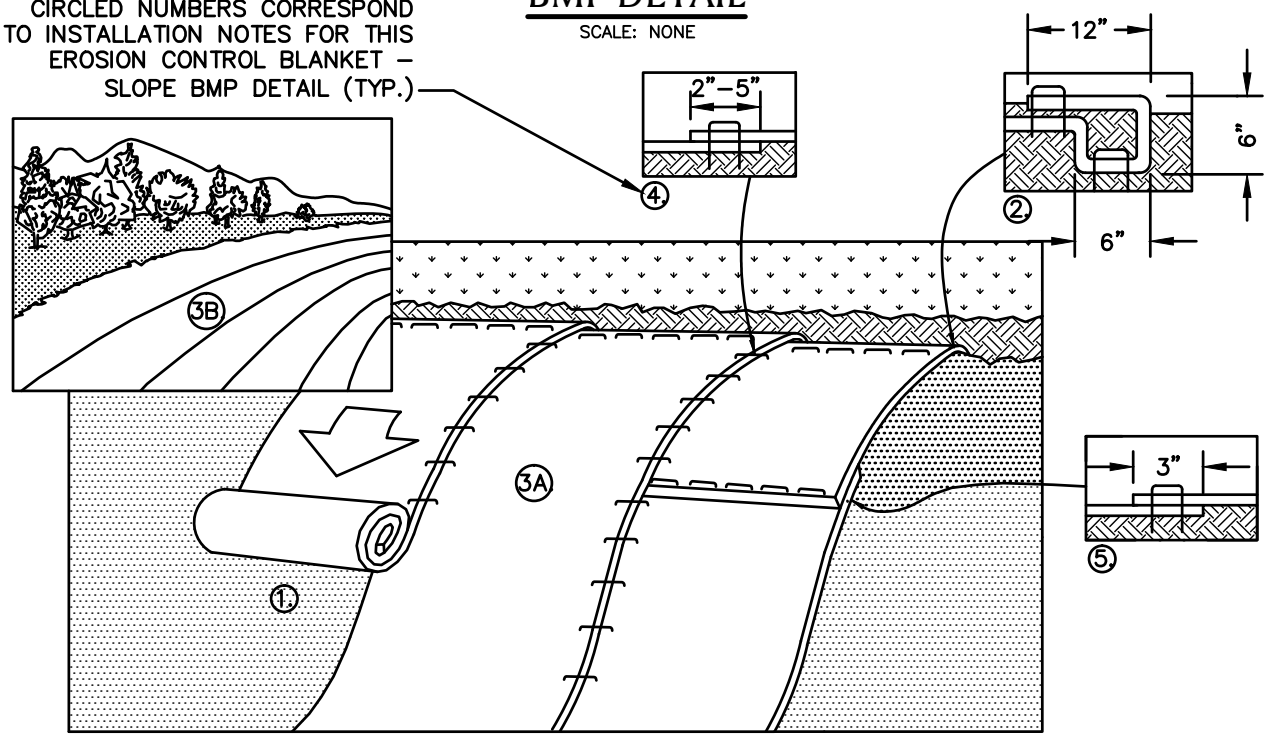
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SEC-6
EROSION CONTROL BLANKET - DITCH * (2 OF 2)

File: Erosion_Blanket_Ditch.dwg

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.

*** PICTURE AND DETAIL PROVIDED BY TENSAR NORTH AMERICAN GREEN**

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

File: Erosion_Blanket_Slope.dwg

BMP PICTURE



File: Erosion_Blanket_Slope.dwg

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

BMP PICTURE



NOTES:

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) *

File: Hydroseeding.dwg

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/29066.html

SEC-9
MULCH MATERIALS, RATES AND USES (FROM NY) *

File: Mulch_Materials.dwg

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 fasciculate; Partridge Pea
- Desmodium canadense; Showy Tick Trefoil
- Helioposis 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 gracillis; Blue Grama
- Lolium multiflorum; Annual Ryegrass
- Lolium perenne; Perennial Ryegrass
- Agrostics 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).

WETLAND ROW RESTORATION MIX

Species 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
- Verbene hastate; Blue Vervain
- Juncus effusus; Soft Rush
- Scirpus cyperinus; Wool Grass
- Panicum clandestinum; Deertongue

Example Seed Mixes

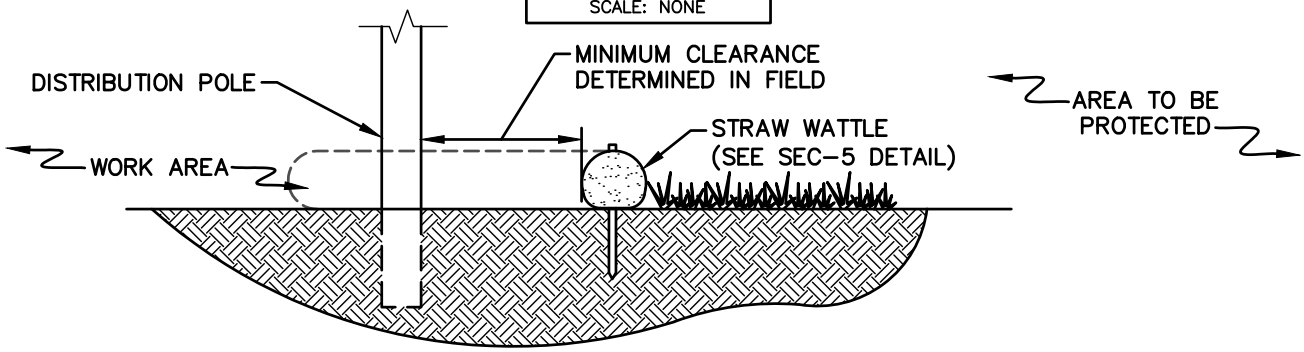
1. New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites – New England Wetland Plants, Inc.
2. Northeast Wetland Grass Seed Mix – Southern Tier Consulting (STCMX–7)
3. Ernst Conservation Seeds and similar companies can create a custom seed mix matching the composition above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

GERNERAL NOTES:

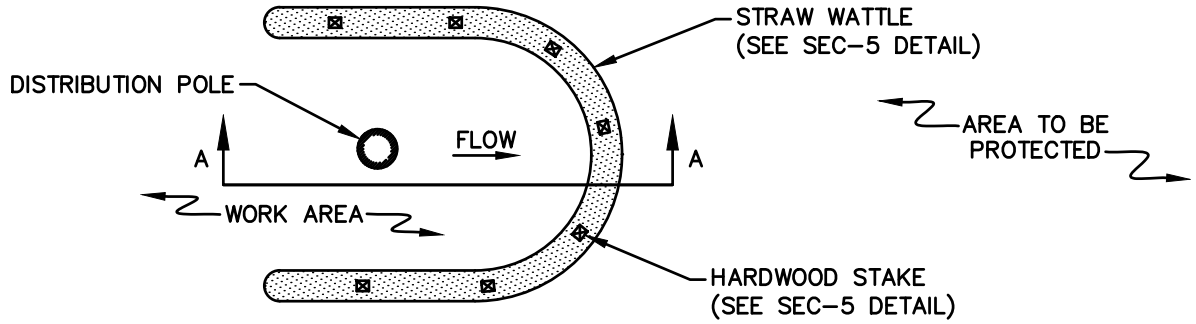
1. Seed mixes described herein are intended to cover a variety of typical new england landscapes. However, site specific seed mixes will need to be evaluated in coastal or mountainous regions.
2. Seed mixes described herein are intended for general ROW restoration. Site specific wetland seed mixes may 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.

BMP DETAIL

SCALE: NONE



SECTION A–A



PLAN

NOTES

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

BMP PICTURE

SCALE: NONE

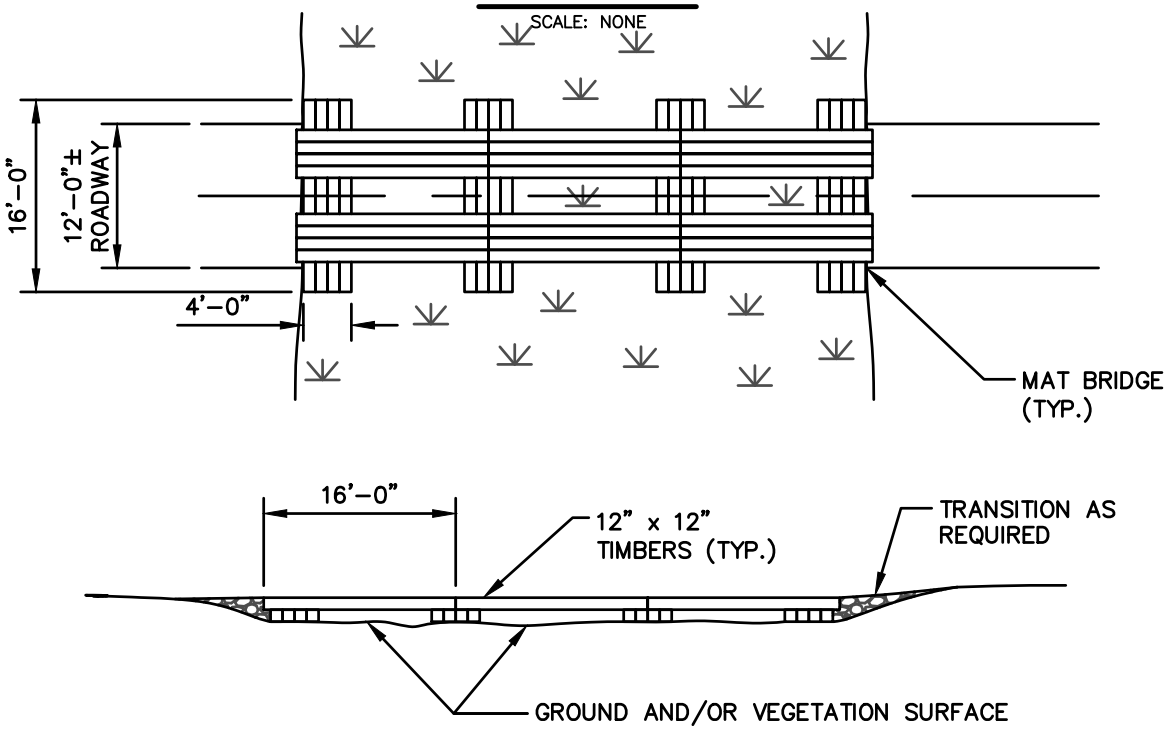


NOTES:

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.

BMP DETAIL

SCALE: NONE



NOTES:

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

BMP PICTURE



CM-2
CONSTRUCTION MAT BRIDGE
(1 OF 2)

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File: Mat_Bridge.dwg

BMP PICTURE - SINGLE SPAN

SCALE: NONE





NOTES:

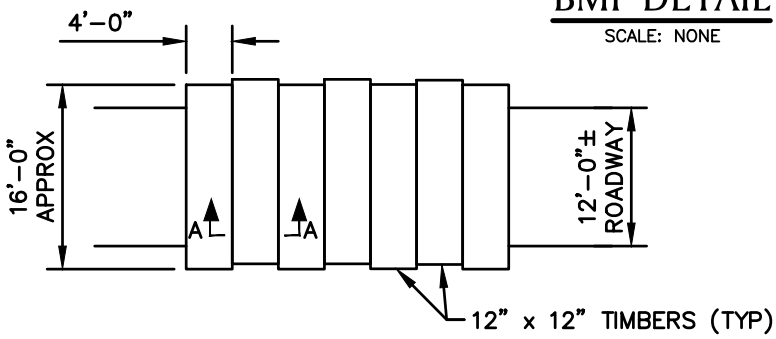
1. WHERE STREAM WIDTH ALLOWS, INSTALL CONSTRUCTION MATS TO SPAN THE WATERCOURSE IN ITS ENTIRETY WITHOUT STRINGER PLACEMENT IN THE WATER OR ANY RESTRICTION OF STREAM FLOW.

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.

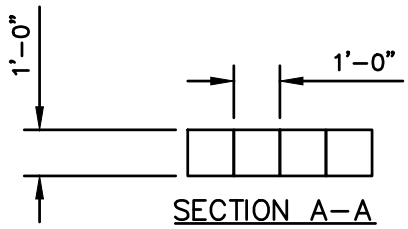
3. AT STREAM CROSSINGS THAT CANNOT BE SPANNED BY A SINGLE SECTION OF CONSTRUCTION MATTING, AND WHERE PERMITS ALLOW, STRINGERS SHALL BE PLACED ATOP THE STREAM BED PARALLEL TO THE FLOW OF WATER.

BMP DETAIL

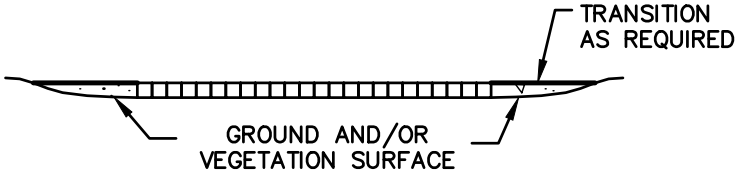
SCALE: NONE



TYPICAL PLAN VIEW



SECTION A–A
TYPICAL MAT SECTION
BOLTED TOGETHER



TYPICAL SECTION VIEW

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



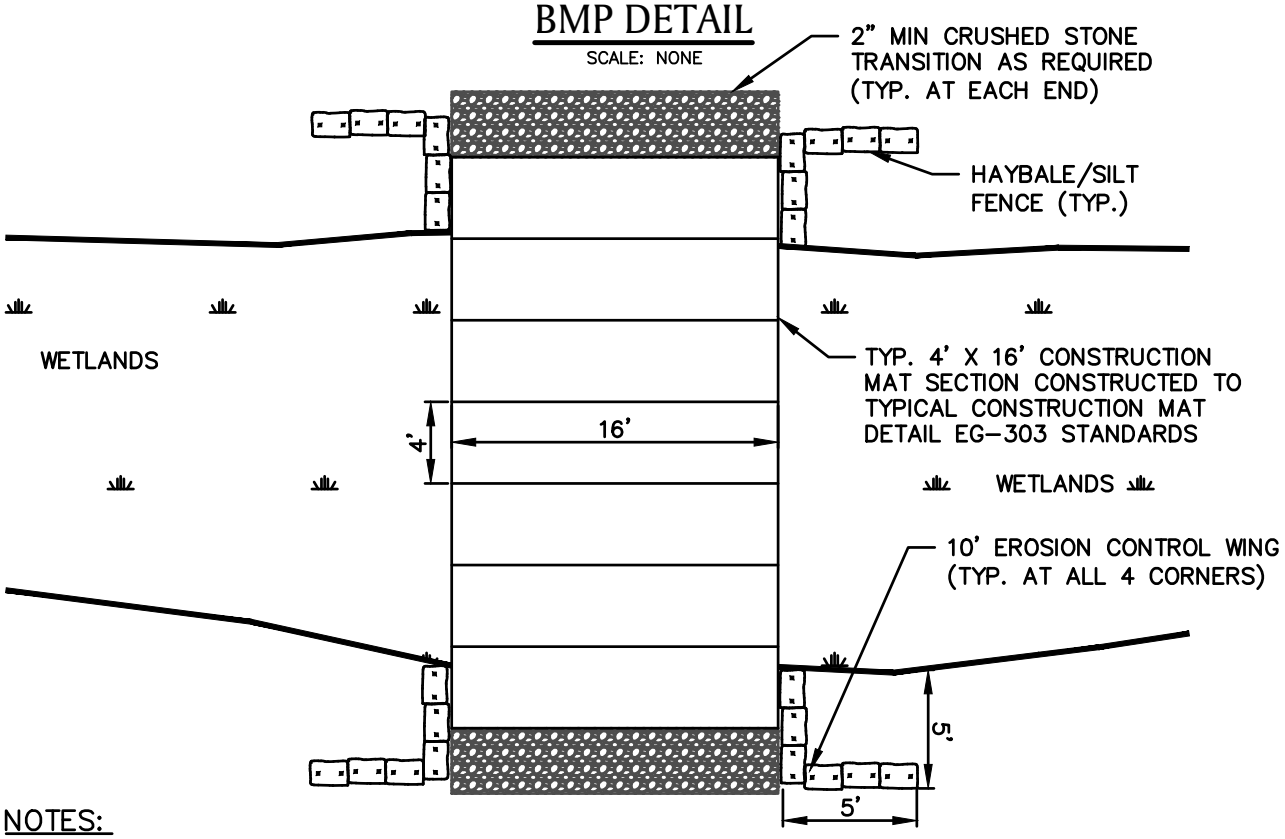
CM-3
CONSTRUCTION MAT LAYOUT
(WITH TRANSITION)

APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES
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File: Swamp_Mat_Layout.dwg

BMP DETAIL

SCALE: NONE



NOTES:

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

BMP PICTURE



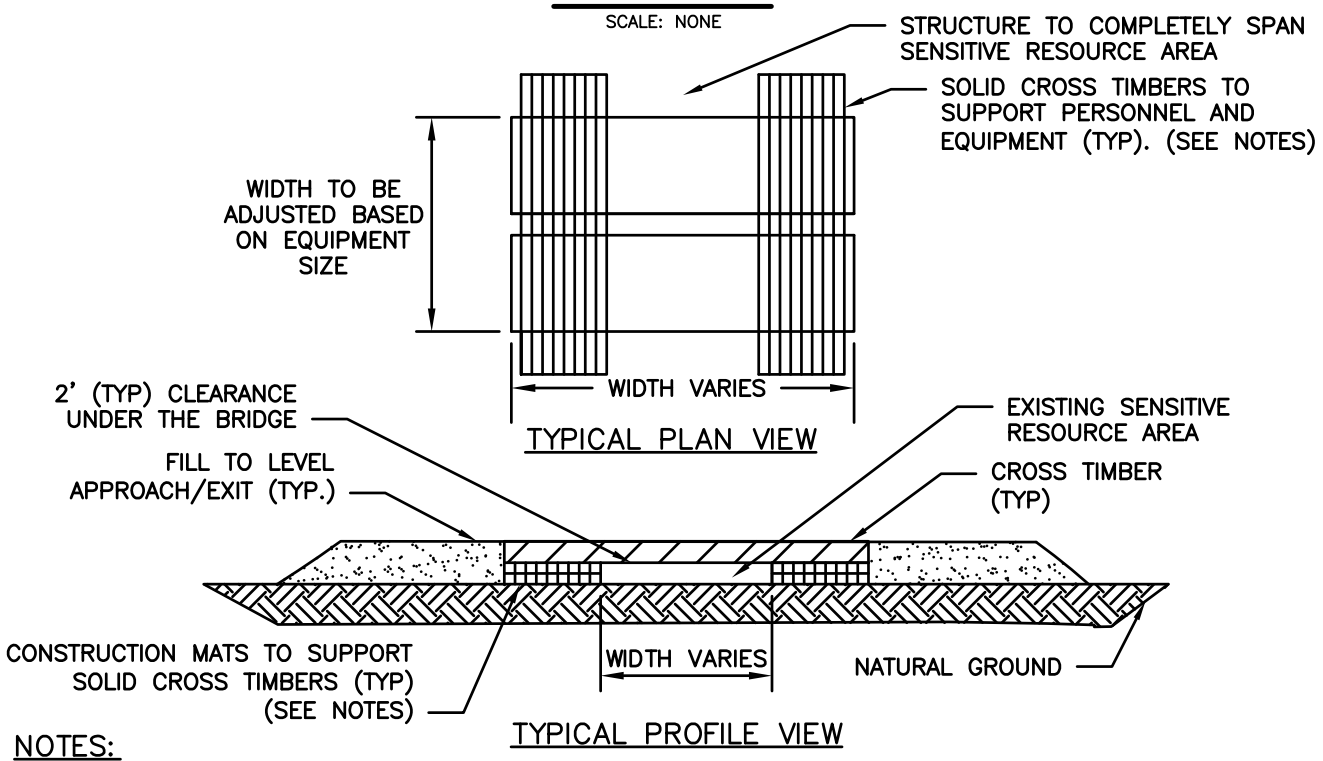
CM-4
CONSTRUCTION MAT LAYOUT
(WITH TRANSITION AND BMPs)

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File: Swamp_Mat_Transition and BMPs.dwg

BMP DETAIL

SCALE: NONE



NOTES:

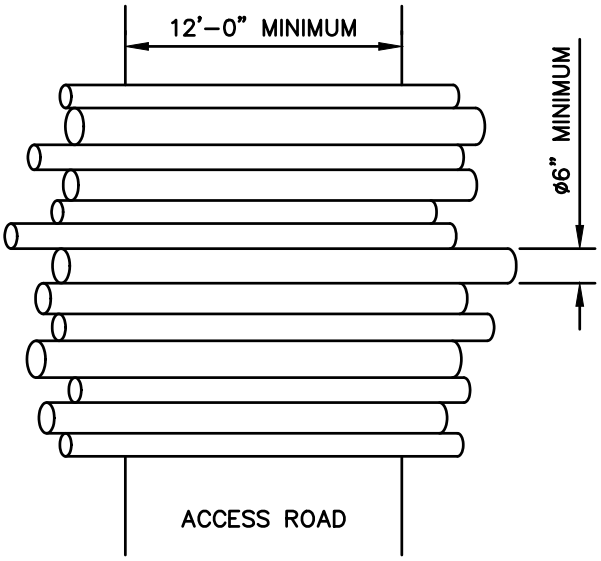
1. THE DETAIL SHOWN IS CONCEPTUAL. CONSTRUCTION MATS AND CROSS TIMBERS SHALL BE SIZED AND SELECTED BASED ON SPAN WIDTH, CROSSING EQUIPMENT AND FIELD CONDITIONS.
2. THE NUMBER OF CONSTRUCTION MATS MAY VARY DEPENDING ON THE CLEARANCE HEIGHT.
3. EQUIPMENT AND PERSONNEL LOAD SHALL BE DISTRIBUTED ON ALL TIMBERS.
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



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.

BMP PICTURE

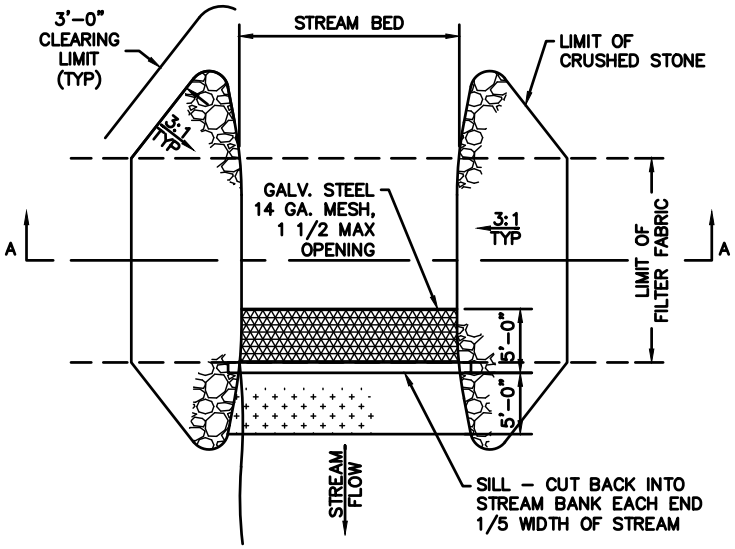


CM-6
CORDUROY ROAD

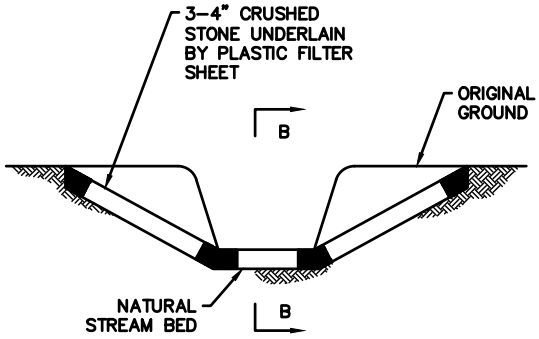
File: Corduroy_Road.dwg

BMP DETAIL

SCALE: NONE



PLAN VIEW



SECTION 'A-A'

BMP PICTURE





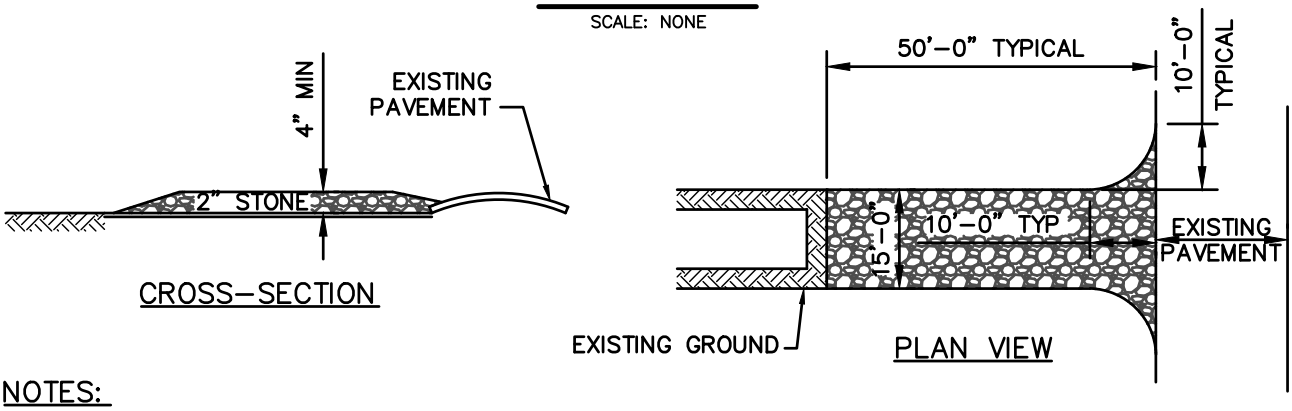
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CM-7
ROCK FORD

File: Rock_Ford.dwg

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

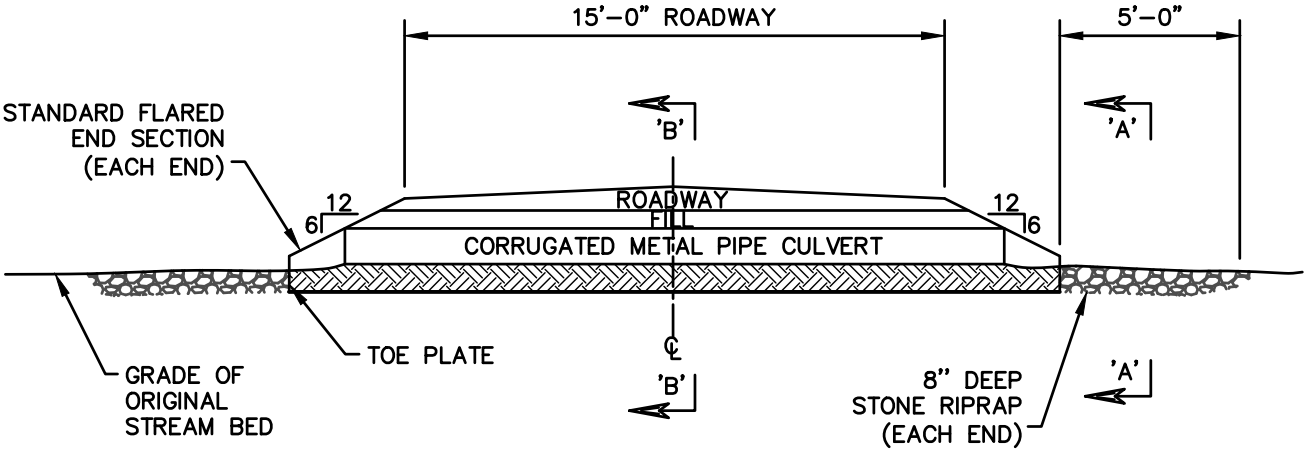


CM-8
TEMPORARY CONSTRUCTION ENTRANCE/ EXIT

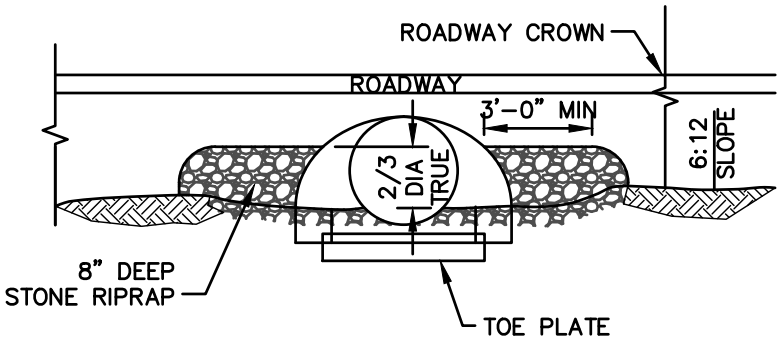
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BMP DETAIL

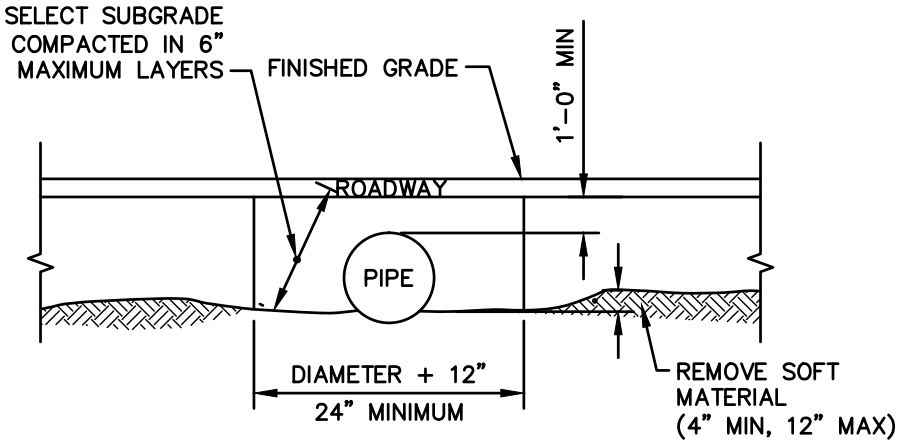
SCALE: NONE



CROSS SECTION



SECTION 'A–A'
(SAME BOTH ENDS)



SECTION 'B–B'

CM-9
TEMPORARY CONSTRUCTION
CULVERT (1 OF 2)

File: Temp_Constr_Culvert.dwg

BMP DETAIL

SCALE: NONE

NOTES:

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



BMP PICTURE



NOTE:

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

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

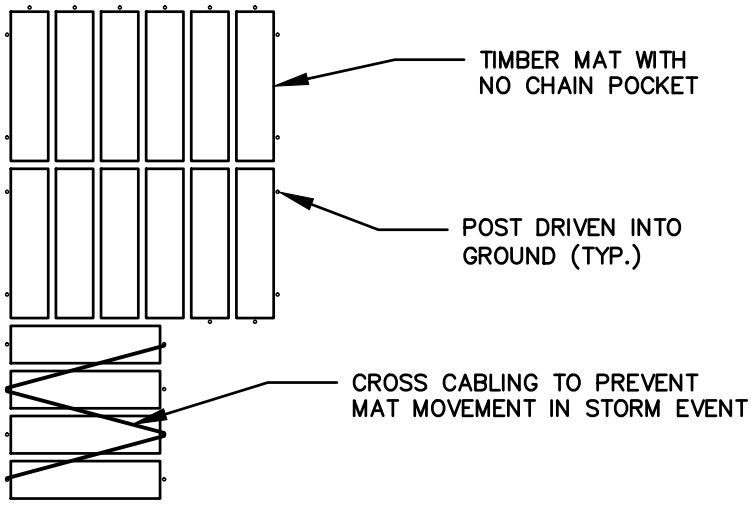




APPROVED ACCESS

BMP DETAIL 1

SCALE: NONE



TYPICAL PLAN VIEW

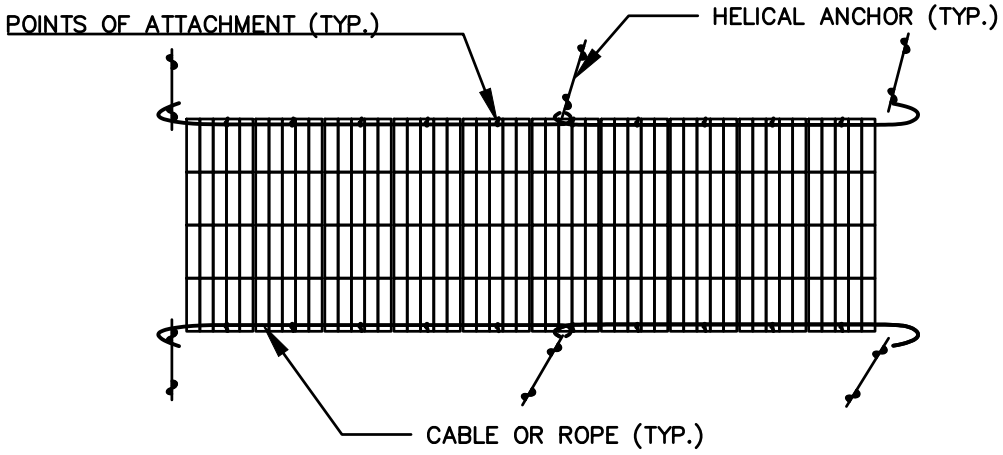
NOTES:

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 2

NOTES:

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.



BMP PICTURE 1



BMP PICTURE 2



CM-12
EXAMPLE OF CONSTRUCTION MAT ANCHORING (2 OF 2)

File: Const_Mat_Anchoring.dwg

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.

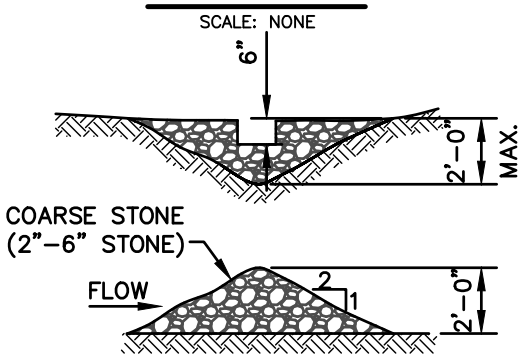
BMP PICTURE



NOTE:

1. PICTURE SHOWS SEDIMENT FILTER WITHIN A WETLAND.

BMP DETAIL



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.

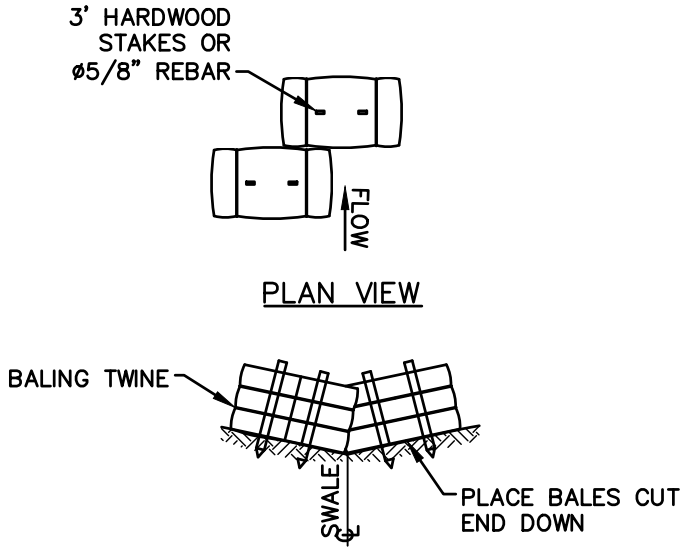
BMP PICTURE



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

BMP DETAIL

SCALE: NONE



NOTES:

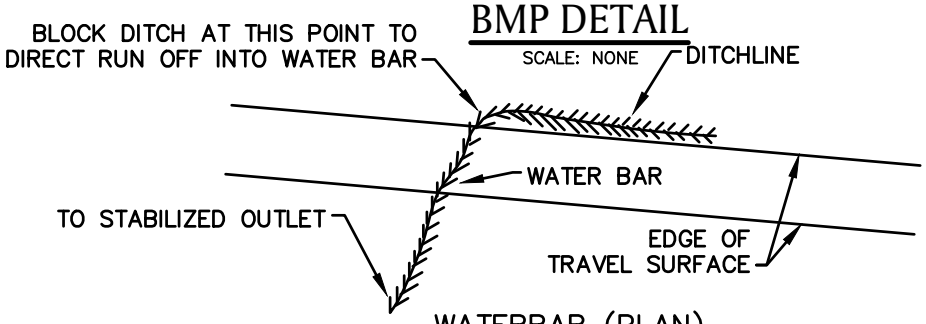
1. USE CHECK DAMS TO SLOW WATER FLOWS AND AS SMALL SEDIMENT TRAPS IN DITCHES ALONG ACCESS ROADS.
2. CLEAN SEDIMENT AND REPLACE DAMS AS NECESSARY.
3. COORDINATE SPACING WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP PICTURE

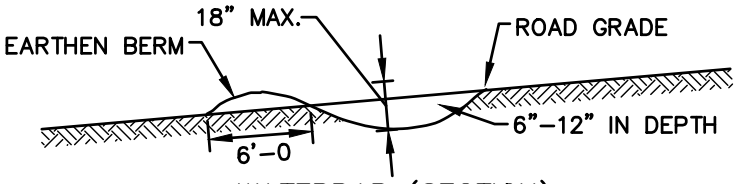


BMP DETAIL

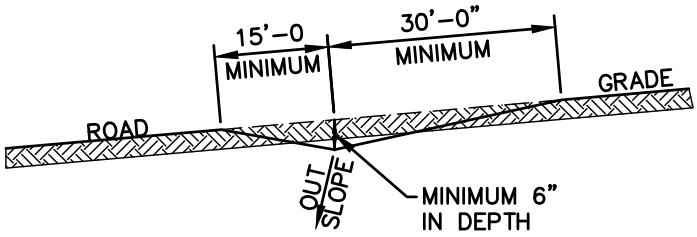
SCALE: NONE



WATERBAR (PLAN)



WATERBAR (SECTION)



DISCHARGE (SECTION)

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.

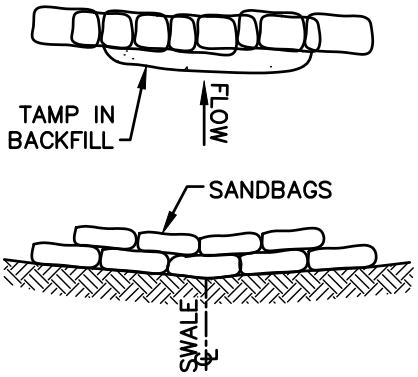
BMP PICTURE





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"

BMP PICTURE

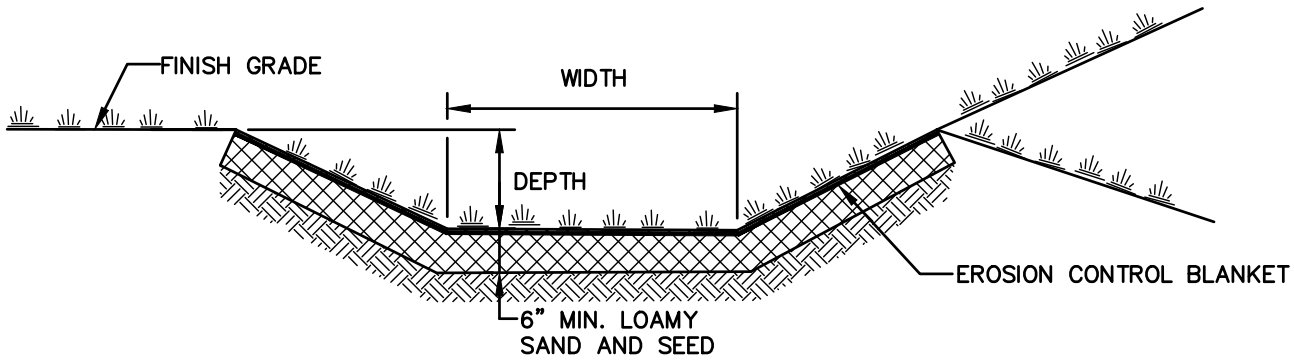


NOTE:

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.

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

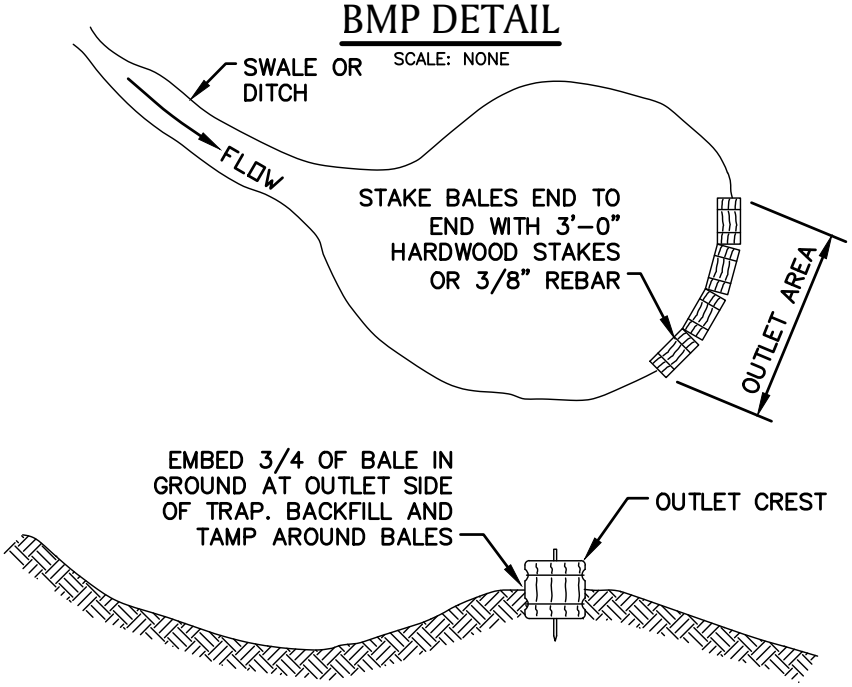


AA-8
DRAINAGE SWALE AND
LINED DITCH

File: Lined_Drainage_Swale.dwg

BMP DETAIL

SCALE: NONE



TYPICAL PROFILE

NOTES

1. SIZE, SHAPE AND PROFILE OF SEDIMENT WILL VARY ACCORDING TO ANTICIPATED FLOW VOLUME AND SURROUNDING TERRAIN AND SHALL BE COORDIANTED 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.

BMP PICTURE

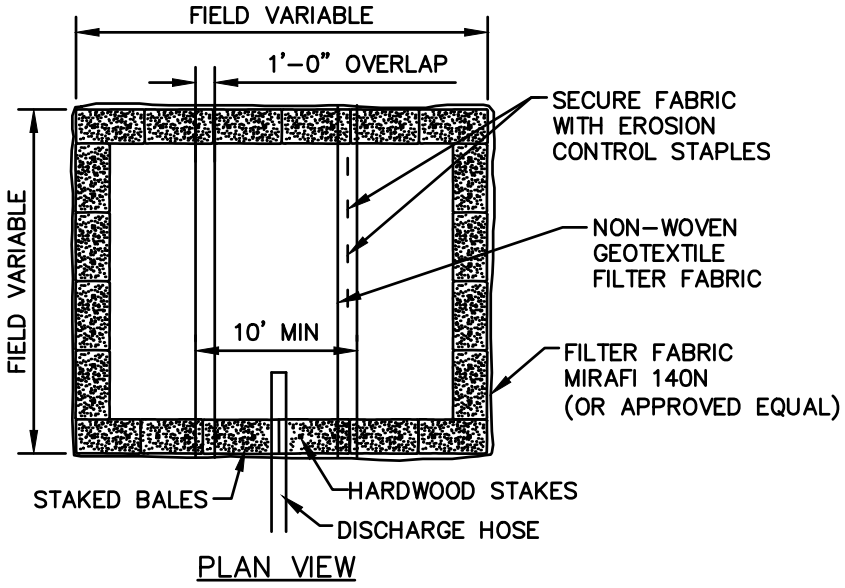


AA-9
SEDIMENTATION BASIN

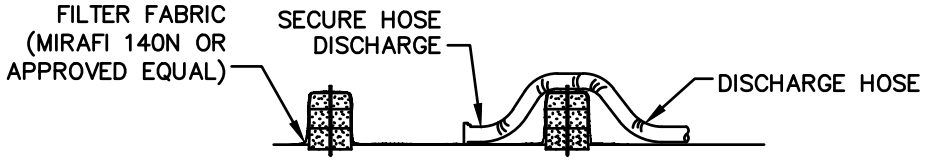
File: Sedimentation_Basin.dwg

BMP DETAIL

SCALE: NONE



PLAN VIEW



CROSS–SECTION

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.

BMP PICTURE



AA-10
DEWATERING BASIN
(SMALL SCALE)

File: Dewat_Bas_Small.dwg

BMP PICTURE

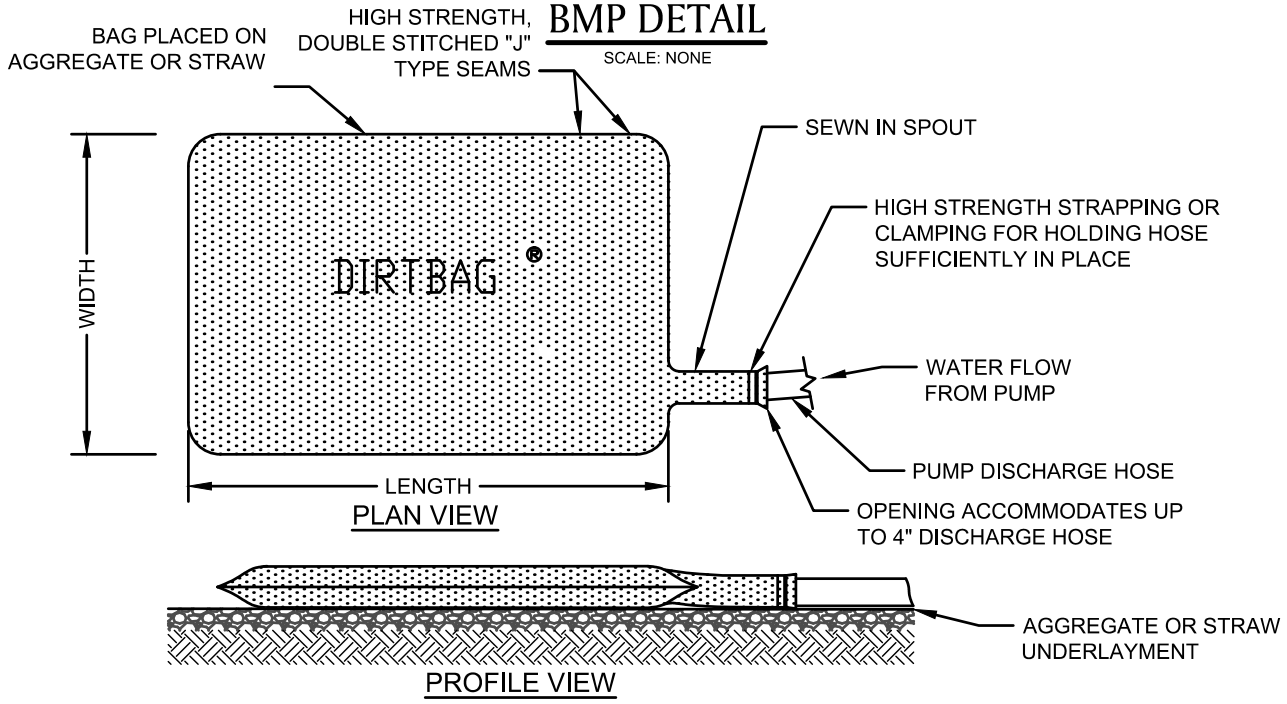


NOTE:

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.

BMP DETAIL

SCALE: NONE



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



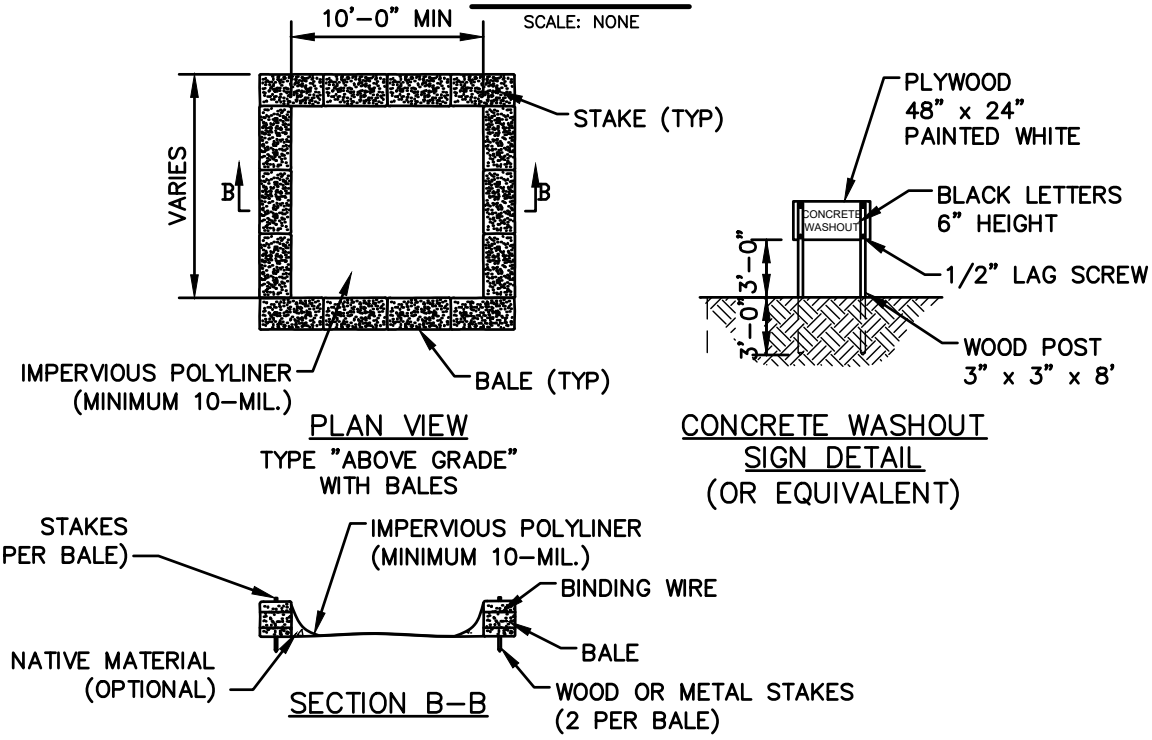
* PICTURE AND DETAIL PROVIDED BY ACF ENVIRONMENTAL

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AA-12
DIRTBAG *

File: Dirtbag.dwg

BMP DETAIL



NOTES:

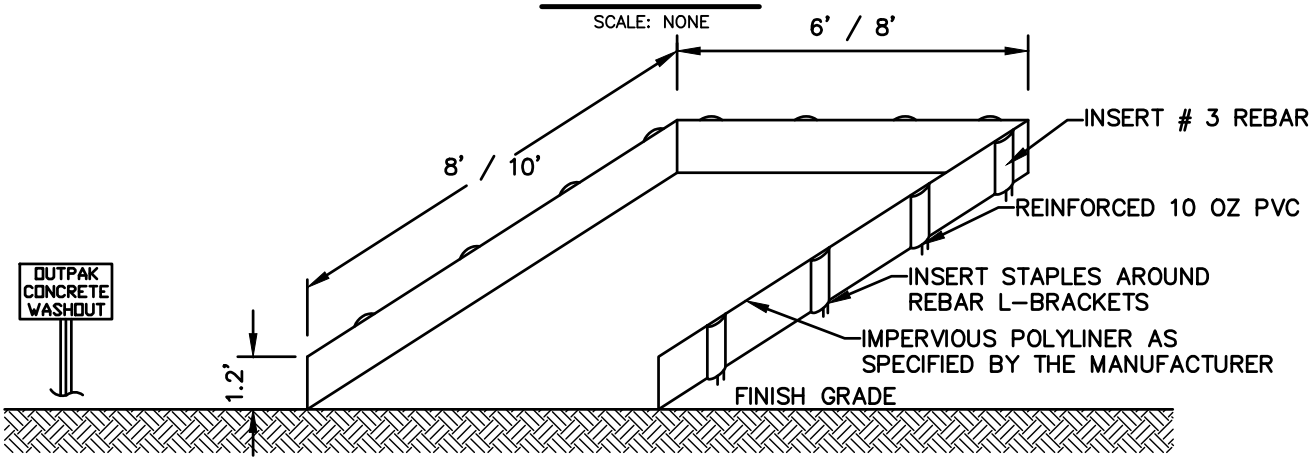
1. NUMBER OF BALES MAY VARY DEPENDING ON SITE CONDITIONS. COORDINATE SIZE AND LOCATION OF CONCRETE WASTE SUMP WITH NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. KEEP AS FAR FROM DRAINAGE CHANNELS AND WETLAND AREAS AS PRACTICAL.
3. SUMPS TO BE CLEANED AND WASTE CONCRETE REMOVED AND PROPERLY DISPOSED OF UPON COMPLETION OF WORK.
4. SEE ADDITIONAL NOTES ON DETAIL AA–14.

BMP PICTURE



BMP DETAIL

SCALE: NONE



CROSS SECTION

NOTES:

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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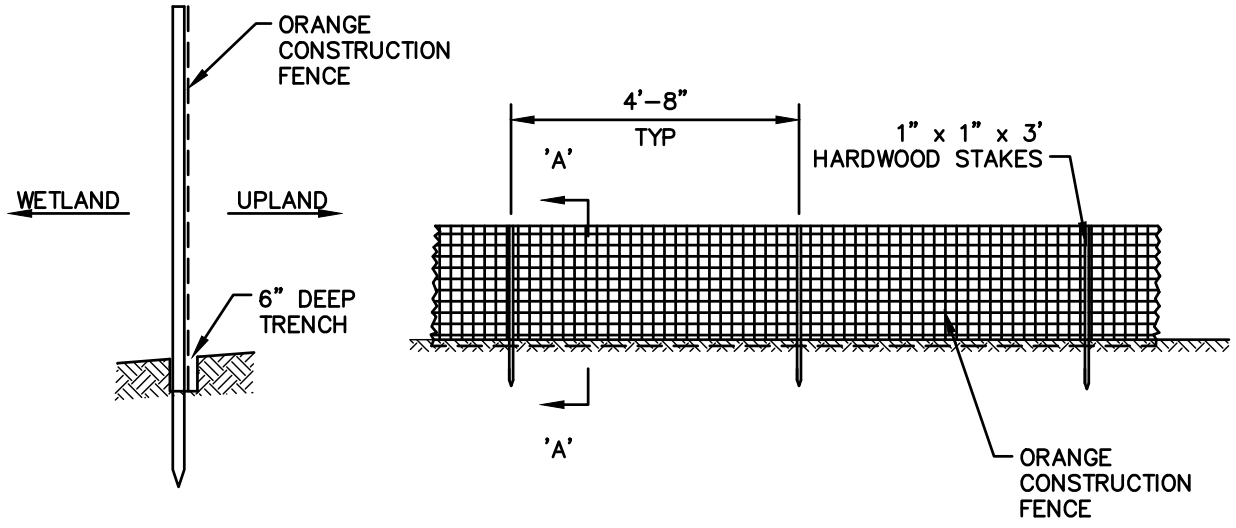
AA-14

OUTPAK CONCRETE WASHOUT *

File: Outpak_Washout.dwg

BMP DETAIL

SCALE: NONE



SECTION A-A

BMP PICTURE



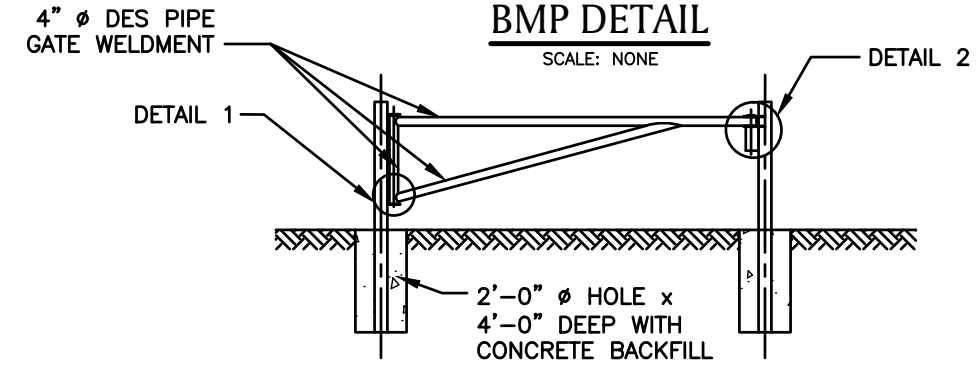
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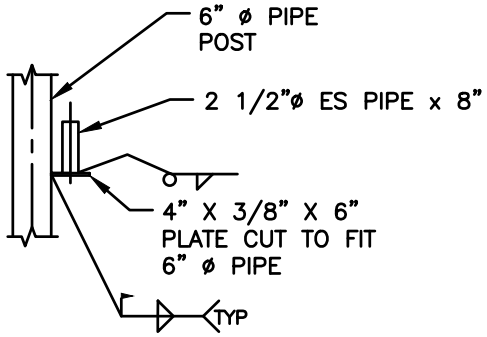
AA-15
BARRIER FENCE
(CONSTRUCTION FENCE)

File: Barrier_Fence.dwg

BMP DETAIL

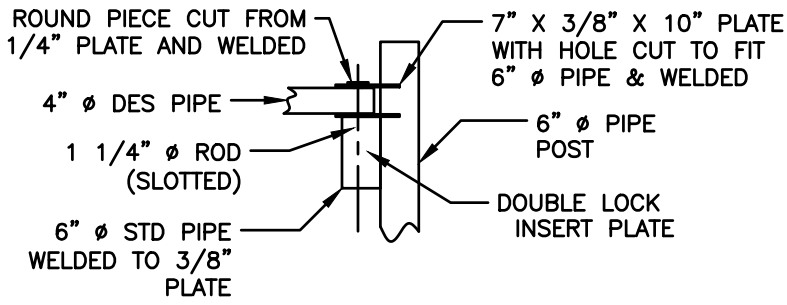
SCALE: NONE





DETAIL 1

SIMILAR DETAIL AT TOP



DETAIL 2

NOTES:

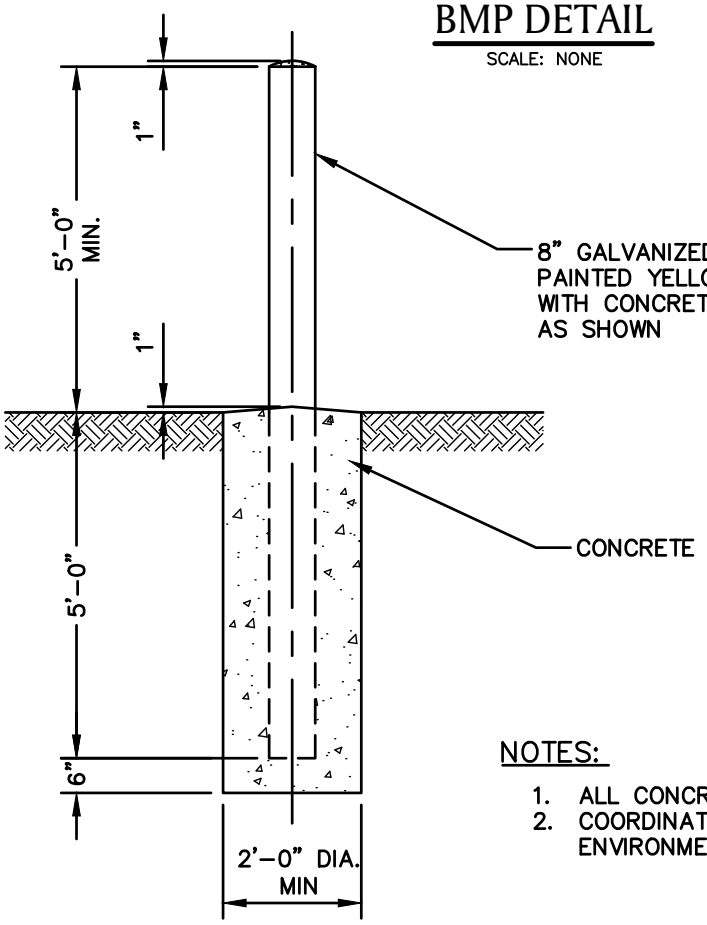
1. ALL GATE STEEL PIPES SHALL BE IN ACCORDANCE WITH ASTM A–501, PLATES SHALL BE ASTM A–36.
2. ALL STEEL PIPES SHALL BE PRIMED WITH ZINC–CHROMATE PRIMER AND FINISHED WITH AN APPROVED OSHA "SAFETY YELLOW" TOP COAT COMPATIBLE WITH THE PRIMER AND FOR EXTERIOR EXPOSURE.
3. REFLECTORS SHALL BE SPACED AT 3 FEET ALONG THE LENGTH OF THE CROSSBAR AND BRACE
4. BACKFILL AT POSTS TO BE COMPACTED.

BMP PICTURE



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



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.

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.

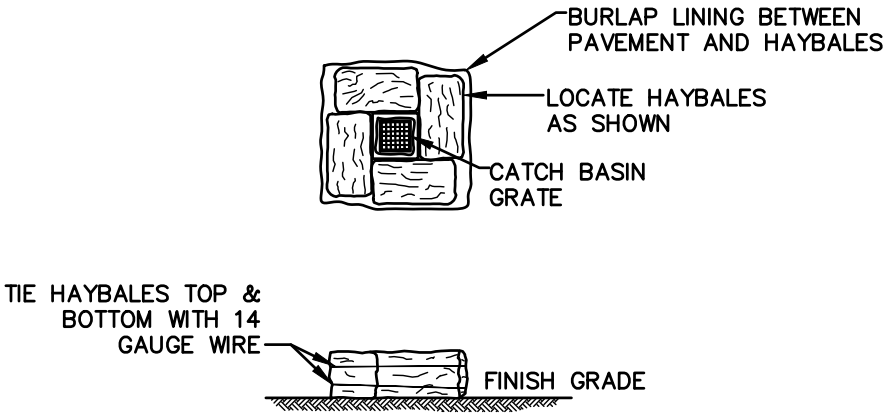
* BMP INFORMATION FROM "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (AUGUST, 2005)." INFORMATION OBTAINED VIA WEBSITE: http://www.dec.ny.gov/chemical/29066.html

AA-18
DUST CONTROL (FROM NY) *

File: Dust_Control.dwg

BMP DETAIL

SCALE: NONE



NOTES:

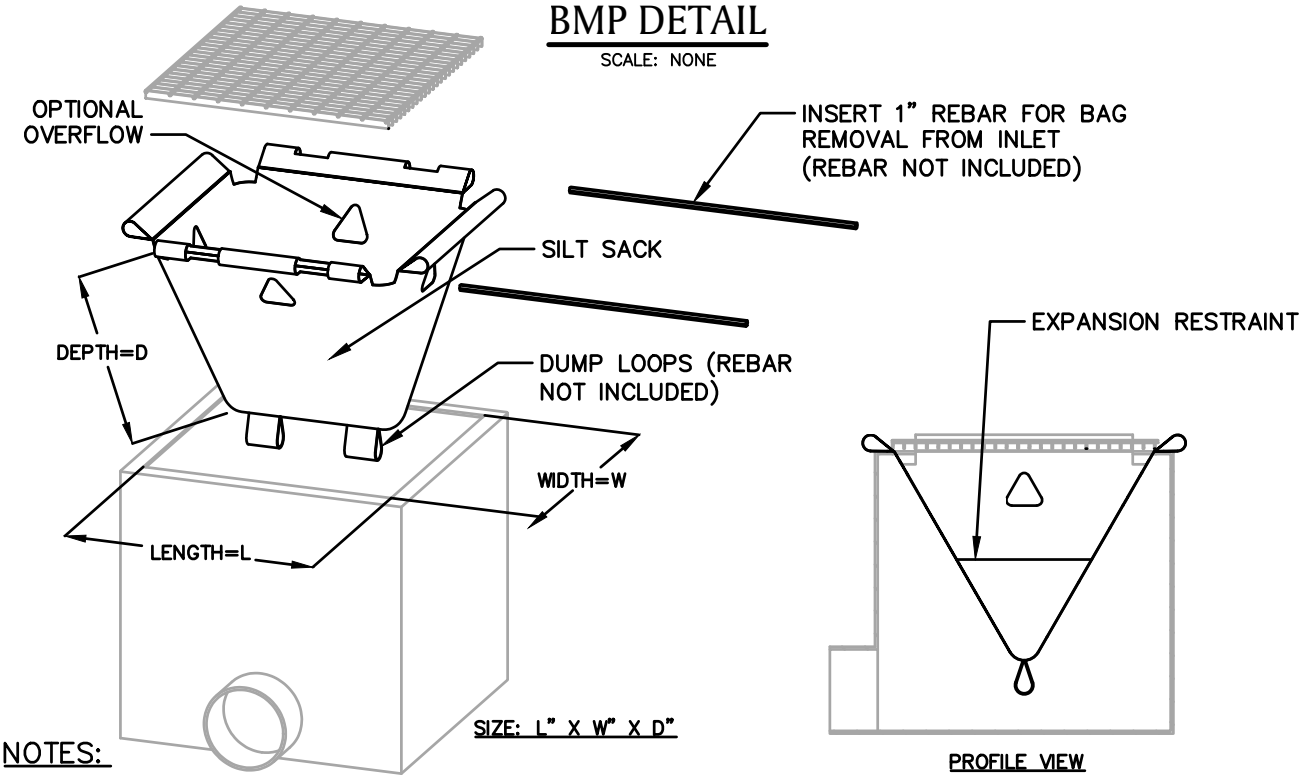
1. SURROUND STREET DRAINAGE STRUCTURE INLET WITH HAY BALES PRIOR TO CONSTRUCTION AND MAINTAIN UNTIL CONSTRUCTION IS COMPLETED. ACCUMULATED SEDIMENTS SHALL BE REMOVED.
2. HAYBALES PLACED ON PAVEMENT SHALL HAVE BURLAP PLACED BETWEEN PAVEMENT AND HAYBALE

BMP PICTURE



BMP DETAIL

SCALE: NONE



NOTES:

1. PRODUCT TO BE SILT SACK OR APPROVED EQUAL BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
2. THE USE OF A SILT SACK OPTIONAL OVERFLOW AND OVERALL DIMENSIONS ARE TO BE COORDINATED WITH A NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP PICTURE



*** DETAIL PROVIDED BY ACF ENVIRONMENTAL**

APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES

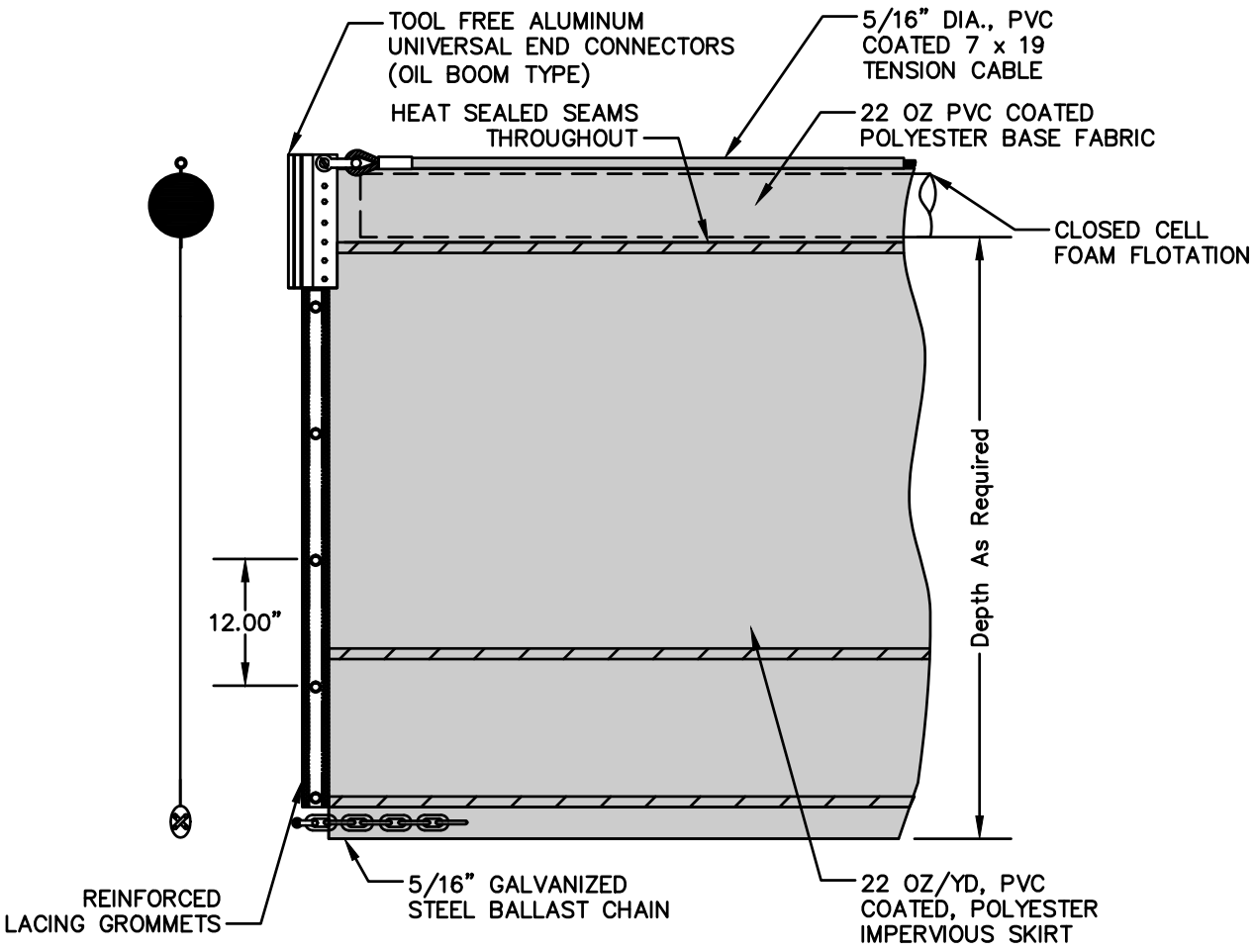
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AA-20
SILT SACK *

File: SILT SACK.dwg

BMP DETAIL

SCALE: NONE



BMP PICTURE



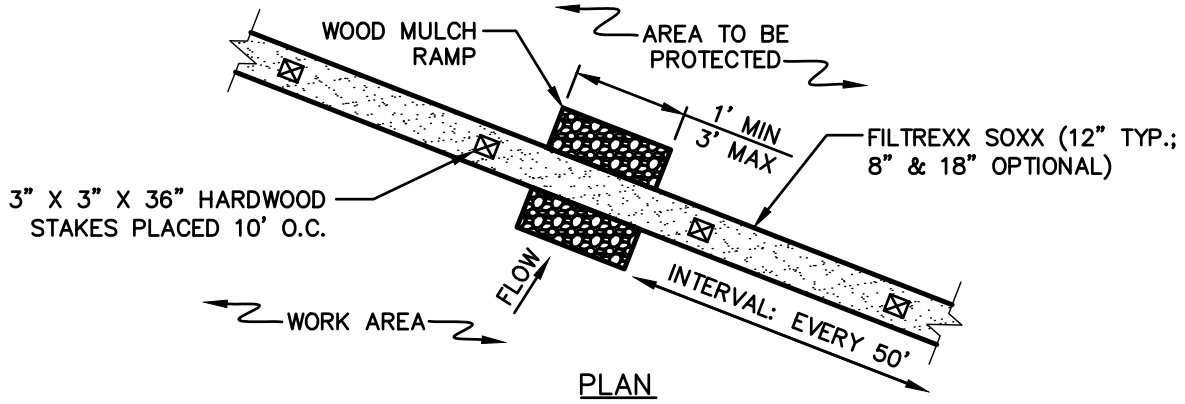
*** DETAIL PROVIDED BY BROCKTON EQUIPMENT / SPILLDAM INC.**
APPROVED BY: VICE PRESIDENT, ENVIRONMENTAL SERVICES
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AA-21
TURBIDITY CURTAIN *

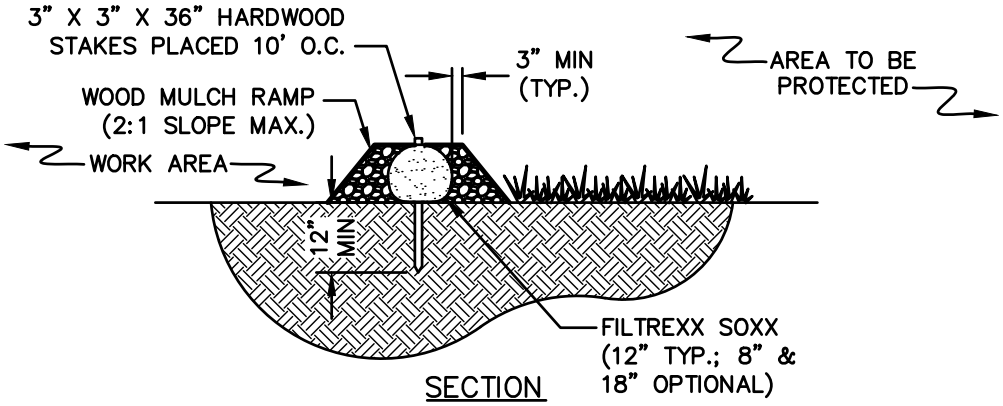
File: Turbidity_Curtain.dwg

BMP DETAIL

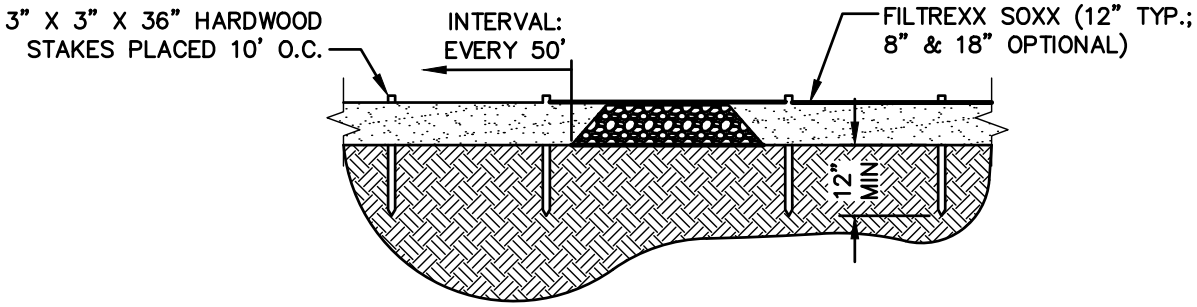
SCALE: NONE



PLAN



SECTION



PROFILE

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. 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.

BMP # AA-22
SILTSOXX AMPHIBIAN & REPTILE CROSSING #1 (1 OF 2)

File: Alternate_Mulch_Ramp_Siltsoxx.dwg

BMP PICTURE



SALAMANDER AND SNAKE CROSSING #1

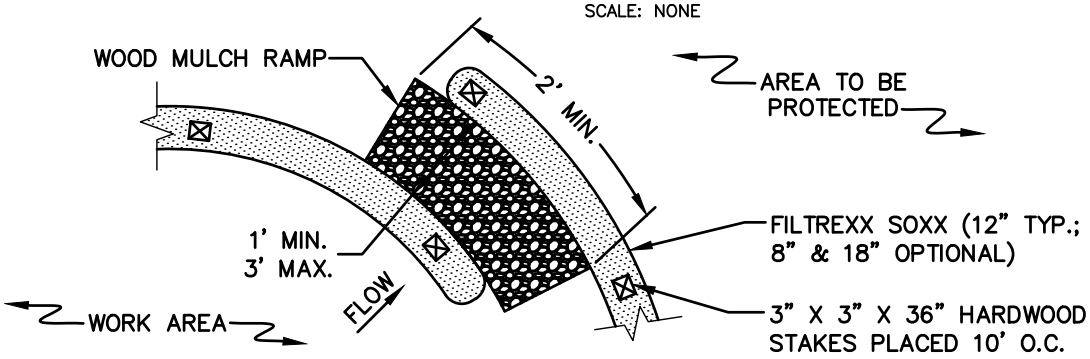
ALTERNATE WOOD MULCH RAMP SILTSOXX NOTES:

1. SILTSOXX, BY FILTREX INTERNATIONAL, OR APPROVED EQUAL PRODUCT SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES.

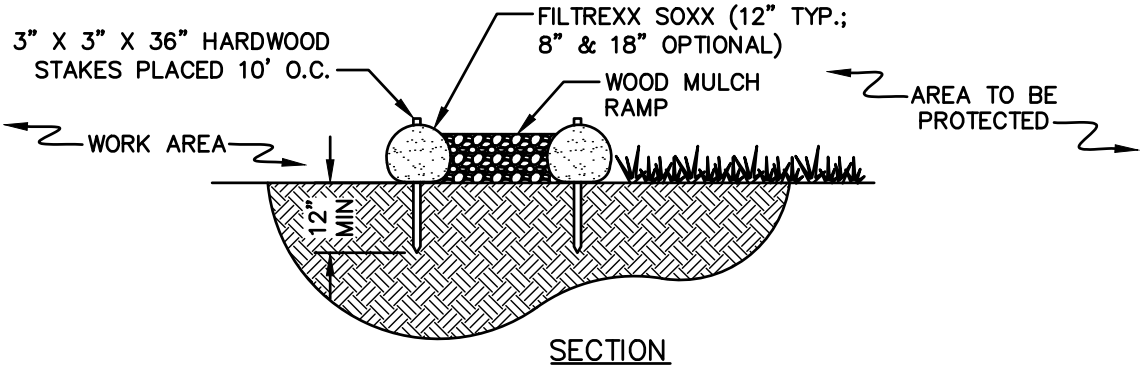
2. BMP SHOULD ONLY BE UTILIZED IN AREAS WHERE RARE SALAMANDER AND SNAKE HABITAT OCCURS, OR AT THE DIRECTION OF THE NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP DETAIL

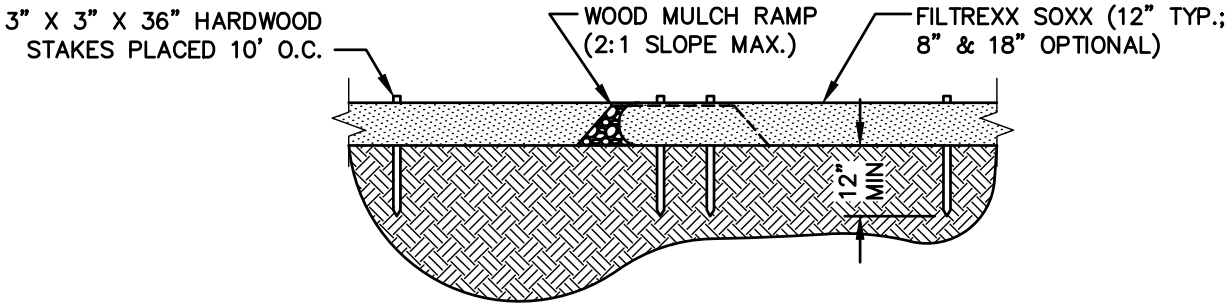
SCALE: NONE



PLAN



SECTION



PROFILE

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. 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.

BMP # AA-23
SILTSOXX AMPHIBIAN & REPTILE CROSSING #2 (1 OF 2)

File: Alternate_Siltsoxx.dwg

BMP PICTURE



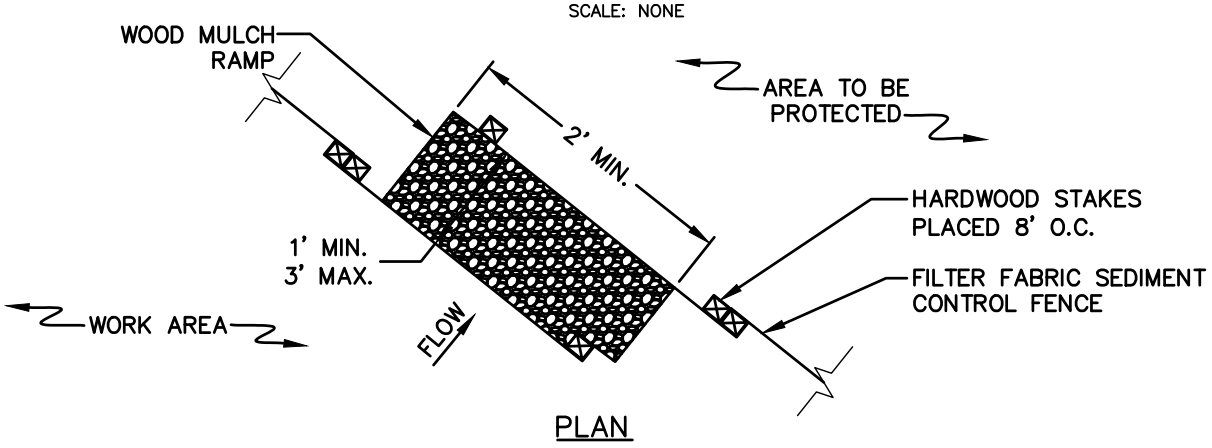
SILTSOXX AMPHIBIAN & REPTILE CROSSING #2

ALTERNATE WOOD MULCH RAMP SILTSOXX NOTES:

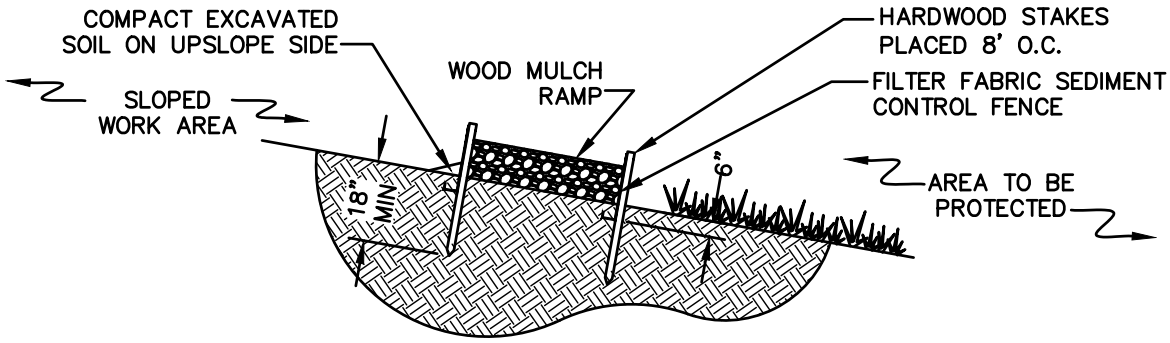
1. SILTSOXX, BY FILTREX INTERNATIONAL, OR APPROVED EQUAL PRODUCT SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES.
2. BMP SHOULD ONLY BE UTILIZED IN AREAS WHERE RARE SALAMANDER AND SNAKE HABITAT OCCURS OR AT THE DIRECTION OF THE NATIONAL GRID ENVIRONMENTAL SCIENTIST.

BMP DETAIL

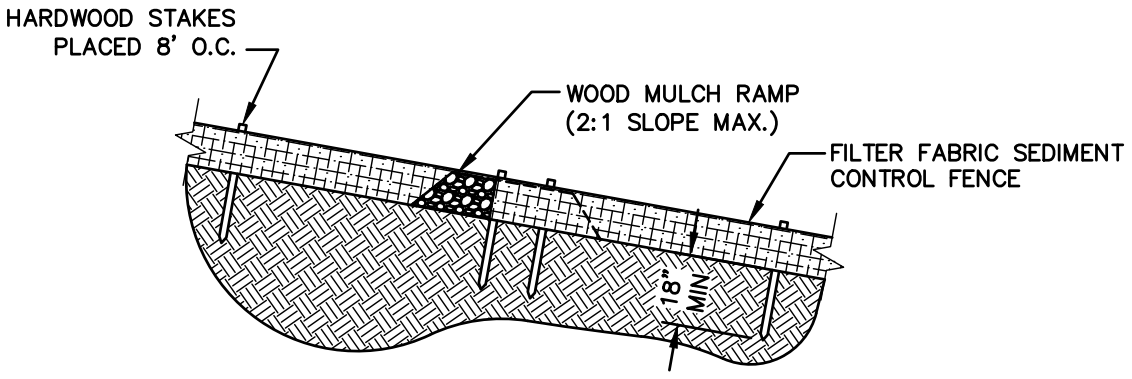
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PLAN



SECTION



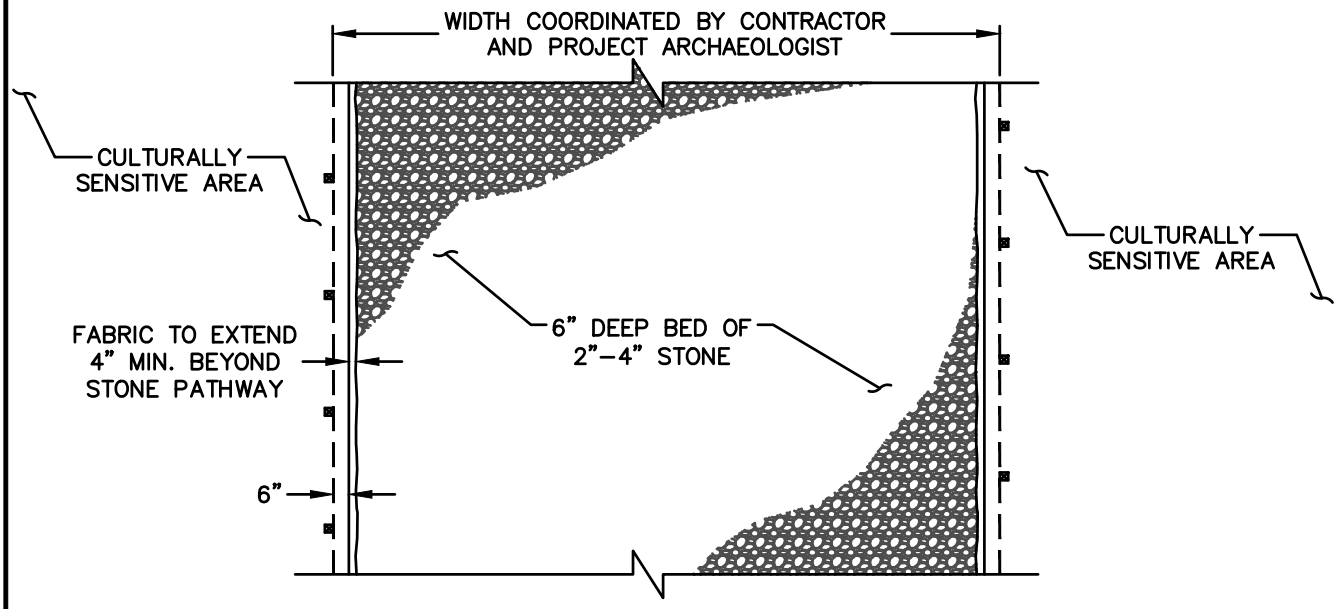
PROFILE

NOTES

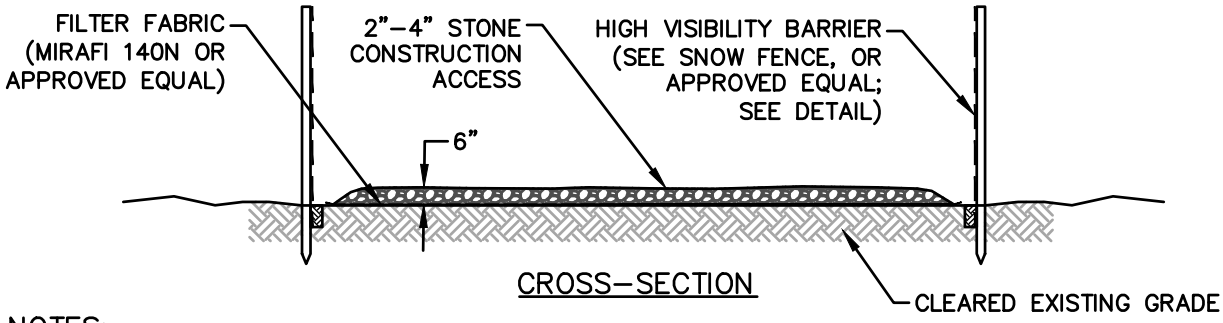
1. IN AREAS WHERE SLOPES OR RUN-OFF VOLUME PROHIBIT USE OF SILTSOXX, CROSSINGS CAN BE PROVIDED THROUGH TRENCHED SILT FENCE.
2. INTALL SILT FENCE TO SPECIFICATIONS IN EG303 APPENDIX 7 "SEC-2 SEDIMENT CONTROL FENCE."
3. WOOD MULCH RAMP IS OPTIONAL DEPENDING ON SUBSTRATE/SITE CONDITIONS, AND TO BE APPROVED BY NATIONAL GRID ENVIRONMENTAL SCIENTIST.
4. GAPS TO BE SPACED EVERY 50 FT, IF POSSIBLE GIVEN WETLAND PERMIT CONDITIONS.

BMP DETAIL

SCALE: NONE



PLAN VIEW



CROSS–SECTION

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.

BMP PICTURES





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 equipment[7] {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 lot[9] 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.

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

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 E - Best Management Practices (BMPs) Release Notification in Massachusetts (EG-501MA)

BSC GROUP
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1. PURPOSE: This guidance document provides instructions for general employees and Westboro Dispatch staff in reporting a release/spill of oil or any other chemical to the environment.

2. SCOPE: This guidance document covers oil and chemical releases to the environment in Massachusetts.

3. DEFINITIONS:

a. **Oil** – means oil of any kind, including petroleum and mineral oil in electrical equipment, motor oil, fuel oil, hydraulic fluid, diesel fuel, etc.
b. **PCB Contaminated Oil** – means oil containing PCBs in the quantity ranging from 50-499 ppm.
c. **PCB Oil –** means oil containing PCBs in a concentration at or greater than 500 ppm.
d. **Release** – means any spilling, leaking pumping, pouring, emitting, emptying, or a substance to the environment.
e. **Reportable Quantity (RQ) –** means that quantity of a material released to the environment as defined in 40 CFR Part 117 and 40 CFR Part 302.

4. RESPONSIBILITIES:

a. **Any Employee** – All employees are responsible to report any release of oil or chemical to their supervisor or Westboro Dispatch.
b. **Divisional Engineer** – Responsible for determining whether or not a chemical has exceeded the Reportable Quantity, and follow up notification and reporting as required in EP-5. Responsible for two hour notification to the Massachusetts Department of Environmental Protection, Local Emergency Planning Coordinator (LEPC) and notification to the National Response Center, if required.

5. PROCEDURE

5.1 GENERAL EMPLOYEES:

a. Upon discovery of any oil or chemical spill, immediately notify your supervisor and/or the Trouble Center.

Trouble Center: 1.888.367.7693

NOTE: ALL OIL SPILLS ARE REQUIRED TO BE CALLED IN TO YOUR SUPERVISOR, NO MATTER WHAT THE VOLUME.

b. Provide as much information as possible including:
- location of release(including pole number)
- what the material was released/spilled
- when the spill was discovered

- estimated amount spilled
- what caused the release
- a description of the spill area
- any other pertinent information

c. Contact Environmental Engineer directly or call the Trouble Center to determine on-call environmental engineer.

5.2 Trouble Center – For After Hours Spills

a. Upon notification from the field of a release, gather information from the caller as to substance spilled, volume, cause, date and time of spill, etc.
b. Contact on-call environmental engineer or designated representative and relay appropriate information.

5.3 DIVISIONAL ENVIRONMENTAL ENGINEER

a. Determine if release is reportable and contact Massachusetts Department of Environmental Protection / Massachusetts Emergency Management Agency (MEMA) within two hours if it is. Call the 888.304.1133 number and you will be routed to correct DEP Regional Office.
b. In addition, report oil spills to water and PCB oil spills (see definition section) to the National Response Center at 1-800-424-8802.
c. Provide assistance in deploying spill clean up resources (equipment, contractors) when requested.
d. Complete Spill Report form.
e. Report spill to other required agencies per EP-5, as required.
f. Provide assistance to clean up crews in making arrangements for clean up debris disposal.
g. Categorize the spill as a Category 1 or Category 2 spill.
h. Confirm clean up.
i. Provide additional information to state agency to close out the spill.

RELEASE INFORMATION

Location of Release: _____
Town / City: _____
County: _____
District / Region:_____
Spill Number (NY): _____

Date of Release: _____
Time of Release:_____
Weather Conditions:_____
NG Employee Reporting Release: _____
Telephone Number: _____

Material Released: _____
Quantity Released: _____
Source of Release: _____

Cause and Brief Description: _____
_____
_____
_____
_____
_____
_____

Non-PCB Label? ☐ Yes ☐ No ☐ Unknown

Material Released To:

☐ LAND ☐ WATER ☐ AIR
- ☐ soil ☐ lake/pond
- ☐ street ☐ stream/river
- ☐ farmland/grazing land ☐ wetland
- ☐ vegetable garden ☐ catch basin/drain

☐ OTHER _____

NOTIFICATION INFORMATION

Agency Notified	Person Contacted	Date Reported	Time Reported	Agency Report #
In-house Only				
State Environmental Agency				
State Emergency Response Commission				
Local Emergency Response Commission				
Local Sewer/Water Authority				
National Response Center (NRC)				
Environmental Protection Agency (EPA)				
Other				
Other				

.

DIELECTRIC FLUID INFORMATION

PCB Concentration of Fluid:	**Based On:**
☐ No PCBs (<2 ppm)	☐ Nameplate Information or manufacturer's label
☐ Non-PCB (<50 ppm)	☐ Clor-N-Oil® Test
☐ PCB Contaminated (50-499 ppm)	☐ Lab Test
☐ PCB (≥500 ppm)	☐ Assumed 50-499 ppm*

**** If equipment was manufactured prior to July 2, 1979 and/or not labeled, and a Clor-N-Oil® Test cannot be conducted, then the oil must be considered "PCB Contaminated."***

***** Clor-N-Oil® test results are to be used for interim handling only. All wastes from unlabeled transformers requires laboratory analysis by gas chromatography prior to disposal. Field screening tests such as Clor-n-Oil tests cannot be used to determine PCB content for ultimate waste disposal purposes.***

SOURCE OF RELEASE

Source of Release (type of equipment): _____
Manufacturer: _____
Size: _____
Serial or Badge # (if available): _____

RELEASE RESPONSE INFORMATION

In-house crews used ☐
Contractor used: _____

Consultant used: _____

Describe nature of cleanup: _____
_____
_____
_____
_____
_____
_____
_____
_____

IN-HOUSE NOTIFICATION INFORMATION

Copies of Release Report Sent To:

☐ NY or NE Manager of Environmental Compliance
☐ Spill Database Updated / Release Report kept in local file

CERTIFICATION

Completed By:_____

Date:_____

INCIDENT CATEGORY
(to be completed by NG Division Environmental Engineer)

☐ Category 1 – Significant Incident
☐ Category 2 – Non Significant Incident
☐ Near Miss Incident

ADDITIONAL COMMENTS / INFORMATION

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

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Appendix E - Best Management Practices (BMPs) Spill Response Procedures and Notification (EG-502MA)

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SPILL RESPONSE PROCEDURES & NOTIFICATIONS

Below is a summary of procedures to follow and notifications to make in the event of a spill. **Please note that the EG-501 series details steps to take in the immediate moments after a spill. This document supplements those activities, as well as those activities in EP-5 that further guide the actions of the Environmental Scientist/Engineer.**

SPILLS TO WATER

Oil spills to water are Category 1 classified in accordance with National Grid Environmental Procedure No. 15, if they are likely to result in an enforcement action from a regulatory agency.

If any quantity of oil, regardless of PCB content or other hazardous material, is released to water (*wetlands, streams, lakes, ponds, storm or sanitary sewer*) contact:

DEP	ASAP (No later than 2 hours)
NRC	Within 2 hours
LEPC	Within 2 hours
Local Fire Dept.	Within 2 hours
Clean-up Contractor	ASAP

If any quantity of oil with concentrations of PCBs ≥50 ppm or greater additionally notify:

EPA	Within 24 hours

SPILLS TO GROUND

Spills of over 250 gallons or containing 1 pound or PCBs ≥ 500 ppm are Category 1 classified in accordance with National Grid Environmental Procedure No. 15.

If 10 or more gallons of transformer oil with PCBs ≥2 ppm, or any other oil (e.g., hydraulic fluid, motor oil, etc.), are released to ground (soil, pavement) contact:

DEP	ASAP (No later than 2 hours)
Local Fire Dept.	Within 2 hours
Clean-up Contractor	ASAP

If PCB concentrations are ≥50 ppm or unknown, additionally notify:

LEPC	Within 2 hours

If ***any quantity*** of oil is released to ground with concentrations of ***PCBs ≥500 ppm*** contact:

DEP	ASAP (No later than 2 hours)
LEPC	Within 2 hours

Local Fire Dept.	Within 2 hours
Clean-up Contractor	ASAP

If PCB concentrations are between *50-499 ppm and over 2,700 gallons* are released or PCB concentrations are ≥*500 ppm , and 270 gallons* are released, *additionally notify*:

EPA	Within 24 hours

If 25 or more gallons of transformer oil, with PCBs < 2 ppm are released to ground (soil, pavement) contact:

DEP	ASAP (No later than 2 hours)
Local Fire Dept.	Within 2 hours
Clean-up Contractor	ASAP

SPILLS TO VEGETABLE GARDENS, FARM LAND, GRAZING LAND

If any quantity of oil with detectable levels of PCBs is released to gardens, farms, or grazing land, contact:

DEP	ASAP (No later than 2 hours)
Local Fire Dept.	ASAP
Clean-up Contractor	ASAP
Environmental Engineer/Scientist	ASAP

If concentrations of PCBs are ≥**50 ppm**, additionally contact:

EPA	Within 24 hours
LEPC	Within 2 hours

AGENCY TELEPHONE NUMBERS

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MA DEP)
MASSACHUSETTS EMERGENCY MANAGEMENT AGENCY (MEMA)

MA DEP / MEMA 24 hours per day	**888.304.1133**

NOTE: THE MEMA DISPATCHER WILL ROUTE CALL TO APPROPRIATE MA DEP REGION.

NATIONAL RESPONSE CENTER (NRC)	**800.424.8802**
ENVIRONMENTAL PROTECTION AGENCY (EPA)	**617.223.7265**

LOCAL EMERGENCY PLANNING COMMITTEES (LEPCs)

MUNICIPALITY	CHAIRPERSON	PHONE NUMBER
Abington	Chief David Majenski	(781) 878-3232
Acton	Chief Robert Craig	(978) 264-9645
Adams	John Morocco	(413) 662-3102
Alford	Doreen Hutchinson	(413) 528-0790 x3031
Amesbury	Chief James Broderick	(978) 388-8185
Andover	Jeff Coco/James Michitson	(978) 682-5212
Arlington	Chief William Middlemiss	(781) 862-0272
Ashburnham	James Wright	(978) 249-8275
Athol	James Wright	(978) 249-8275
Attleboro	Bob McDonald	(508) 223-2220
Auburn	Chief William Whynot	(508) 832-7800
Avon	Carl S. Fisher	(508) 583-5361
Ayer	William Shute	(978) 804-2084
Barnstable	Chief George Baker	(508) 375-6618
Barre	James Wright	(978) 249-8275
Bedford	Chief William Middlemiss	(781) 862-0272
Belchertown	Lt. Mike Spanknebel	(413) 584-0883
Bellingham	James Haughey	(508) 928-1007
Belmont	Chief William Middlemiss	(781) 862-0272
Berlin	Chief John T. Fleck	(978) 365-3502
Beverly	Dep. Chief James Coughlin	(978) 531-3447
Billerica	Mark Boldrighini	(978) 459-5552
Blackstone	Chief Michael Sweeney	(508) 883-1030
Bolton	Chief John T. Fleck	(978) 365-3502
Boston	Captain James Bruuynell	(617) 343-2116
Bourne	Chief George Baker	(508) 375-6618
Braintree	Chief Kenneth McHugh	(781) 843-3602 x4405
Brewster	Chief George Baker	(508) 375-6618
Boylston	Bruce Baker	(978) 422-6253
Boxborough	Chief Geoffrey Neagle	(978) 263-1116
Boxford	Robert Hazelwood	(978) 887-3135
Bridgewater	Herb Lemon	(508) 697-6191
Brimfield	Robert Corry	(413) 245-7334
Brockton	Morton Schleffer	(508) 588-7871
Brookfield	Joe Gadbois	(508) 867-6420

MUNICIPALITY	CHAIRPERSON	PHONE NUMBER
Brookline	Chief William Middlemiss	(781) 862-0272
Burlington	Chief William Middlemiss	(781) 862-0272
Carlisle	Chief David Flannery	(978) 369-2888
Charlemont	John Taylor	(413) 774-3167
Charlton	John Hart	(508) 765-9771
Chatham	Chief George Baker	(508) 375-6618
Chelmsford	Mark Boldrighini	(978) 459-5552
Chelsea	Captain Richard Tustin	(781) 729-1802
Cheshire	John Morocco	(413) 662-3102
Clarksburg	John Morocco	(413) 662-3102
Clinton	Chief John T. Fleck	(978) 365-3502
Cohasset	Chief Robert Silvia	(781) 383-0616
Concord	Chief Kenneth MacLean	(978) 443-2239
Danvers	Dep. Chief James Coughlin	(978) 531-3447
Dennis	Chief George Baker	(508) 375-6618
Dighton	Jeffrey Allie	(508) 669-6611
Douglas	Pauline Labrecque	(508) 476-2267
Dracut	Mark Boldrighini	(978) 459-5552
Dudley	John Hart	(508) 765-9771
Dunstable	William Shute	(978) 804-2084
East Bridgewater	Deputy Fairburn	(508) 378-2071
East Brookfield	Jason Messenger	(508) 867-6575
East Longmeadow	Brian Falk	(413) 525-5400 x 420
Eastham	Chief George Baker	(508) 375-6618
Easthampton	Lt. Mike Spanknebel	(413) 584-0883
Easton	Thomas Stone	(508)230-0750
Egremont	Doreen Hutchinson	(413) 528-0790 x3031
Erving	John Taylor	(413) 774-3167
Essex	Dep. Chief James Coughlin	(978) 531-3447
Everett	Captain Richard Tustin	(781) 729-1802
Fall River	Richard Aquiar	(508) 324-2733
Falmouth	Chief Paul D. Brodeur	(508) 495-2517
Florida	John Morocco	(413) 662-3102
Foxborough	Gerald McNamara Sr.	(508) 543-1230
Franklin	Chief Gary McCarraher	(508) 528-2323
Gardner	James Wright	(978) 249-8275
Georgetown	Chief Albert B. Beardsley	(978) 352-5757
Gloucester	Dep. Chief James Coughlin	(978) 531-3447

MUNICIPALITY	CHAIRPERSON	PHONE NUMBER
Goshen	Lt. Mike Spanknebel	(413) 584-0883
Grafton	Katharine Cederberg	(508) 826-0740
Granby	Lt. Mike Spanknebel	(413) 584-0883
Great Barrington	Doreen Hutchinson	(413) 528-0790 x3031
Groton	William Shute	(978) 804-2084
Groveland	Jeff Coco/James Michitson	(978) 682-5212
Halifax	Chief David Rich	(781) 585-2633
Hamilton	Jeff Coco/James Michitson	(978) 682-5212
Hampden	Doug Mellis	(413) 566-8011
Hancock	Chief Robert Czerwinski	(413) 448-9764
Hanover	James Purcell	(781) 826-3001
Hanson	Allen Hoyte	(781) 293-9571
Hardwick	James Wright	(978) 249-8275
Harwich	Chief George Baker	(508) 375-6618
Harvard	William Shute	(978) 804-2084
Haverhill	Jeff Coco/James Michitson	(978) 682-5212
Hawley	John Taylor	(413) 774-3167
Heath	John Taylor	(413) 774-3167
Hingham	Chief Mark J. Duff	(781) 741-1480
Holbrook	James Reichert	(781) 767-4312
Holland	James Gagne	(413) 245-9733
Hopedale	Chief Tom Daige	(508) 473-1050
Hubbardston	James Wright	(978) 249-8275
Hull	Chief Jane Walsh	(781) 925-8111
Ipswich	Jeff Coco/James Michitson	(978) 682-5212
Lancaster	Chief John T. Fleck	(978) 365-3502
Lawrence	Jeff Coco/James Michitson	(978) 682-5212
Leicester	Robert Wilson	(508) 892-7022
Lenox	Chief Robert Czerwinski	(413) 448-9764
Leominster	Charles Coggins	(978) 534-7580
Lexington	Chief William Middlemiss	(781) 862-0272
Lincoln	Chief Kenneth MacLean	(978) 443-2239
Littleton	William Shute	(978) 804-2084
Lowell	Mark Boldrighini	(978) 459-5552
Lynn	Dep. Chief James Coughlin	(978) 531-3447
Lynnfield	Paul Romano	(617) 334-3132
Malden	Captain Richard Tustin	(781) 729-1802
Manchester by the Sea	Dep. Chief James Coughlin	(978) 531-3447

MUNICIPALITY	CHAIRPERSON	PHONE NUMBER
Marblehead	Dep. Chief James Coughlin	(978) 531-3447
Marlborough	Donald P. Cusson	(508) 481-1933
Mashpee	Chief George Baker	(508) 375-6618
Medford	Captain Richard Tustin	(781) 729-1802
Melrose	Captain Richard Tustin	(781) 729-1802
Mendon	Chief John Touhey	(508) 473-5330
Merrimac	Chief James Broderick	(978) 388-8185
Methuen	Jeff Coco/James Michitson	(978) 682-5212
Middleton	Jeff Coco/James Michitson	(978) 682-5212
Milford	Chief John Touhey	(508) 473-1214
Millbury	Robert Beausoleil	(508) 865-6957
Millville	Chief John Mullaly	(508) 883-4740
Milton	Mark Williams	(617) 821-1659
Monroe	John Taylor	(413) 774-3167
Monson	Jeremy Bedson	(413) 267-4128
Monterey	Doreen Hutchinson	(413) 528-0790 x3031
Mount Washington	Doreen Hutchinson	(413) 528-0790 x3031
Nahant	Dep. Chief James Coughlin	(978) 531-3447
Nantucket	Chief George Baker	(508) 375-6618
New Braintree	James Wright	(978) 249-8275
New Salem	John Taylor	(413) 774-3167
New Marlborough	Doreen Hutchinson	(413) 528-0790 x3031
Newbury	Chief James Broderick	(978) 388-8185
Newburyport	Chief Steven Cutter	(978) 465-4427
Newton	Chief Joseph LaCroix	(617) 796-2201
North Adams	John Morocco	(413) 662-3102
North Andover	Jeff Coco/James Michitson	(978) 682-5212
North Attleboro	Chief Peter Lamb	(508) 699-0140
North Brookfield	Douglas Blood	(508) 867-0206
North Reading	Captain Richard Tustin	(781) 729-1802
Northampton	Lt. Mike Spanknebel	(413) 584-0883
Northborough	Chief David Durgin/Brad Newman	(508) 393-1537
Northbridge	Chief Gary Nestor	(508) 234-8448
Norton	Chief Richard Gomes	(508) 285-0240
Norwell	Chief Paul Rosebach	(781) 659-8158
Norwood	Dan Matthews	(781) 461-6159
Oakham	James Wright	(978) 249-8275
Orange	John Taylor	(413) 774-3167

MUNICIPALITY	CHAIRPERSON	PHONE NUMBER
Orleans	Chief George Baker	(508) 375-6618
Oxford	Jeff Wilson	(508) 987-6009
Palmer	Chief Alan J. Roy	(413) 283-3861
Peabody	Dep. Chief James Coughlin	(978) 531-3447
Pembroke	Jim Neenan	(781) 293-5414
Pepperell	William Shute	(978) 804-2084
Petersham	James Wright	(978) 249-8275
Phillipston	James Wright	(978) 249-8275
Plainville	Chief Merrick	(508) 695-7115
Quincy	Tom Gorman	(617) 376-1105
Randolph	Chief Charles D. Foley, Jr.	(781) 961-0992
Reading	Captain Richard Tustin	(781) 729-1802
Rehoboth	William Maiorano	(508) 252-6415
Revere	Captain Richard Tustin	(781) 729-1802
Rockland	Robert Bowles	(781) 878-5025
Rockport	Dep. Chief James Coughlin	(978) 531-3447
Rowe	John Taylor	(413) 774-3167
Rowley	Chief James Broderick	(978) 388-8185
Royalston	James Wright	(978) 249-8275
Rutland	James Wright	(978) 249-8275
Salem	Dep. Chief James Coughlin	(978) 531-3447
Salisbury	Chief James Broderick	(978) 388-8185
Sandwich	Chief George Baker	(508) 375-6618
Saugus	Captain Richard Tustin	(781) 729-1802
Scituate	Chief Edward Hurley	(781) 545-8748
Seekonk	Allan Jack	(508) 336-8510
Sheffield	Doreen Hutchinson	(413) 528-0790 x3031
Shrewsbury	Don Filiere	(508) 841-8422
Shirley	William Shute	(978) 804-2084
Shutesbury	John Taylor	(413) 774-3167
Somerset	Chief Steven J. Rivard	(508) 646-2810
Sterling	Bruce Baker	(978) 422-6253
Southborough	Neal Aspesi	(508) 485-3235
Southbridge	John Hart	(508) 765-9771
Spencer	Robert Parsons	(508) 885-3555
Stockbridge	Arthur Dutil	(413) 298-3691
Stoneham	Captain Richard Tustin	(781) 729-1802
Stoughton	David Jarden and Doug Campbell	(781) 344-3132

MUNICIPALITY	CHAIRPERSON	PHONE NUMBER
Sturbridge	Chief Thomas Ford	(508) 347-2500
Sudbury	Chief Kenneth MacLean	(978) 443-2239
Sutton	Paul Maynard	(508) 865-8737
Swampscott	Dep. Chief James Coughlin	(978) 531-3447
Swansea	Chief Peter J. Burke	(508) 672-4305
Templeton	James Wright	(978) 249-8275
Tewksbury	Mark Boldrighini	(978) 459-5552
Topsfield	Charles Denault	(978) 887-5148
Tyngsboro	Wes Russell	(978) 649-7504
Upton	Chief Michael J.. Bradford, Sr.	(508) 529-3421
Uxbridge	Sgt. Peter Emerick	(508) 278-7755
Wakefield	Captain Richard Tustin	(781) 729-1802
Wales	Hank DeCoteau	(413) 245-7571
Waltham	Lt. Randy Mullin	(617) 421-0280
Ware	Lt. Mike Spanknebel	(413) 584-0883
Wareham	Chief Robert McDuffy	(508) 295-2973
Warren	Joe Laflower	(413) 436-9595
Warwick	John Taylor	(413) 774-3167
Watertown	Chief William Middlemiss	(781) 862-0272
Wayland	Chief Kenneth MacLean	(978) 443-2239
Webster	Chris Jolda	(508) 949-3840
Wellesley	Chief Kevin Rooney	(781) 235-1300
Wendell	John Taylor	(413) 774-3167
Wenham	Chief Robert A. Blanchard	(978) 468-5508
West Boylston	Bruce Baker	(978) 422-6253
West Bridgewater	Leonard T. Hunt	(508) 586-3232
West Brookfield	Bryce Lesily	(508) 867-1405
West Newbury	Chief James Broderick	(978) 388-8185
West Stockbridge	Doreen Hutchinson	(413) 528-0790 x3031
Westborough	Lt. Robert Rand	(508) 366-3040
Westford	William Shute	(978) 804-2084
Weston	Chief Kenneth MacLean	(978) 443-2239
Westminster	Brenton MacAloney	(978) 874-2313
Westport	Charlene Wood	(508) 636-1110
Weymouth	John Mulveyhill	(781) 340-5048
Whitman	Robert Schmidt	(781) 447-7677
Wilmington	Mark Boldrighini	(978) 459-5552
Winchendon	James Wright	(978) 249-8275

MUNICIPALITY	CHAIRPERSON	PHONE NUMBER
Winchester	Captain Richard Tustin	(781) 729-1802
Winthrop	Captain Richard Tustin	(781) 729-1802
Wilbraham	Nick Yarmac	(413) 596-3122
Williamsburg	Lt. Mike Spanknebel	(413) 584-0883
Williamstown	Chief Robert Czerwinski	(413) 448-9764
Winchendon	Captain Richard Tustin	(781) 729-1802
Woburn	Captain Richard Tustin	(781) 729-1802
Worcester	Thomas Gingras	(508) 799-1840
Wrentham	Joseph Heck	(508) 384-5400
Yarmouth	Chief George Baker	(508) 375-6618

During non-business hours, or if a LEPC member cannot be reached, inform the local fire department.

COMPANY CONTACTS

IMPORTANT: On-call Environmental Engineers switch on-call every other week for nights/weekends; therefore, please obtain assistance from Environmental Engineer through the Electric or Gas Dispatch.

Environmental Engineers/Scientists

New England North Division

Beverly Auxford-Paiva (Bay State North)
508.922.6309 (mobile)
781.388.5244 (office)

Joanne Lupa (Bay State West)
508.328.5635 (mobile)
508.860.6484 (office)

New England South Division

Deborah Blanch (Bay State South)
617.908.8881 (mobile)
508.897.5520 (office)

William Howard (Ocean State)
401.255.2888 (mobile)
401.784.7490 (office)

Environmental Manager

Peter Harley
401.255.5195 (mobile)
781-907-3701 (office)

Gas Dispatch: 877-304-1203
Central Electric Dispatch: 877-247-3608
MV & Granite Electric Dispatch: 877-247-3607
North Shore Electric Dispatch: 877-247-3606
Southeast Electric Dispatch: 866-411-3812
South Shore Electric Dispatch: 866-411-5599
Western Electric Dispatch: 877-247-3609

ENVIRONMENTAL CONSULTANT AND CLEAN UP CONTRACTOR CONTACTS

CLEAN HARBORS **800.645.8265**
(Clean up Contractor) (1-800 OIL TANK)

CONECO ENGINEERS AND SCIENTISTS **508.312.0090**
(Environmental Consultant)
After using pager number above, wait for call back. If page not returned within 10 to 15 minutes, try the mobile phone numbers, below:

Brian Klingler - **508.962.6277** (mobile)
John Aevazelis - **508.962.7423** (mobile)

TIGHE & BOND
(Environmental Consultant)
For Spills in Central MA area, contact Ken Gendron at **508.479.2924** (mobile)
For Spills in Western MA area, contact ER Pager at **413.263.0957**

ENVIRONMENTAL SPILL RESPONSE PROCEDURES

In the immediate moments following any spill event, the procedures outlined in the EG-501 series must be followed. As described in EG-501, it is the responsibility of the Environmental Scientist/Engineer to assume responsibility for directing the cleanup. In addition to those actions outlined in the applicable section of the EG-501 series, the Environmental Scientist/Engineer should consult EP-5 for more specific guidance.

Record of Change		
Date of Review/Revision:		
Revision	**Date**	**Description**
0	04/01/06	New EG for MA.
1	06/01/09	Updated to reflect changes in assignments of Environmental Engineers and telephone information for spill notifications. Also, combined three previous EG's (EG-502MA-BSN, EG-502MA-BSS, & EG-502MA-BSW).
2	12/28/09	Updated Environmental Engineer contact information.
3	09/30/10	Update contacts and phone numbers.
4	01/04/2012	Updates due to organizational changes
5	05/03/13	Updated to reflect current roles and responsibilities of personnel involved in spill response and procedures relative to the content of EG-501MA, updated section on Environmental Spill Response Procedures.

Appendix E - Best Management Practices (BMPs) Excess Soil Management from Construction Projects on Rights-of-Way (EG-1707).

BSC GROUP
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SUBJECT	REFERENCE
Excess Soil Management from Construction Projects on Rights-of-Way	**EP No. 17 – Construction Projects**

PURPOSE: To document the procedure to appropriately manage excess soils generated during construction projects conducted on rights-of-way (ROWs) in Massachusetts.

SCOPE: This guidance document applies to all construction projects conducted by National Grid employees or contractors on National Grid ROWs in Massachusetts.

RESPONSIBILITIES: It is the responsibility of the person managing the excess soils, usually a National Grid Project Manager or Contractor Project Manager, to ensure that this guidance is followed.

PROCEDURE: The table incorporated into this guidance document shall be used to determine appropriate methods of disposal for excess soil generated from construction projects on ROWs.

SUBJECT	REFERENCE
Excess Soil Management from Construction Projects on Rights-of-Way	**EP No. 17 – Construction Projects**

Guidance for Disposal of Excess Soil from Construction Projects on ROWs

		Origin of Excess Soil		
		From Greenfields Site[1]	*From Around Base of Existing Structure*	
			Wood Pole	*Metal Structure*
Disposal Options	***Ship Off Site***	No sampling required – **Ship off site to sand & gravel operation. Does not require National Grid Environmental Department approval**	**Sample prior to disposal at National Grid-approved facility**[2]	**Sample prior to disposal at National Grid-approved facility**[3]
	Lose on Site in Appropriate Location[4]	**Yes, with prior approval of National Grid Environmental Department**	If stained soil exists around base of pole – **Yes, if in immediate vicinity of existing structure. Requires prior approval of National Grid Environmental Department**[5] If no stained soil is present around base of pole – **Yes, with prior approval of National Grid Environmental Department**[5]	**Yes, with prior approval of National Grid Environmental Department**[5]

Notes:

1) **"Greenfields Site" -** Defined as previously undeveloped land within a National Grid ROW and land in ROW outside of the boundary of the original footprint of existing structures.
2) See National Grid Approved Disposal Facilities List. Samples will be collected from the top six inches of soil around the base of the pole and will be analyzed for parameters required by the disposal facility. Soil samples will be collected at an appropriate frequency from around representative poles. Sampling plan must be approved by the National Grid Environmental Department before samples are collected.
3) See National Grid Approved Disposal Facilities List. Sampling around metal structures will be collected from the top six inches of soil around base of structure. Samples around base of structure will be composited into one sample and analyzed for Pb, PCBs, Cr, and Cd and any other parameter required by the disposal facility prior to disposal at a National Grid-approved facility or sand and gravel operation. Soil samples will be collected at an appropriate frequency from around representative structures. Sampling plan must be approved by the National Grid Environmental Department before samples are collected.
4) **"Appropriate Location" -** Defined as <u>not</u> located within a floodplain, buffer zone, wetlands, priority habitat, Area of Critical Environmental Concern, or at an archaeologically sensitive site. Additionally, the grade of the site must be relatively flat and the placement of the soil must not create any safety clearance violation or a "moonscape" appearance. The soil must be free of invasive vegetation. The proximity of abutters or other nearby residents/land owners must be considered. The soil placement must be entirely within the ROW and approved by the National Grid Environmental Department. Placement of material in an existing ROW road for repair of potholes should be prioritized. As warranted, the area should be re-seeded and mulched for stabilization.
5) Approval shall be documented in written form such as an e-mail and may be location-specific or general for the entire project.

Record of Change		
Date of Review/Revision:		
Revision	**Date**	**Description**
0	01/27/10	Initial issue.

Attachment F

Final Environmental Impact Report
A1/B2 Asset Condition Refurbishment (ACR) Project

Agency Correspondence

BSC GROUP
BUILD | SUPPORT | CONNECT

Shrestha, Priyanka

From: Barnum, Sarah
Sent: Tuesday, August 15, 2023 4:01 PM
To: Shrestha, Priyanka
Subject: FW: A1/B2 MESA Checklist Submission
Attachments: A1B2_MESA_Checklist_Submittal_Package.pdf

Sarah Barnum, Ph.D., CWB NH Ecological Services Manager
(860) 781-6151
www.bscgroup.com

From: Barnum, Sarah
Sent: Tuesday, August 15, 2023 3:19 PM
To: Glorioso, Lauren (FWE) <lauren.glorioso@state.ma.us>; Cheeseman, Melany (FWE) <melany.cheeseman@state.ma.us>
Cc: Tyrrell, Michael <Michael.Tyrrell@nationalgrid.com>; Portante, Theresa <TPortante@bscgroup.com>
Subject: A1/B2 MESA Checklist Submission

Lauren, Melany,

Please find attached the A1/B2 ACR Project MESA Checklist submittal package. The Check will be sent with a hard copy tomorrow.

Let me know if you have any questions,

Sarah

Sarah Barnum, Ph.D., CWB
Threatened and Endangered Species Specialist
NH Ecological Services Manager
150 Dow Street, Ste. 450 / Manchester, NH 03101
O: 603-945-4526 / D: 860-781-6151 / C: 603-268-6040
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Attachment G

Final Environmental Impact Report
A1/B2 Asset Condition Refurbishment (ACR) Project

Annotated Secretary's Certificate and Comment Letters

BSC GROUP
BUILD | SUPPORT | CONNECT

The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
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Boston, MA 02114

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January 16, 2024

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: A1/B2 Asset Condition Refurbishment (ACR) Project
PROJECT MUNICIPALITY	: Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling
PROJECT WATERSHED	: Nashua, Connecticut River, and Millers River
EEA NUMBER	: 16607
PROJECT PROPONENT	: New England Power Company (NEP)
DATE NOTICED IN MONITOR	: November 8, 2023

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62L) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Draft Environmental Impact Report (DEIR) and hereby determine that it **adequately and properly** complies with MEPA and its implementing regulations. The Proponent may prepare and submit for review a Final Environmental Impact Report (FEIR) in accordance with the Scope included in this Certificate. As further described below, the Proponent has made substantial efforts to minimize the total extent of wetland alteration and forest clearing required for the project. However, the DEIR does not include a clear proposal to mitigate the impacts that remain unavoidable to achieve project goals. I expect that the FEIR will provide a mitigation proposal in sufficient detail to allow Agencies to fulfill its obligations under MEPA and to allow a finding of adequacy on the FEIR.

Project Description

As described in the DEIR, the project is part of a larger refurbishment effort that continues north of the Massachusetts border and terminates at the Vernon Substation located in Vernon, Vermont. The A1/B2 Line ("mainline") is approximately 61.12 miles long, including 54 miles of Right-of-Way (ROW) within Massachusetts. In addition to the mainline, work will be conducted on three tap lines: the Athol Taps 1 and 2, Crystal Lake Tap, and East Westminster Tap. The project consists of refurbishment

of the mainline and all three tap lines. Work will be conducted in the Towns of Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling. The refurbishment project includes general maintenance and system improvements for 733 structures, including 575 structures on the A1/B2 mainline, and 158 structures on the Athol and Crystal Lake Tap Lines. Structures will either be supported by concrete caisson foundations or directly embedded into the ground. A total of 158 caisson foundations are proposed, including 107 on the mainline, 15 on the Athol Taps and 36 on the Crystal Lake Taps. A total of 560 direct embed structures are proposed, including 404 on the mainline and 156 on the Athol Taps. There are no direct embed structures[1] proposed in Crystal Lake Taps. Additional work includes construction of new and improvement of existing access roads, reconductoring of both circuits with 795 ACSS (Aluminum Conductor Steel Supported) conductor, installation of two Optical Ground Wires (OPGWs),[2] and relocation of the centerline (for a 5.2 mile section). Tree removal will be done to obtain a minimum horizontal clearance of 30-feet[3] (38-feet assuming a stationary position) from the conductor to the edge of ROW/easement under all horizontal clearance weather conditions. The DEIR provides the existing and proposed maintained ROW on the mainline, the Crystal Lake Tap Line and the Athol Tap Lines in the table below. To provide the necessary clearances for the replacement and new structures, the mainline and Crystal Lake Tap ROWs will be cleared to 100-ft, and the Athol Tap ROW will be cleared to 125-ft following the completion of construction. The East Westminster Tap Line is located within the mainline ROW and would be part of the mainline vegetation clearing.

Table 1-2: Project Route Components: Approximate ROW Widths and Mileage

Project Route Component	Existing ROW Width (ft)	Average Maintained ROW Width (ft)	Approximate Mileage (rounded to tenth)
Existing A1/B2 Line ROW	Varied Width: 100 to 450-ft* Average Width: 100-ft	Varied Width: 80 to 100-ft Average Existing Width: 85-ft Proposed Width: 100 ft	47
Existing Athol Tap Lines ROW	125-ft	Varied Width: 105 to 125-ft Average Existing Width: 115-ft Proposed Width: 125-ft	6
Existing Crystal Lake Tap Lines ROW	100-ft	Varied Width: 85 to 90-ft Average Existing Width: 85-ft Proposed Width: 100-ft	1.2
Total			**54.2 miles**

*The existing maintained width of the A1/B2 transmission corridor is generally 100 feet. However, in Sterling and Leominster, the A1/B2 Lines are collocated with a number of other transmission and distribution lines including the 69 kV U21 and V22 Lines, 115 kV I135S and J136S Lines, and the 230 kV E205E Line as shown in the DEIR Plans, Figure 2B in **Appendix A**. The corridor is wider to accommodate the additional circuits in these locations.

As part of the project and based on the results of a 2050 ISO-NE transmission study,[4] the Proponent proposes to upgrade the existing 69 kV line to support 115 kV capacity (lines will be larger in capacity and size which will allow more electricity to flow during times of high usage); however, the Proponent will continue to operate the new line at 69 kV until additional capacity is needed. The DEIR states that the upgrade is based on forecasts for future renewable energy connections and customer needs which will require the system to operate at the higher voltage at some point in the future. Due to outage

[1] Structures that are self-supporting and buried directly in the ground.
[2] The current shield wire located at the top of the structures (for lightening protection) will be replaced with two OPGWs to provide grounding and support high-speed relay and system communication.
[3] 30 ft assumes some movement of the conductor away from the conductor and toward the edge of the ROW.
[4] Independent System Operator – New England ("ISO-NE") 2050 Transmission Study: *https://www.iso-ne.com/static-assets/documents/2022/03/a4_2050_transmission_study_preliminary_n_1_and_n_1_1_thermal_results_presentation.pdf*

constraints associated with the A1/B2 lines, the project will need to utilize live line construction techniques (meaning that construction activities are conducted while the overhead lines are energized). The DEIR states that this requires the replacement structures and engineered steel structures to be installed at a height above the existing structures to ensure worker and equipment safety. The replacement and new structure height for the mainline and tap lines is approximately 93-ft above ground (110-ft for direct embed structures), which is approximately twice as tall as the existing mainline and tap line structures standing at 51-ft and 45-ft, respectively.

Changes since the Expanded Environmental Notification Form (EENF)

The DEIR describes the planning and design of a utility project as a dynamic process involving a balance of environmental, regulatory, and engineering considerations. The Proponent indicates that the project is largely unchanged since the EENF filing, but refinements to the design have resulted in changes to structure locations, access routes, and work pad dimensions which have resulted in less impact to regulated and sensitive resource areas. Changes to the project and the resulting changes to impacts are listed below:

- Tree removal impacts have been reduced by approximately 1,428,768 sf (~20%) project-wide in MA, including approximately 262,666 sf (~39%) in Bordering Vegetated Wetland ("BVW"), approximately 143,748 sf (~19%) in Riverfront Area ("RA"), and approximately 727,452 sf (28%) in Open Space due to refined tree removal calculations which includes more selective removal for off-ROW access and pruning in areas where complete removals are not required (for clearances to transmission structures and for work pads and access on-ROW)
- Access improvements (e.g., access establishments, widening and refreshing with stone) were reduced, relocated, or temporarily matted in rare species habitat resulting in a reduction of impact of approximately 8,328 sf of rare species habitat.
- Access alignments were modified where feasible to span streams in the narrowest location, minimize work pad sizes in locations where only structure removals are needed and work pads were minimized to reduce excessive grading. Impacts associated with access and grading within Riverfront Area (RA) have been reduced by approximately 374,616 sf (8.6 acres) in RA and ~252,648 sf (5.8 acres) in Bordering Land Subject to Flooding (BLSF).
- Eliminated one off-ROW access route within Department of Conservation and Recreation (DCR) lands. Impacts on DCR properties have been reduced by a total of approximately 114,923 sf (2.6 acres) in DCR properties. A significant reduction of impact in Warwick State Forest (~44,797 sf, or 1.02 acres) was achieved due to re-location of off-ROW access.
- 75 proposed structures along the mainline were relocated due to difficulty of terrain, grading challenges, vertical clearance issues, and field located obstacles.
- 14 concrete caisson foundations (~1,106 sf) were removed from BVW. In addition, 13 concrete caisson foundations (~1,027 sf) were removed in RA.
- To provide safe access, work areas, and reliability, a portion of the single circuit tap lines in the Athol Taps will be reconstructed as double circuit structures. In addition, in challenging terrain, the standard work pad will be reduced from 60 ft on the proposed structure side and 40 fet on the existing structure side. A total of 141 concrete caisson structures (~11,139 sf) were eliminated from the Athol Tap resulting from a change in the structure design. Additionally, a reduction of construction matting (~48,780 sf) and access improvement (~1,555 sf) was achieved.
- When grading beyond ROW limits, construction work pad size was reduced from the standard work pad size of 160 ft x 80 or 100 ft). In challenging areas, an alternative work pad size of 75 ft

x 80 ft will be used to aid in grading limitations. This results in a reduction of approximately 13 acres in BVW, 1.5 acres in RA and 1.4 acres in Bank from temporary matting. Additionally, a total of approximately 5.2 acres of impact was reduced in rare species habitat for Eastern Whippoorwill due to reduction in overall work pad dimensions.

- Retaining walls were removed along the mainline portion of the project. This includes 19 retaining walls within RA.

Project Corridor

As described in the DEIR, the project activities will be located within the Towns of Warwick, Royalston, Athol, Winchendon, Gardner, Westminster, Fitchburg, Leominster, and Sterling. The project ROW is generally oriented northwest-to-southeast from Warwick to Sterling, MA. The existing mainline consists of two 69 kV overhead electric transmission lines ("wires") that are supported primarily on lattice towers ("structures"). The existing 69 kV tap lines consist of the existing Athol Taps 1 and 2 in Athol and Royalston, the existing Crystal Lake Tap in Gardener, and the existing East Westminster Tap in Westminster. Tap lines are comprised of wood pole structures. As noted above, the mainline is generally located within a 100-ft easement; however, in Sterling and Leominster, the mainline is co-located with the I135S/J136S Lines and the ROW is wider in these locations to accommodate required clearances. The East Westminster Tap is a two structure tap line located within the mainline ROW. Along the Athol Tap, lines are generally within a 125-ft easement/ROW and the Crystal Lake Tap Line is generally within a 100-ft wide easement/ROW.

Conditions within the project area include moderately level terrain, as well as steeply sloping river terraces and cliffs. Upland portions of the ROW consist of shrubby and herbaceous vegetation communities. Where undeveloped, the edge of the ROW consists of forested upland and wetland. Land use adjacent to the project ROW includes agricultural, recreational, as well as commercial and residential development. The ROW crosses multiple reservoirs, rivers, ponds, as well as numerous streams and wetland systems. The EENF previously stated that there are approximately 40 Certified Vernal Pools (CVPs) located within a half-mile of the ROW in Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, and Sterling. There are no CVPs mapped within the ROW; however, the Proponent identifies at least one potential vernal pool where temporary construction mats are proposed.

The project corridor crosses Outstanding Resource Waters (ORWs) including Notown Reservoir, Fall Brook Reservoir, Goodfellow Pond, Simonds Pond, Distributing Reservoir, Morse Reservoir (all in Leominster) and Parleys Brook Reservoir (in Gardner). The ROW contains Bordering Vegetated Wetlands (BVW), Isolated Vegetated Wetlands (IVW), Inland Bank, Land Under Water (LUW), Bordering Land Subject to Flooding (BLSF), Riverfront Area (RA), and associated buffer zones. The project corridor includes mapped areas that are inundated during a 100-year storm as mapped on the Federal Emergency Management Act (FEMA) Flood Insurance Rate Maps (FIRMs) (plans in the DEIR were updated and include a legend color that is more easily distinguishable). The DEIR identifies areas of Priority Habitat and Rare Species as determined by the 15th Edition of the Massachusetts Natural Heritage Atlas including nine species present in Warwick, Royalston, Winchendon, Athol, Fitchburg, and Leominster. The site contains several historic and archaeological sites previously recorded in the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth including 14 Native American sites and 46 historic archaeological sites.

The project site is located within five Environmental Justice (EJ) populations in four municipalities[5] characterized by Income, Minority, and Minority and Income and within one mile of 13 EJ populations in five municipalities[6] also characterized by Income, Minority, and Minority and Income. The site is located within five miles of 65 EJ populations, within eight municipalities, characterized by Income, Minority, Minority and Income, and Minority, Income, and English Isolation. 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 DEIR potential environmental impacts associated with the project include the alteration of ±216 acres of land consisting of 131.2 acres of permanent impacts associated with tree clearing (approximately 14 acres within wetland resource areas) and 31.2 acres associated with new/improved off-ROW access. As discussed further below, this represents a decrease in tree removal of 33 acres as compared to tree removal proposed in the EENF. Potential impacts to wetland resource areas are listed in the following table.[7]

Wetland Resource Area	Temporary Construction Mat sf/acre	Permanent Impact (Structure) sf/acre	Permanent Wetland Impacts sf/acre (Tree Removal)	Total Impact sf/acre
BVW	1,645,153 / 37.77	2,246/0.05	403,366 /9.26	2,050,765 / 47.08
IVW	50,767/1.17	79 sf	5,808 /0.13	56,654/ 1.3
BLSF[8]	223,662 /5.13	726/0.017	118,267/ 2.72	342,665 / 7.87
RFA[9]	451,840 / 10.37	3,561/0.08	723,378 / 16.6	1,178,779 / 27.06
LUW	17,217/0.4	79 sf	*	17,296/ 0.4
Bank[10]	3,378 linear feet (lf)	0	28,714 lf	32,092 lf

*The DEIR indicates that canopy cover removal with the ROW does not result in a direct impact to LUWW.

Temporary impacts are associated with construction mats for access roads, work pads and pull pad envelopes, and mowing associated with the current Vegetation Management Plan (VMP). Permanent impacts are associated with fill for structure foundations (2 within LUW), cut and fill for access roads, work envelopes, pull pads, retaining walls,[11] stabilization material for access roads, and tree removal. The DEIR identifies approximately 25.25 acres of impact in priority habitat of state-listed rare species. Greenhouse Gas (GHG) emissions and other air pollutants are associated with the clearing of trees and loss of carbon sequestration. The DEIR states that up to 12,164 metric tons (mt) of carbon

[5] Athol, Gardner, Leominster, and Fitchburg.
[6] Athol, Gardner, Fitchburg, Leominster, and Lancaster.
[7] Wetland resource types overlap in many locations and aggregate tallies are not feasible.
[8] Impacts are the result of 56,521 sf of access road and 237,402 sf of cut associated with work envelopes, pull pads and access proposed in BLSF; however, areas will be over-excavated and not result in fill.
[9] Note that impacts located within the limits of Riverfront Area overlap with impacts to BLSF, BVW, and the 100-ft Buffer Zone. Therefore, the total impacts to the project site are not equal to the sum of alterations.
[10] Construction mats will span the Bank of rivers and streams; however, the totals reflect the potential for alteration.
[11] Permanent retaining walls will be gabion basket, large block gravity, mechanically stabilized earth, sheet pile. Construction mats may be used but would only be temporary.

would be released or not sequestered due to proposed land alterations over the next 30 years. As required by the Certificate on the EENF, the DEIR included a table of impacts in each community.

Measures to avoid, minimize, and mitigate project impacts include use of existing access roads to avoid new land disturbance, where feasible; use of temporary construction mats where crossing wetlands or water courses is unavoidable; spanning of streams to avoid impacts to bank; replacing structures outside of BVW where feasible; use of erosion and sedimentation controls and other best management practices (BMPs) during construction; restoration of any disturbed areas to existing grades to allow for revegetation with compatible species; and restoration of temporarily impacted wetland resources to pre-construction conditions. Tree stumps will be left in place except at work envelopes and structure locations, and within access roads. The DEIR states that the Proponent will utilize a combination of mechanized and hand cutting/felling, mowing, selective pruning, and cut stump for tree removal methods. Hand cutting will be used to selectively remove trees or smaller groups of trees, to minimize disturbance/potential damage to other vegetation or structures. In some complex, uneven, or soft surface terrain, mechanical vegetation removal using equipment with a longer reach (such as feller bunchers or other tree handling equipment), may be necessary and the Proponent indicates that the use of tree handlers will be considered, where applicable. Wetland replication and compensatory storage are proposed to mitigate for permanent fill in BVW (2,246 sf) and BLSF (726 sf), though details are not provided. The DEIR indicates that significant archaeological resources will be avoided if safe/practicable alternatives are available and the Proponent will conduct investigations for archaeological resources in accordance with a Massachusetts State Archaeologist's permitted plan prior to any site preparation or excavation. The DEIR states that a more complete compensatory mitigation plan will be developed in consultation with MassDEP and the nine local conservation commissions with jurisdiction over the project corridor to mitigate for permanent wetland loss/conversion and to form the conditions for a 401 Water Quality Certification (WQC) to be issued by MassDEP. As previously required in the Certificate on the EENF and detailed in the Scope, a more comprehensive discussion of mitigation, including for the extensive tree clearing proposed by the project, should be provided in the FEIR.

Jurisdiction and Permitting

The project is undergoing MEPA review and is subject to a mandatory EIR pursuant to 301 CMR 11.03(1)(a)1. and 301 CMR 11.03(3)(a)1.a. & b. of the MEPA regulations because it requires Agency Actions and will result in the alteration of 50 or more acres of land, one or more acres of BVW, and ten or more acres of any other wetland, respectively. Additionally, the project exceeds the Environmental Notification Form (ENF) thresholds at 301 CMR 11.03(3)(b)(1)b., 301 CMR 11.03(3)(b)(1)f., 301 CMR 11.03(2)(b)2. for alteration of 500 or more linear feet of bank along a fish run or inland bank, alteration of on half or more acres of any other wetlands, and greater than two acres of disturbance of designated priority habitat, respectively. In addition to exceeding mandatory EIR thresholds, the project requires the preparation of an EIR under 301 CMR 11.06(7)(b) of the MEPA regulations because it is located within one mile of one or more EJ populations. The project requires a WQC from MassDEP and review by the Natural Heritage Endangered Species Program (NHESP) and potentially a Conservation Management Permit (CMP). Prior comments from MassDEP indicated that a WQC variance will be required and potentially a variance under the Wetlands Protection Act. The project will require a Construction Access Permit (CAP) from DCR and an Access Permit from the Massachusetts Department of Transportation (MassDOT). The project will file a Petition for Approval to Construct Transmission Lines with the Energy Facilities Siting Board (EFSB) pursuant to G.L. c. 164, § 69J and with the Department of Public Utilities (DPU) pursuant to G.L. c. 164 requesting exemptions

from municipal Zoning Ordinances (Petition for Determination of Public Necessity and Convenience). The project is subject to review under the May 2010 MEPA GHG Emissions Policy and Protocol (GHG Policy). Comments from the MassDEP Waterways Program indicate additional information is required to determine if Chapter 91 (c. 91) authorization may be required.

The project requires Orders of Conditions from the Athol, Fitchburg, Gardner, Leominster, Royalston, Sterling, Warwick, Westminster and Winchendon Conservation Commissions (or in the case of an appeal, a Superseding Order of Conditions from MassDEP); a Section 404 General Permit from the U.S. Army Corps of Engineers (USACE); a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) from the U.S. Environmental Protection Agency (EPA); Section 7 clearance renewal from the U.S. Fish and Wildlife Service; and review by MHC acting as the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800).

The project is not receiving Financial Assistance from the Commonwealth. Therefore, MEPA jurisdiction is limited to those aspects of the project that are within the subject matter of any required or potentially required Agency Actions and that may cause Damage to the Environment, as defined in the MEPA regulations.

Review of the DEIR

The DEIR included a detailed description and plans of existing conditions along the ROW, a description of changes since the filing of the EENF, and a response to comments. It provided revised estimates of the environmental impacts of the project including a reduction in tree removal and impacts to wetland resource areas. A Carbon Accounting Report (Appendix D) was provided to determine the change in carbon emissions brought about by project-related forest disturbance. The DEIR provided an expanded alternatives analysis including a review of alternatives related to location of new access routes (where needed) and alternatives that would avoid or reduce clearing within sensitive environmental resource areas. It provided additional analysis of project impacts on EJ Populations and an update on public engagement activities prior to filing the DEIR. The DEIR provided an update on the local, state and federal review and permitting processes and a summary of mitigation measures and draft Section 61 Findings.

Alternatives Analysis

The DEIR describes the need for the project, stating that the mainline was originally constructed in 1909 and that the original lattice structures remain. The lines were reconductored in the 1920s and were reinsulated in 2004. Structures and wires are in need of replacement due to asset condition and aging infrastructure. The DEIR notes that the mainline and taps are the sole transmission source for approximately 24,000 customers in twelve municipalities. The DEIR states that existing lines are among the Proponent's worst performing transmission lines, consistently experiencing a high rate of outages associated with lightning strikes, downed trees, thunderstorms, and probable avian interactions (bird nesting/roosting). As noted in the DEIR, the existing lines have experienced 35 outage events during the five-year period between 2017 and 2021, including two that resulted in extended customer outages. From 2020 to 2023, the Proponent indicates that there has been a total of nine tree-related incidents that have resulted in power outages. The DEIR states that based on current ISO Study assumptions and forecasts, renewable energy connections and customer needs will ultimately require the system to operate at the higher voltage at some point in the future. The proponent proposes to include the upgrade

in capacity from 69 kV to 115 kV to allow more renewable energy resources to connect into the system. As noted above, operation on the rebuilt lines and taps will remain at 69 kV for the foreseeable future until the additional capacity is needed. Table 1-6 in the DEIR provides a quantitative comparison of tree removal impacts as a result of project refinements between the EENF and DEIR.

The EENF previously analyzed a No Build Alternative, a Critical Asset Repair Alternative, and a 69 kV Rebuild Alternative (the EENF Preferred Alternative). As required by the Certificate on the EENF, the DEIR presented an expanded alternatives analysis that considered reduced or varying tree clearing widths, alternative access routes, and work area scenarios that avoid and minimizes environmental impacts and tree clearing within sensitive resource areas such as potential vernal pools, ORWs, wetlands, and rare species habitat.

The DEIR states that tree removal requirements/alternatives are primarily dictated by the line voltage, and distance between the lines and the edge of ROW. The Proponent evaluated two transmission structure design alternatives, one that complies with a 115 kV Design, and a second that complies with a 69 kV Design. The Proponent's alternatives evaluation demonstrated that constructing the project to comply with National Grid Standards for 115 kV construction and allowing the lines to be operated at 115 kV in the future require a design that maintains appropriate clearances not just between the rebuilt A1 and B2 Lines, but also between each rebuilt circuit and the two existing circuits (which will remain operational during construction). To meet this need, the Proponent has designed the rebuilt circuits to maintain the appropriate vertical and horizontal clearances as required by the National Electrical Safety Code ("NESC") between each other (A1 Line and B2 Line) throughout construction. In addition, during construction the Proponent will need to meet required vertical and horizontal clearances between the conductors of the rebuilt lines and existing lines and new and existing structures so that the A1/B2 Lines can be returned to service within the mandatory restoration window.

In addition, the design at a higher voltage, 115 kV, and using the current code (NESC) increases the conductor elevation above ground. This reduces the probability of off-ROW vegetation striking the energized conductor. Therefore, it is anticipated that use of the 69 kV design would not significantly reduce impacts. The minor reduction in structure height would be unlikely to change either the number of structures installed or their location. The same construction techniques would be used, and, as a result, construction related impacts, including vegetative clearing, access improvements, wetlands and water resource impacts, and construction noise and traffic, would be similar or identical. The DEIR indicates that for tree removal within the ROW, the Proponent used LiDAR data to measure, digitize, and assess vegetation heights. This analysis, coupled with field reviews, allowed the Proponent to determine more precisely where tree removal would be required to ensure conformance with the appropriate vegetation management operating criteria within the ROWs, and where pruning, or other management techniques would be sufficient.

The following table presents a comparison of tree removal impacts between the EENF and the DEIR. The table appears to only present wetland impacts associated with tree removal for BVW and not the other wetland resource areas (RA, BLSF, Bank) where tree removal impacts are reported to occur in the impact table above.

Table 1-6: Comparison of Tree Removal Impacts – EENF & DEIR

Tree Removal Location	EENF (Acres)			DEIR (Acres)*			Change (+/- acres)	Change (%)
	On-ROW	Off-ROW	Total	On-ROW	Off-ROW	Total		
Project Wide in MA	109	55	164	100	31.2	131.2	-33	-20%
Wetlands	14	2	16	8.5	0.73	9.2	-6.8	-42.5%
Open Space	50	9	59	41.09	1.26	42.3	-16.7	-28%
State Article 97 Land (DCR Property)	18	1	19	10.7	4.1	14.8	-4.2	-22%
Municipal Article 97 Lands	10	2	12	6.4	4.2	10.6	-1.6	-13.3%
Private Article 97 Lands	2	<0.25	2	1.4	0.37	1.77	-0.23	-11.5%
Federal Property	2	3	5	1.6	3.8	5.4	-0.4	8%
Land Trust Property	3	1.5	4.5	2.3	0.25	2.5	-2	-44.4%
Division of Fisheries and Wildlife/ Wildlife Management Areas ("DFW/WMA")	14	1	15	4.6	1.04	5.64	-9.3	-62%

*These impacts are conservative estimates. Coordination with the landowners and outreach efforts regarding the tree removal program are ongoing. These efforts may further reduce the tree removal impacts as the tree removal extents are more clearly defined.

The DEIR indicates that since the EENF, proposed access routes have been reduced by approximately 5,825 linear feet (lf) (approximately 69,898 sf) on ROW and by approximately 7,758 lf (93,094 sf) off-ROW. This reduction is due to field reviews and by removing access in steep and challenging areas including between structures 213 and 215 where access was eliminated on DCR land due to steep terrain. The DEIR notes that conditions that require access outside of existing cleared ROW include water bodies spanning the width of the ROW, extreme terrain preventing construction of safe access, and lack of feasible access from a public road ROW. Where necessary to access structures from outside of the ROW, the DEIR states that efforts have been made to utilize historic access routes to reduce new impacts and tree removal. Access will be required for large construction vehicles including flatbed trucks for delivery of materials, concrete trucks for foundations, and cranes to erect the new structures; therefore, access widths required are in some cases wider than the historically utilized access paths.

To reduce impacts from project work areas, the Proponent considered alternatives such as trimming the corners of the standard work area size (typically 160 ft x 80 ft or 160 ft x 100 ft) in the Tap Lines to eliminate the use of retaining walls. Alternative work areas were also considered in challenging work areas (e.g., steep terrain) where a work pad size of 75 ft x 80 ft will be used. The DEIR indicates that a reduction of approximately 13 acres of impact in BVW, 1.5 acres in RA and 1.4 acres in Bank was achieved due to a reduction in temporary matting for project work pads. This includes a reduction of approximately 5.2 acres in rare species habitat due to reduction in overall work pad dimensions.

The Certificate on the EENF required the Proponent to consider alternatives that would not require a Wetlands Variance or Article 97 Disposition. The DEIR states that the project is eligible for "Limited Project" status pursuant to 310 CMR 10.53(3)(d) because it involves the "construction, reconstruction, operation and maintenance of underground and overhead public utilities." Comments from MassDEP state that the proponent should provide a serious evaluation of reasonable alternatives to the proposed activity (including alternatives to reduce the full extent of the proposed cutting), an evaluation of the extent to which adverse impacts are minimized, and documentation that full mitigation is provided for unavoidable impacts. Based on this demonstration, a Variance to the Wetland Protection Act (WPA) regulations may be required pursuant to 310 CMR 10.05(10). As discussed further below, the DEIR indicates that the project does not require any land dispositions or change in use involving

Article 97 protected land and that no new easements are required from DCR. Comments from DCR indicate that consultations with the Proponent are ongoing to determine if permanent impacts amount to a change in use or control of DCR property.

Environmental Justice

The DEIR provides analysis of the project's impacts and describes outreach to the previously identified EJ population in the municipalities of Athol, Fitchburg, Gardner, Leominster, and nearby Lancaster. Prior to the filing of the DEIR, the following community engagement efforts were conducted:

- The DEIR was distributed to an updated EJ Reference List obtained from the MEPA in February of 2023.
- Leominster Public Schools as well as the Leominster Mayor's Office were proactively contacted (in June 2023) to get more information on households that speak Portuguese, since a Portuguese translator will be provided at the Leominster Open House. The information gathered provided guidance for translation services at the Open House; primarily, that Brazilian Portuguese is more common than European Portuguese.
- The website address (www.newenglandA1B2.com), which is publicly available in English and Spanish, has been updated with the DEIR filing and will be maintained throughout the MEPA review process.
- A targeted notice of the DEIR filing was sent to all abutters in environmental justice block groups specifically, as well as other abutters and Distribution List participants, including mention of where the DEIR can be reviewed as an online PDF (project website) or hard copy.
- The project email address (info@newenglandA1B2.com) and the project hotline (844-500-3536) will be maintained and monitored throughout the MEPA review process.
- A project contact form was developed, allowing site visitors to contact NEP with any concerns or questions – including translation of project materials, and more information on public involvement initiatives as well as project details, including current activities, the construction schedule, and open houses.
- In-person open houses were held in Athol, Warwick and Royalston on 08/22/23; Gardner, Winchendon, and Westminster on 8/24/2023; and Fitchburg, Leominster, and Sterling on 08/28/2023. A Spanish interpreter in Latin- American dialect was provided for the open house conducted on 8/24/2023 and 8/28/2023.
- The project website will be shared by various municipalities through their own websites and channels. Additional outreach channels, such as Facebook pages/groups and apps like Next Door – which are actively utilized by residents of certain municipalities – are being considered as part of this aligned information sharing effort (as suggested by Public Involvement Protocol best practices, with regard to community-specific media outlets).

The DEIR provided an updated baseline assessment of 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 and the MEPA Interim Protocol for Analysis of EJ Impacts. Specifically, the DEIR summarized census tracts that exhibit "vulnerable health EJ criteria" that are measured to be 110% above state-wide averages for vulnerable health criteria where data is available at the census tract level (Low Birth Weight and Elevated Blood Lead Levels). Census tracts in Gardner (2 tracts), Athol (3 tracts), and Fitchburg (1 tract) are measured to be 110% above statewide rates based on a five-year

rolling average for Elevated Blood Lead Levels. The DEIR also identifies these three municipalities as exhibiting Heart Attack and Pediatric Asthma rates measured to be 110% above statewide averages.

The Certificate on the EENF required the Proponent to survey environmental indicators tracked through the U.S. EPA's "EJ Screen,"[12] which shows that the following indicators are elevated at 80th percentile or higher of statewide average within the identified EJ populations:

- Proximity to RMP (Risk Management Plan / hazardous waste cleanup) Sites – Athol Tract 7031 – Block Group 1 (88th percentile) and Block Group 2 (89th percentile)
- Underground Storage Tanks ("UST") and Leaking UST ("LUST") – Athol Tract 7031 – Block Group 2 (80th percentile) and Gardner Tract 7072 – Block Group 2 (90th percentile) and Tract 7073 – Block Group 1 (87th percentile) and Block Group 3 (85th percentile)

In the five EJ populations with indicators elevated at or above 80th percentile, the DEIR detailed the proximity of the project site to those neighborhoods and indicated that no activities, including tree clearing, would take place in those neighborhoods as shown in the table below.

Table 8-6: Project Site Proximity and Proposed Activities

Town	Census Tract	Indicator	Nearest Structure	Distance from ROW	Proposed Activities
Athol	Tract 7031, Block Group 1	RMP Facility Proximity	Athol Tap Sub	~250-ft	None
	Tract 7031, Block Group 2	RMP Facility Proximity; Underground Storage Tanks	Athol Tap Sub	~820-ft	None
Gardner	Tract 7072, Block Group 2	Underground Storage Tanks	Crystal Lake Tap: 24 - Sub	0.5 miles	None
	Tract 7073, Block Group 1	Underground Storage Tanks	Crystal Lake Tap: 24 - Sub	0.56 miles	None
	Tract 7073, Block Group 3	Underground Storage Tanks	Crystal Lake Tap: 24 - Sub	0.57 miles	None

The DEIR states that while the analysis concludes that there is an existing unfair or inequitable burden experienced by some of the EJ populations within the DGA, the project will not result in any significant adverse effects on EJ populations. The Proponent states that temporary and permanent alterations from pre- and post-construction will be mitigated through BMPs. The DEIR summarizes mitigation for short-term construction impacts such as grading, vehicle travel, and other earth-disturbing work may result in a temporary increase in airborne dust which will be minimized by managing the control of dust movement with practices such as spreading wood mulch or straw and using water trucks to spray dried soil to keep it moist. The potential for dust generation is only anticipated during the construction period. Post construction, soil will be stabilized and re-vegetated. The DEIR indicates that diesel-powered equipment will use ultra-low sulfur diesel fuel and any diesel-powered non-road construction equipment rated 50-horsepower or more that will be used on the project for 30 days or

[12] EJScreen (epa.gov)

more will be required to install emission control BMPs. The impacts from these emissions will be minimal and are not anticipated to cause impacts to public health. Additionally, idling times are limited 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 and be in compliance with the Massachusetts Anti-idling Law. The FEIR should provide an estimate of the number of truck trips that are anticipated for the project (as was previously required by the Certificate on the EENF) and the portion of these trips expected to pass through EJ populations.

The DEIR assessed potential impacts on EJ populations as the result of tree removal including adverse effects on EJ populations from large-scale forest clearing activities. The Proponent conducted an analysis of the implications of heat island effects and concludes that the possible temperature change impacts of tree removal will be minimal given the revised tree removal designs which reduce overall tree removal (from 216 acres to 131 acres), retain the cleared areas as vegetated areas, and leave substantial remaining canopy. The Proponent also analyzed "Hot Spots" or areas that register the 5% Highest Land Surface Temperature Index within their respective Regional Planning Authority regions – according to statewide data by the Executive Office of Energy and Environmental Affairs (EEA) and the Metropolitan Area Planning Council (MAPC). There are a small number of locations along the ROW that are near or adjacent to both EJ populations and Hot Spots as detailed below:

- There is one location in Leominster with Hot Spots along the ROW within about 200 feet of an EJ population, but no tree removal activities will be conducted there.
- A portion of the ROW overlaps with a Hot Spot and an EJ population in East Gardner, but no tree removal activities will be conducted in this location.
- In West Gardner near Mount Wachusett Community College, a Hot Spot overlaps with one EJ population; no tree removal will occur in the existing Hot Spot.
- In Fitchburg, there are some Hot Spots along the ROW which overlap with one EJ population – in that region, approximately 6 trees will be removed over the distance of about 1 mile.
- In Athol, at the end of the line, approximately 5 trees will be cleared in a portion of the ROW that overlaps with one EJ population and a Hot Spot.

The DEIR concludes that since much of the land adjacent to the ROW is forested, the tree removal design represents an overall negligible impact on canopy cover and notes that the land will remain vegetated and therefore will not have the surface temperature increase of pavement or buildings. The GHG impacts of forest clearing activities are discussed in the GHG section below. The DEIR states that the Proponent is reviewing opportunities to donate cleared trees (that abutters and residents do not wish to keep on their own properties for personal use) for use as firewood and as milled lumber, per processing (and coordination) with DCR and Massachusetts Community Wood Banks. As required by the Certificate on the EENF (and not addressed in the DEIR), the FEIR should specifically assess whether flooding risks may be exacerbated for nearby EJ populations due to tree removal, including under future climate conditions.

CS-9A

The Certificate on the EENF required the Proponent to consider the loss of open space or recreational opportunities that may affect EJ populations lacking access to such resources. The DEIR notes that there is one EJ population with municipal open space within the project ROW and another EJ population within Leominster State Forest. The Proponent indicates that impacts will be limited to the project ROW and will not impact access (where available) to these properties. Concerns regarding access to Warwick State Forest raised by DCR in comments on the EENF are addressed below.

Rare Species

Portions of the project area are mapped as Priority and Estimated Habitat for nine state-listed species including one plant, three invertebrates, one amphibian, one reptile, and three bird species. These species and their habitats are protected pursuant to the Massachusetts Endangered Species Act (M.G.L. c.131A) and its implementing regulations (MESA; 321 CMR 10.00). The DEIR states that the total area of Priority Habitat that intersects the project ROW (including off-ROW access) is approximately 6,267 acres,[13] of which approximately 6.1 acres (265,828 sf) will be temporarily altered due to the placement of construction matting, and 11.1 acres (484,106 sf) will be permanently altered due to the construction/improvement of gravel access, grading, and gravel work pads. Additionally, 2.7 acres (117,468 sf) will be impacted by vegetation conversion from one cover type to another (including tree removal, as well as activities covered under the Operation and Maintenance Plan (OMP) - routine mowing, placement of construction mats, and vehicle access not requiring access improvements) and approximately 1,732 sf of Priority Habitat available will be permanently impacted due to installation of structures.

The DEIR indicates that to minimize project impacts the following design changes have been made:

- Work pads located within Priority Habitat that require permanent stone have been reduced in size to the extent practicable.
- No permanent stone for work pads or access will be placed in rare plant habitats. Instead of permanent stone for these areas, construction matting or temporary stone that will be removed when construction is complete, will be used to create safe, level work surfaces.
- In the Priority Habitat area for Bird #2, during restoration, stone will be removed within a portion of the work pad to reduce the extent of permanent impacts.

The DEIR also describes the contractor education and awareness program that will be implemented to ensure contactors conducting construction-related activities in Priority Habitat areas understand their responsibility to minimize and avoid impacts to the habitat and rare species that may be present. The DEIR also provides the following construction timing restrictions:

- Activities resulting in an open excavation in Priority Habitat for rare reptiles during the active reptile season must be completed or filled in by the end of workday to ensure no animals become trapped. Alternatively, exclusion fencing can be installed to prevent animals from accessing open excavations.
- Full-time monitoring for protected reptiles will be provided by an approved wildlife monitor for construction work that occurs within Priority Habitat for those species during the active season, as described in the DEIR.
- Construction mats must be used for equipment access for work activities occurring in wetland habitat where state-listed species are present.
- Per the VMP, mowing in the Priority Habitat for Bird #2 will not occur during the nesting season, May 15 to August 15.

[13] The total area of 6,267 acres includes any NHESP priority polygon that intersects the project ROW. This represent the NHESP areas in their entirety. A total of 844.4 acres are within the project ROW.

The DEIR indicates that consultation with NHESP is ongoing and that a Project Checklist to address MESA compliance was submitted to NHESP in August of 2023. Comments from NHESP state that the Proponent has met to discuss minimization of permanent impacts and the use of construction matting to avoid permanent impacts to sensitive nesting habitats but notes that these figures were not finalized before submittal of the DEIR. Comments from NHESP continue to recommend that the Proponent work to further evaluate reductions to permanent habitat loss associated with gravel work pads and access roads; develop updated botanical survey protocols for pre-construction surveys within suitable habitat; and develop robust rare-species protection plan(s) focusing on time-of-year restrictions, avoidance of active and breeding seasons, and daily sweeps of the work area during any active season work. Comments from NHESP note that a MESA filing is currently under review, and at this time it is unclear whether the project will result in a Take of state-listed species.

Wetlands / Water Resources

As noted above, refinements to the project have decreased impacts to wetland resource areas from those reported in the EENF (with the exception of BLSF impacts associated with temporary matting). The DEIR provides an updated impacts analysis and describes the project's compliance with each of the associated WPA performance standards. A summary of the resource area impacts[14] was provided in the DEIR table below:

Table 4-1: Summary of Impacts to Resource Areas

Impact Type	Activity	Impact Area (SF)[1]					
		BVW	Bank	LUWW	BLSF	200-foot RA	100-ft Buffer Zone of BVW
Temporary Alteration	Construction Matting	1,645,153	3,378	17,217	223,662	451,840	609,509
Permanent Alteration	Tree Removal – Conversion of Vegetative Cover Type	403,366	28,714	0[3]	106,286	605,048[4]	2,021,185
	Access Improvement/ Grading	0	0	0	65,973	1,010,480	3,954,772
Permanent Impact	Structure Replacements	2,246[2]	0	79	726	3,561	10,160

[1] Note these impacts are not additive within each column. Impact types vary by ROW and overlap in areas of the Project.
[2] The EENF did not account for fill associated with installation of direct embed; however, the refined impacts show the overall footprint of installation of structures that includes both direct embed and caisson structures.
[3] The existing canopy cover to be removed as a result of trees being removed from within the ROW does not result in a direct impact to the LUWW.
[4] Tree removal approximations determined by GIS analysis of LiDAR imagery, ROW Survey and Riverfront Area Polygons. These impact assessments are based on conservative estimates and considers overlapping canopy cover both on and off ROW of the RFA parcel.

[14] The table presents all impacts in square feet but is equivalent to acreage reported elsewhere in the DEIR.

As required by the Certificate on the EENF, wetland resource area impacts were also reported by municipality.

Following additional analysis, the DEIR indicates that the number of perennial and intermittent streams identified has been updated to include 64 perennial (previously 68) and 80 intermittent streams (previously 60). Construction matting is proposed to span streams for temporary access resulting in temporary impacts of 17,217 sf in LUWW. The Proponent indicates that spanning the streams will avoid direct impacts to stream beds and banks. The DEIR states that temporary impacts associated with stream crossings may include disturbance to stream side vegetation, changes in shading over the water and some reduction in wildlife passage. The Proponent states that mats will be removed as soon as construction is complete and that if vegetation cover has been impacted, the area will be seeded with an appropriate seed mix and monitored until restored to pre-construction conditions. Permanent alteration of 79 sf of LUWW is proposed for the placement of one concrete caisson foundation. According to the DEIR, this alteration is unavoidable due to the wide width of the stream and bordering wetlands in the area. The DEIR also lists impacts to 15 streams designated as Coldwater Fisheries Resources. While direct impacts are described as temporary due to matting, some tree removal is proposed.

The DEIR confirms that assessments of potential vernal pools (PVPs) were conducted in spring 2020, summer 2021, spring 2022, and spring 2023 to field-confirm the locations of Certified Vernal Pools (CVPs) and PVPs and identify any additional PVPs. Approximately 1,003 sf of temporary alterations are proposed within a PVP, associated with the use of construction matting for off-ROW access and tree removal. The DEIR identifies measures to minimize impacts to VPs where work is proposed within the 100-ft buffer zone to wetland resource areas that contain VPs.

Comments from MassDEP on the EENF recommended that the Proponent consider waiting to file Notices of Intent (NOIs) with the Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg and Leominster and Athol Conservation Commissions until the conclusion of MEPA review to ensure sufficient opportunities for public involvement and to avoid any potential conflict with the final Certificate, Orders of Conditions (OOCs), or the WQC. In the DEIR, the Proponent notes this comment and states that it will be addressed; however, it does not confirm when NOIs will be filed. As noted, the DEIR continues to indicate that the project is eligible for Limited Project status as defined in 310 CMR 10.53(3)(d) because it involves the "construction, reconstruction, operation and maintenance of underground and overhead public utilities." The DEIR provides review of the project's compliance with 310 CMR 10.53(3)(d) which allows the Conservation Commission to approve a project that does not meet the performance standards for the affected resource areas. For instance, for this project, the temporary construction matting impacts exceed the 5,000 sf maximum for which Conservation Commissions can issue an OOC under the standards for BVW at 310 CMR 10.55. Mitigation for this alteration will include in situ wetland restoration. In situ wetland restoration is also proposed to mitigate for RA impacts and will include stabilization and rapid revegetation by compatible herbaceous and low-growing scrub-shrub vegetation (except within the 12-ft wide travel lane of existing or improved access). In addition, the project will result in the permanent loss of 2,246 sf of BVW due to fill associated with replacement structure foundations; the DEIR states that this impact will be mitigated through wetland replication in compliance with the WPA performance standards. As noted below, no specific mitigation is proposed for the 9.2 acres (403,366 sf) of alteration due to conversion of forested wetlands to scrub shrub.

The DEIR reviews the project's compliance with the Section 401 WQC regulations pursuant to 314 CMR 9.00 and indicates that despite avoidance and minimization measures, construction of the

project will involve discharge of fill to 208 wetlands. Impacts include 0.05 acres (2,246 sf) of permanent discharge of fill material within BVW for structure foundations and 38 acres of temporary discharge associated with the use of construction matting for access and work areas. In addition, there are two sections of the A1/B2 line which contain structures located within wetlands that are within 400 feet of the high-water mark of a Class A Public Water Supply (Structure 579 (LE-W4) near the Notown Reservoir and Structure 624 (LE-W19) near the Fall Brook Reservoir).[15] Existing structure 623 and 571, while both located within an upland, will require the placement of temporary fill within a wetland (LE-W18 and LE-W5, respectively) located adjacent to the structure to provide the necessary work area to remove the structure. The temporary fill is also within 400 feet of the OHWM of Fall Brook Reservoir. Notown Reservoir and Fall Brook Reservoir are considered Outstanding Resource Waters (ORWs) pursuant to the WQC regulations. The Surface Water Quality Regulations (314 CMR 4.00) prohibit the discharge of fill or dredge materials into a tributary to a Public Water System supply (PWS) within 400 feet of the high-water mark of the surface water supply. The project will require a Variance pursuant to the provisions of 314 CMR 9.08 for work along these two sections of the A1/B2 line.

The DEIR lists the following mitigation approach[16] for permanent fill of approximately 2,246 sf of BVW and 79 SF of LUWW due to structure foundations, approximately 9.2 acres (400,752 sf) of forested wetland conversion (from forested wetland to scrub shrub) due to tree removals (on and off-ROW), and approximately 38 acres (1,645,153 sf) of BVW temporarily altered by construction mats, as well as the anticipated "take" for work within rare species habitat by NHESP:

Table 11-1: Wetlands & Waterways Mitigation Strategies for the Project

Wetland Resource Area	Impact	Mitigation Measures*	Responsible Party / Implementation
Waters of the U.S. within the Commonwealth - Wetlands	Temporary alterations during construction; Permanent fill for structure foundations; Permanent conversion from PFO to PEM/PSS vegetation types.	*In-situ* restoration for construction matting. Restoration of impacted wetlands through seeding and plantings, as necessary. Compensatory Mitigation for wetlands permanently impacted by fill. Implementation of SWPPP.	Contractor / Construction / NEP Post-construction monitoring of wetland restorations and replications will be provided.
Waters of the U.S. within the Commonwealth - Waterways	Temporary alteration for access, work areas, and pull pads; Permanent impacts from one concrete caissons; Potential impacts to non-tidal waterways from overhead wires.	Use construction mats to minimize compression of soils, rutting, and disturbance of vegetation. Overhead crossings designed to avoid conflicts and allow for unimpeded access by foreseeable watercraft.	Contractor / Construction NEP / Planning

*Final Plans TBD with State and Local Regulatory Agencies

The DEIR indicates that BVW mitigation under the WPA or 401 WQC program is not anticipated for the selective removal of trees within wetlands along the existing ROW; however, the Proponent indicates that compensatory mitigation for tree removal within resource areas may be required under the discretionary authority granted to the Conservation Commission under the Limited Project provisions, or the project otherwise may be subject to special conditions applied under a

[15] These structures will be removed from these wetlands once the rebuilt lines have been installed.
[16] The DEIR indicates these impacts and the associated mitigation are relative to the Section 401 WQC.

municipal bylaw or ordinance. The Proponent anticipates addressing mitigation requirements with local Conservation Commissions in the course of WPA permitting. A summary of anticipated project impacts and proposed mitigation is detailed in the table below.

Table 10-5: Summary of Project Impacts and Proposed Mitigation

Resource Area	Impact Type	Impact Area	Potential Mitigation
Wetlands & LUWW	Secondary Impacts / Permanent Alteration (Tree Removals)	~9 acres	In-Lieu Fee (USACE), and any special conditions of Conservation Commissions.
	Permanent Discharge of Fill Material / Loss of Resource Areas (Structure Foundations)	~2,246 SF	Compensatory Mitigation as determined in state and local permitting
	Temporary Discharge of Fill Material / Temporal Loss (Construction Matting)	~38 acres	In-Lieu Fee (USACE) and 1:1 in situ restoration. See also Avoidance & Minimization sections for details on the use of construction matting.
RA	Secondary Impacts (Tree Removals)	~14 acres	*In-situ* restoration, including loam and seed as applicable. The habitat will remain vegetated and continue to function as wildlife habitat.
	Permanent Fill (Structure Foundations)	3,561 SF	Mitigation as determined in state and local permitting.
	Temporary Fill (Construction Matting, Gravel Work Areas and Access to be Removed Post Construction)	13 acres	*In-situ* restoration.
Bank	Secondary Impacts (Tree Removals)	0.65 acres	N/A - Vegetation alteration will be minimal, and understory will remain in place and/or quickly re-establish.
	Permanent Fill (Structure Foundations, and Gravel Work Areas & Access)	0	N/A – no permanent impact to bank
	Temporary Fill (Construction Matting)	3,025 LF	*In-situ* restoration.
Floodplain / BLSF	Secondary Impacts (Tree Removals)	2.4 acres	N/A – No flood storage lost.
	Permanent Fill (Structure Foundations)	726 SF	NA – the flood storage loss is *de minimis* within each BLSF where structures are replaced, and the foundations will not impact flood storage capacity.
	Temporary Fill (Construction Matting)	5 acres	*In-situ* restoration.

Resource Area	Impact Type	Impact Area	Potential Mitigation
NHESP Priority Habitats	Secondary Impacts (Tree Removals)	7 SF	As required by NHESP. Consultation is ongoing, and mitigation will be determined during MESA permitting.
	Permanent Fill (Structure Foundations, and Gravel Work Areas & Access)	16 acres	
	Temporary Fill (Construction Matting)	5 acres	

I direct the Proponent to comments from MassDEP, incorporated herein by reference, which state that the Proponent should submit mitigation alternatives consistent with the WPA and WQC performance standards for jurisdictional wetland resource area impacts. For permanent loss of BVW, a 2:1 replacement ratio should be provided for all BVW impacts in ORWs, and 1:1 for other permanent BVW impacts. As indicated in comments, In Lieu Fee as compensatory mitigation for secondary impacts from tree clearing would not be acceptable; however, preservation would be an acceptable mitigation option if provided at an appropriate mitigation to impact ratio.

The DEIR states that the project will comply with the applicable Massachusetts Stormwater Standards to the extent practicable. The Proponent indicates that the ten stormwater performance standards have not generally been applied to cross-country utility projects as the work does not have a substantial impact on watershed hydrology or drainage patterns. During construction, the Proponent will use soil erosion and sediment control BMPs to manage stormwater and protect sensitive resource areas from stormwater run-off. The Certificate on the EENF required the Proponent to address comments from MassDEP which noted that removal of trees increases the peak runoff rate, triggering compliance with 310 CMR 10.05(6)(k)2. and 314 CMR 9.06(6)(a)2.. which apply to alterations in resource areas regardless of if the project qualifies as a Limited Project. This information should be provided in the FEIR. The DEIR also did not address prior MassDEP recommendations to evaluate replacement of trees to reduce the peak runoff rate and the EENF certificate's requirement to estimate the time period likely to recover the same or larger tree canopy. The FEIR should address these comments including potential flooding impacts to EJ populations.

Chapter 91

In response to comments from MassDEP Waterways on the EENF, the Proponent provided a table listing each waterway in c. 91 jurisdiction and the scope of work with each waterway. The DEIR cites prior comments from MassDEP Waterways which indicated that pursuant to 310 CMR 9.05(3)(g)1., portions the project (including but not limited to the overhead wire maintenance, and replacement of overhead wire with optical ground-wire), may be exempt from Chapter 91 licensing, provided that a final Wetlands OOC is issued for the said work under M.G.L. Chapter 131, § 40 and 310 CMR 10.00. The Proponent anticipates that OOCs will be obtained for Chapter 91 jurisdictional water crossings prior to the commencement of work. This will include OOCs from the municipalities of Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg and Leominster and Athol.

Article 97

The DEIR provided an updated summary of estimated tree removal on DCR property/Article 97 land and shows that approximately 10.7 acres (previously 18 acres) will be impacted on the ROW and approximately 4.1 acres (previously one acre) will be impacted off-ROW. The project will require a Construction Access Permit (CAP) from DCR but asserts that easements for the existing A1/B2 and tap lines predate the establishment of DCR properties and state forests and current easements provide all legal rights necessary to complete the proposed project activities including structure maintenance and replacements, access improvements and construction, work area grading, tree removals, and the use of temporary construction matting. The DEIR states that no additional easements or other permanent grant of rights are necessary to perform the activities.

The DEIR provides a summary table of impacts on each DCR property (Leominster, Royalston, Otter River, and Warwick State Forests). Comments from DCR indicate that consultation with the Proponent is ongoing and additional details are needed to determine whether the permanent impacts to off-ROW DCR property would amount to a change in use or control that will invoke the requirements of EEA's Article 97 Land Disposition Policy and the Public Lands Preservation Act (M.G.L. c. 3, § 5A). Comments from DCR on the EENF expressed concern about recreational impacts at the access point in Warwick State Forest that is proposed to be co-located with the Metacomet Monadnock Trail for approximately 2,300 feet and impacts that may result in increased Off-Highway Vehicle (OHV) access to the state forests, potentially causing degradation of natural and cultural resources. The DEIR confirms

the Proponent's willingness to work closely with DCR to ensure the safety of trail users, and to minimize project impacts to trail access, and as necessary, to obtain the appropriate authorization through a CAP. Comments from DCR on the DEIR reiterate the need for coordination to develop and implement strategies to deter OHV trail use.

Climate Change

Adaptation and Resiliency

The Certificate on the EENF required the Proponent to discuss the extent to which existing electrical lines are exposed to riverine flooding and whether new foundations are being elevated above any defined base flood elevation. The DEIR indicates that portions of the project have a history of riverine flooding, are within 500 ft of a waterbody, are less than 20 ft above the waterbody, and intersect the FEMA floodplain in multiple locations. The DEIR notes that 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 foundation will also increase resiliency in wetland resource areas increasingly susceptible to inundation. The DEIR indicates that this foundation type is designed for wet environments and when coupled with engineered steel structures eliminates the need to elevate foundations above the base flood elevation as they can withstand inundation. The project also proposes installation of new conductors that are designed to withstand corrosion. Compensatory flood storage will be provided in accordance with the WPA Regulations for any proposed fill in BLSF.

The DEIR indicates that stormwater management features (e.g., stone check dams, water bars, or other similar measures) will be installed as necessary. The DEIR indicates that civil engineering design of the project access has been provided to reduce potential for erosion and washouts during future storm events including the 2070 50-year (2% chance) storm event as recommended by the MA Resilience Design Tool. The FEIR should provide a stormwater report or other data to document pre- and post-construction runoff rates for new/improved access roads and construction work pads.

GHG Emissions from Land Alteration

The project is subject to the MEPA GHG Policy because it exceeds thresholds for a mandatory EIR. This project will permanently alter approximately 131.6 acres as a result of tree clearing (100.1 acres) and new/improved access (31.5 acres). In accordance with the GHG Policy, projects that alter over 50 acres of land are generally required to analyze the carbon associated with land and soil disturbance during the construction period and loss of carbon sequestration. The Proponent reports the maximum potential release of carbon (both as a one-time loss and as a loss over the next 30 years) from disturbed forest acres in the table below.

Table 1. Maximum Potential Change in Carbon Released from Disturbed Forest Acres

Source	One-Time Loss (mt C)	Net Loss in Future Sequestration (mt C)	Actual Change in Stored Carbon (mt C)[c]
Non-Soil[a]	8,355	376	8,731
Soil[b]	2,844	589	3,433
Total	11,199	965	12,164

[a] Non-Soil refers to carbon stored in live aboveground biomass, live belowground biomass, dead wood, and forest litter.
[b] Soil refers to soil organic carbon.
[c] Calculated as: (One-Time Loss) + (Net Loss in Future Sequestration). The abbreviation mt C refers to metric tons of carbon.

The DEIR states that landowners have been offered to retain felled wood for their private use. So long as felled wood is used for some useful enterprise, the DEIR indicates that landowners will respond in a manner that offsets some of the GHG emissions that would otherwise be associated with forest disturbance; this effect is commonly called "leakage." Further analysis based on survey responses from 26 landowners (198 landowners were surveyed) indicates that 31 percent of the felled trees will be retained by landowners. Additional wood will be donated for use by the DCR Community Wood Bank[17] Program (up to 80 cords per year). The table below is the Proponent's estimate of carbon released from forested acres after accounting for the above leakage effects; the table also converts carbon effects to carbon dioxide equivalents (CO2e) to estimate GHG impacts.

Table 2. Carbon and CO2e Release After Accounting for NEPs Programmatic Efforts

Source	One-Time Loss	Net Loss in Future Sequestration	Actual Change
Maximum Potential Carbon Loss (mt C)	11,199	965	12,164
Leakage Adjusted Carbon Loss (mt C)	9,374[a]	965	10,339
Leakage Adjusted CO2e Loss (mt)	34,347	3,536	37,883

[a] Calculated as the one-time loss multiplied by 0.837, where 0.837 represents the fraction of carbon released after accounting for wood retained and used by landowners and wood donated to firewood distribution centers.

The DEIR indicates the following: up to 34,347 metric tons of carbon dioxide equivalent (CO2e) may be released from aboveground live biomass and forest soils because of the project, and up to 3,536 metric tons of CO2e may not be sequestered in the future (next 30 years) because wooded habitat will be converted to low-growing herbaceous and woody shrub habitat. The DEIR also indicates that increased grid resiliency reduces GHG emissions by reducing outages and flickers that result in the use of back-up generation (diesel-fired) (approximately 33 metric tons of CO2e per outage), the loss of residential and commercial food (9.2 metric tons of CO2e), and losses/damage to commercial equipment and remanufacturing of commercial products (5 metric tons of CO2e). Using past outage data for the A1/B2 line the Proponent estimates that project-related reliability increases will prevent the release of at least 25 metric tons of CO2e annually over the next 30 years; therefore, the reliability improvements brought about by the project are likely to reduce GHG emissions by at least 750 metric tons of CO2e over its projected 30-year lifespan.

In addition, the DEIR indicates that the project will facilitate a reduction in the overall carbon intensity of the electricity in Massachusetts by enabling increased utilization of low carbon electric generation and storage facilities; this is a benefit of increased grid resiliency. Specifically, there are

[17] Community Wood Bank Program | Mass.gov

currently 20.5 Mega Watt (MW) of solar generation and battery energy storage system (BESS) projects on hold because the existing A1/B2 Lines would experience thermal overloads if the new projects were tied into the lines. These include the 8 MW Crystal Lake BESS project, the 4.99 MW East Westminster solar and BESS project, and the 7.5 MW Royalston solar and BESS project. Together these projects represent no less than 6 MW of new generation capacity. The Proponent quantifies the reduction in CO2e emissions associated with these clean energy projects over the project's 30-year lifespan as a reduction of 170,370 U.S. tons of CO2e.[18] This is equivalent to 154,557 metric tons of CO2e. The FEIR includes the following summary table of the estimated amount of carbon released from forested acres because of the projects after accounting for programmatic efforts to reduce the release of CO2 and the increase in grid reliability and resilience which shows a total offset of the project related GHG emissions.

Table 3. Carbon and CO2e Release After Accounting for Increased Grid Reliability and Resiliency

Source	CO2e Emissions
Leakage Adjusted CO2e Loss (mt) from Table 2	37,883
CO2e Release Due to Increased Reliability (mt)	-750
CO2e Release Due to Increased Resiliency (mt)	-154,557
Project-Related Change in CO2e Emissions (mt)	**-117,424**

Transportation

According to the DEIR, construction activities will intersect with the state jurisdictional highway layout at multiple locations, including Route 202 in Winchendon, Route 2 in Westminster, Fitchburg, and Leominster, Central Street in Leominster, Depot Road in Westminster, and State Road in Westminster. The DEIR provided the following list of construction equipment that is likely to be required to install the new overhead transmission line and remove the existing structures:

[18] U.S. EPA's AVoided Emissions and geneRation Tool (AVERT) model predicts the effect of energy policies and programs such as energy efficiency, renewable energy, and electric vehicles lead to changes in air emissions, including CO2, from electric power plants at a county, state, or regional level.

Table 9-1: Typical Overhead Transmission Line Construction Equipment

Construction Phase	Typical Equipment/Materials Required
Site Preparation	Pickup and other small trucks Flatbed trucks, brush hogs, bulldozers, bucket trucks for tree canopy pruning, woodchippers Erosion and sediment control BMPs Equipment for tree pruning and/or cutting
General Activities	Vehicles to transport personnel Side booms, forklifts and cranes to handle materials. Trucks to haul sanitary/solid wastes from construction sites. Pickup trucks for supplies
Tree Removal	Mechanized mower Chainsaws Tree handler Feller buncher
Access Routes	Bulldozer or front-end loader Excavators Dump trucks for hauling crushed stone or gravel. Vibratory rollers Pickup or stake body trucks for culverts, tooling, and personnel
Structure Upgrades	Trucks to haul out old hardware (roll off dumpsters) Cranes Trucks with welding equipment to cut steel supports or components. Dump trucks to haul smaller components, gravel or spoils. Digging equipment such as back hoes or excavators
Installation of Replacement and New Structures	Bulldozer or front-end loader All-terrain vehicles (ATVs) Tracked carrier (marooka) or a Skidder Flatbed trucks and tractor trailers for hauling structure components Augers Excavators and backhoes Cranes Bucket trucks Conductor pulling and tensioning rigs

As noted above, the DEIR states that the number of truck trips required for the project, including tree removal activities has not been quantified and adds that due to the phased nature of the work, and extent of the project ROW, it is not possible to accurately assess how many vehicles will be involved in tree removal activities at any one time, or in any one location. This information has been provided for similar utility corridor projects and should be provided in the FEIR and should include expected routes of travel through EJ communities as detailed in the Scope.

Project-related construction in these locations will require an access permit issued by the appropriate MassDOT District (either District 2 or 3). Comments from MassDOT indicate that permits will be required for temporary construction access, overhead wire crossings of the above listed state routes, and new access roadways proposed within the state highway right-of-way. Comments from MassDOT state that transmission line installation could temporarily affect traffic flow of the roadways but does not involve physical modifications to the roadway or roadway ROW. The DEIR indicates that a TMP will be developed and submitted to MassDOT for review and approval prior to the start of construction. Standard mitigation includes traffic management procedures; construction time restrictions; signage; installation of track pads to minimize soil in roadways; and/or restoration of vegetation along soft shoulders after construction. Once completed, the project is anticipated to result in fewer than one vehicle trip per day. Based on the limited trip generation and limited expansion of the proposed electrical infrastructure, comments from MassDOT indicate that the transportation impacts resulting from project will not significantly impact the transportation system and recommends no further

environmental review based on transportation. The Proponent should coordinate with appropriate MassDOT sections, including the Public Private Development Unit (PPDU) and Districts 2 and 3 during the permitting process.

Historic and Archaeological Resources

The DEIR indicates that an Intensive (locational) Archaeological Survey Report was submitted to MHC in March 2023. The Proponent received an MHC report review letter and concurrence on March 31, 2023. The DEIR also states that coordination with the Royalston Historic District resulted in a shift to Structure 262 to mitigate visual impacts within the area which corresponded to a shift in Structure 261 as well Additionally, the Franklin Regional Council of Governments ("FRCOG") recommended the Proponent consider documenting portions of the historical mainline, such as the Vernon Dam. The Vernon Dam is a 32.4 MW ("megawatt") Vernon hydroelectric project that came into operation in 1909. The DEIR recognizes the significance of the Vernon Dam and indicates that while the lines originate at the Vernon Dam, no modifications to the dam are proposed.

SCOPE

General

CS-1 The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. Recommendations provided in this Certificate may result in a modified design that would further avoid, minimize, and/or mitigate Damage to the Environment. The FEIR should

CS-2 identify measures the Proponent will include to further reduce the impacts of the project since the filing of the DEIR, or, if certain measures are infeasible, the FEIR should discuss why these measures will not be adopted.

Project Description and Permitting

CS-3 The FEIR should identify any changes to the project since the filing of the DEIR. It should include updated site plans for existing and post-development conditions. Conceptual plans should be legible and provided at a reasonable scale. Plans should clearly identify all major project components (structures, transmission lines, access roads, etc.); public areas; wetland resource areas; impervious areas; ownership of parcels including easements; and stormwater and utility infrastructure. The FEIR

CS-4 should indicate if additional permanent and temporary easements will be required to facilitate tree clearing and create access to the ROW. It should provide a brief description and analysis of all

CS-5 applicable statutory and regulatory standards and requirements and describe how the project will meet those standards. It should include a list of required State Permits, Financial Assistance, or other State or local approvals and provide an update on the status of each. I expect the FEIR will provide clear and

CS-6 direct responses to the comments from Mass Audubon and will further address proposed mitigation for the 131 acres of both upland and wetland tree clearing.

Environmental Justice/Public Health

CS-7 The Proponent should continue to take steps, including undertaking additional measures, to meaningfully engage EJ populations in decision-making for the project. The FEIR should report on the results of such engagement efforts.

CS-8 As previously required by the Certificate on the EENF, the FEIR should analyze land alteration associated with the project including implications for potential stormwater flooding in surrounding neighborhoods. Analysis of the stormwater should specifically assess whether flooding risks may be

CS-9 exacerbated for nearby EJ populations, including under future climate conditions. As noted above, to the extent any residential neighborhoods, including EJ populations, are located within "hot spots," the project should propose mitigation to offset the effects of tree removal adjacent to those locations, and the distance for this assessment should be extended to 500 feet. Mitigation could take the form of permanent land/forest preservation or tree plantings in the affected neighborhoods.

CS-10 The FEIR should provide an estimate of the number of truck trips per day anticipated for the project and the Proponent should determine whether it exceeds the threshold for 150 new average daily trips (adt) of diesel vehicle traffic over a duration of one year or more at which EJ outreach and analysis are required over a 5-mile DGA under the MEPA EJ protocols. The Proponent should circulate the FEIR

CS-11 to the EJ reference list prior to filing, and, if a 5-mile DGA is implicated, should contact the MEPA Office for an updated list of all CBOs and tribes/indigenous organizations. If any disproportionate adverse effects are identified, the FEIR must include a discussion of proposed mitigation and include such measures in draft Section 61 findings.

Rare Species

CS-12 The FEIR should provide an update on potential impacts to state-listed rare species habitat associated with the project and proposed measures to avoid, minimize and mitigate those impacts. It should provide a summary of the outcome of continued consultation with NHESP.

CS-13 As requested in comments from NHESP, the Proponent should further evaluate reductions to permanent habitat loss associated with gravel work pads and access roads; develop updated botanical survey protocols for pre-construction surveys within suitable habitat; and develop robust rare-species protection plan(s) focusing on time-of-year restrictions, avoidance of active and breeding seasons, and daily sweeps of the work area during any active season work. Comments from NHESP state that the Division anticipates being able to resolve any outstanding concerns related to state-listed species during the MESA review process.

Wetland Resource Areas

CS-14 As previously recommended in MassDEP comments on the EENF, the Proponent should consider waiting to file Notices of Intent (NOIs) with the Conservation Commissions until the conclusion of MEPA review to ensure sufficient opportunities for public involvement and to avoid any potential conflict with the final Certificate, Orders of Conditions, or the WQC. The FEIR should provide confirmation on the process the Proponent intends to follow.

CS-15 According to MassDEP comments, the project may be eligible for review under the Limited Project provisions pursuant to 310 CMR 10.53(3)(d) but would be subject to mitigation requirements at the discretion of the local Conservation Commission. The FEIR should clarify whether the project will fully meet the performance standards for each impacted jurisdictional wetland resource area even if the project qualifies as a Limited Project. It should specifically describe which impacted resource areas will fully meet the performance standards and which impacts will be reviewed under the Limited Project provisions.

The DEIR states that compensatory mitigation may include off-site preservation of forested land or wetlands, and culvert and stream enhancements, or other replication, restoration, or preservation packages. The MassDEP comment letter states that the Proponent should submit mitigation alternatives consistent with the Wetlands Protection Act performance standards for wetland resource area impacts. For permanent loss of BVW, an adequate replacement ratio must be provided. For permanent wetland alteration resulting from tree clearing (which is not a loss), other mitigation alternatives can be considered. Preservation would be an acceptable mitigation option if provided at a substantially higher mitigation to impact ratio. For example, see Appendix C of the *New England District Compensatory Mitigation Standard Operating Procedures* (USACE 2020). The FEIR should include a more detailed description of the mitigation options under consideration to meet regulatory requirements.

CS-16

CS-17 The FEIR should include an analysis of Stormwater Management as outlined in prior comments from MassDEP on the EENF and restated in comments on the DEIR. Comments note that removal of trees increases the peak runoff rate, triggering compliance with 310 CMR 10.05(6)(k)2. and 314 CMR 9.06(6)(a)2. which apply to alterations in resource areas regardless of if the project qualifies as a Limited Project. In addition to traditional stormwater management as mitigation, MassDEP recommends the Proponent evaluate replacement of trees to reduce the peak runoff rate. Any trees replaced would need to be within the same sub-watershed to be considered as peak rate mitigation. The FEIR should address prior DEP recommendations to evaluate replacement of trees to reduce the peak runoff rate and the EENF certificate's requirement to estimate the time period likely to recover the same or larger tree canopy. The FEIR should address these comments including potential flooding impacts as they relate to EJ populations and provide mitigation as necessary.

CS-18

CS-19 The project will create 0.3 acres of new impervious associated with new caissons. The FEIR should discuss how the project will meet the recharge and TSS treatment standards for new impervious including special requirements which apply to Critical Areas, such as ORWs (310 CMR 10.05(6)(k)6. and 314 CMR 9.06(6)(a)6.). In addition, the FEIR should demonstrate that compensatory flood storage provided for permanent fill in BLSF has an unrestricted hydraulic connection to same waterway or water body displaced by the project as stated in 310 CMR 10.57(4)(a)1. The compensatory flood storage analyzed in the FEIR must be proposed near where the fill is proposed so as to provide an unrestricted connection to the same waterway. In addition, the Proponent must demonstrate that seasonal high groundwater is at or below the elevation which the compensatory flood storage will be provided. The FEIR should analyze alternatives to provide the compensatory flood storage and provide a cut-and-fill table for each alternative analyzed.

CS-20

CS-21

Chapter 91

CS-22 As requested in comments from the MassDEP Waterways Program, the FEIR should include plan and cross-sectional details that depict the temporary and permanent (Perley Brook) scopes of work and should indicate the proposed timing that temporary structures/fill will be located within each waterway within Chapter 91 jurisdiction in order for the Waterways Program to determine whether they may be eligible for a Chapter 91 permit or if a license is required.

Article 97

Comments from DCR assert that proposed changes to access roads outside of the ROW include tree clearing, widening, grading, and corridor improvements that will result in permanent impacts to

state forests. Comments indicate that DCR is in the process of determining whether the permanent impacts to off-ROW DCR property could amount to a change in use or control that will invoke the EEA Article 97 Land Disposition Policy and the requirements of the Public Lands Preservation Act. The Proponent should continue consultation with DCR and the FEIR should provide a summary of the outcome of these consultations. The FEIR should clarify impacts (temporary and permanent) to Article 97 Land and proposed measures to avoid, minimize and mitigate impacts. If it is determined that impacts result in a change in use or control, the FEIR should address compliance with the EEA Article 97 Policy. As previously noted, work activities on DCR property outside of existing easements associated with the ROW, or requiring access across DCR property, will require a CAP.

CS-23

CS-24

Comments from DCR also request that the Proponent continue to coordinate with DCR Forestry, Ecology, Archaeology and Park staff to minimize impacts to sensitive resources, minimize clearing to the extent possible, and identify mitigation opportunities should a loss or conversion of wetlands, rare species habitat or other forest or recreational resources result from project activities. Comments from DCR continue to express concerns about recreational impacts at the access point in Warwick State Forest that is proposed to be co-located with the Metacomet Monadnock Trail for approximately 2,300 feet and impacts that may result in increased Off-Highway Vehicle (OHV) access to the state forests, potentially causing degradation of natural and cultural resources. DCR requests coordination with the Proponent to develop and implement strategies to deter this unauthorized trail use. The FEIR should provide an update on these consultations.

CS-25

CS-26

Climate Change

Adaptation and Resiliency

While the DEIR 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. The FEIR 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. The Tool now provides 24-hour rainfall volumes for various storm scenarios, which can be consulted as a resource. As stated above, the FEIR should provide a stormwater report or other data to document pre- and post-construction runoff rates for new/improved access roads and construction work pads will be resilient to future storm events.

CS-27

CS-28

Land Alteration

Given the extent of tree clearing proposed, I expect the FEIR to identify mitigation measures commensurate with the project's impacts on the project corridor's capacity to sequester and store carbon. While I acknowledge that the purpose of the project is to expand transmission capacity to enable a future transition to electrification, the DEIR analysis still shows that the proposed tree clearing will have carbon impacts that are not fully offset by its immediate resiliency benefits. The proponent should take all feasible measures to mitigate these impacts to the maximum extent practicable. Potential mitigation measures may include efforts that address both regulatory requirements and overall state climate change goals as identified in the Massachusetts Clean Energy and Climate Plan for 2025 and 2030.[19] The FEIR should describe a potential mitigation package which may include

CS-29

CS-30

[19] Massachusetts Clean Energy and Climate Plan for 2025 and 2030 | Mass.gov

CS-30 preserving/protecting forested land through a Conservation Restriction, reforestation including along perennial streams and/or coldwater fishery resources, and/or urban tree planting programs (recommendation of 50 trees/acre with a commitment to water and replace for two years). The Proponent should confirm its commitments to donate 1.7% of the trees felled to the DCR Community Wood Bank or other Massachusetts wood bank program which provide free firewood for those in need of energy. The FEIR should provide additional information on whether maximum efforts are being made to reuse trees for long-lived wood products. To the extent specific agreements ae secured with landowners to dedicate trees to resale to sawmills, the FEIR should indicate whether this end use can be tracked, and if so, propose a method for doing so (e.g., through tracking of end contracts executed by the Proponent with individual landowners).

CS-31

Mitigation and Section 61 Findings

CS-32 The DEIR included draft Section 61 Findings and proposed mitigation measures. The FEIR chapter should include an updated comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations. The FEIR 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, EJ, 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.

CS-33

CS-34

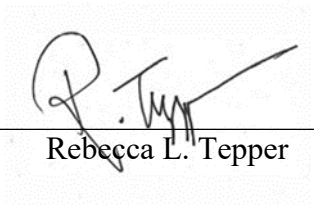
Responses to Comments

CS-35 The FEIR should contain a copy of this Certificate and a copy of each comment letter received. It should include a comprehensive response to comments on the DEIR that specifically address each issue raised in the comment letter; references to a chapter or sections of the FEIR alone are not adequate and should only be used, with reference to specific page numbers, to support a direct response. This directive is not intended to, and shall not be construed to, enlarge the Scope of the FEIR beyond what has been expressly identified in this certificate.

Circulation

CS-36 In accordance with 301 CMR 11.16, the Proponent should circulate the FEIR to each Person or Agency who commented on the DEIR, 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. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the FEIR to commenters in a digital format (e.g., CD-ROM, USB drive) or post to an online website. A copy of the FEIR should be made available for review in the Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling.

January 16, 2024
Date



Rebecca L. Tepper

Comments received:

11/17/2023	Massachusetts Department of Environmental Protection (MassDEP) Waterways Program
12/08/2023	MassAudubon
12/08/2023	Massachusetts Division of Fisheries and Wildlife (DFW) Natural Heritage and Endangered Species Program (NHESP)
12/08/2023	Massachusetts Department of Transportation (MassDOT)
12/11/2023	Massachusetts Department of Conservation and Recreation (DCR)
01/10/2024	MassDEP, Western & Central Regional Offices (WERO & CERO)

RLT/JAH/jah

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
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Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

Memorandum

To: Rebecca L. Tepper, Secretary, EOEEA

Through: Jennifer Hughes, MEPA

From: MassDEP Waterways Regulation Program

cc: Daniel Padien, MassDEP/Boston Waterways Regulation Program

Re: Comments from the Chapter 91 Waterways Regulation Program: EES #16607 Draft Environmental Impact Report (DEIR), A1/B2 Asset Condition Refurbishment Project. Warwick, Roylaston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling

Date: November 17, 2023

The Department of Environmental Protection Waterways Regulation Program (the "Department") has reviewed the above referenced DEIR filing submitted by BSC Group on behalf of the New England Power Company (the "Proponent") for refurbishment activities and system improvements along approximately 54 circuit miles along the A1/B2 Lines ("the Project").

Chapter 91 Comments

DEP Waterways-1

In the DEIR (Table 4-9), the proponent provides a list of waters they assert includes all such waters subject to Chapter 91 within the footprint of the project. The proponent identifies an "OOC" (Order of Conditions) as the "Anticipated Chapter 91 Approval" for each proposed crossing. However, the issuance of a Wetlands Protection Act OOC is not a Chapter 91 approval and does not satisfy a requirement for Chapter 91 authorization. The issuance of an Order of Conditions is one of the criteria that may result in certain scopes of work being exempt from a Chapter 91 authorization requirement, pursuant to 310 CMR 9.05(3)(g)(1). Alternatively, the proposed work must meet all of the criteria at 310 CMR 9.05(3)(a) and not reduce the space available for navigation.

DEP Waterways -2

The DEIR and ENF reference proposed work in or over non-tidal rivers and streams for construction access. Such work includes temporary construction mats and associated fill, work pads and pull pad envelopes, in addition to permanent fill for at least one structure foundation. The FEIR should include plan and cross-sectional details that depict the temporary and permanent (Perley Brook) scopes of work and should indicate the proposed timing that temporary structures/fill will be located within each waterway within Chapter 91 jurisdiction in order for the Department to determine whether they may be eligible for a Chapter 91 permit or if a license is required.

DEP Waterways -3

Please be advised that the Chapter 91 permit and/or license application is required to be signed by the applicant and the landowner if other than the applicant. In lieu of the landowner's signature, the applicant may provide other evidence of legal authority to submit an application for the project site.

If there are any questions regarding the Department's comments, please contact DEP.Waterways@mass.gov.

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

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December 8, 2023

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

Via email: Jennifer.Hughes@mass.gov; purvi.patel@mass.gov

Re: **EEA #16567 WT-02 Transmission Right-of-Way Reliability Project – Hancock, Lanesborough, Hinsdale, Cheshire, Dalton**
EEA #16607 A1/B2 Asset Condition Refurbishment (ACR) Project – Fitchburg, Gardner, Winchendon, Leominster, Sterling, Royalston, Warwick, Athol, Westminster
EEA #1663 E131 Asset Condition Refurbishment (ACR) Project – Florida, North Adams, Monroe, Adams

Dear Secretary Tepper:

On behalf of Mass Audubon, I submit the following comments on the Draft Environmental Impact Reports (DEIRs) for these transmission line refurbishment projects. Mass Audubon also commented with other organizations on the EENF for the E131 project.

While the specifics of these projects and their local impacts vary, these comments focus on high level points that apply generally to all projects of this type. These projects involve tree clearing; conversion of forested uplands and wetlands to open habitat types; impacts to permanently protected open spaces (Article 97 lands); temporary and permanent impacts to wetlands and rare species habitats; and permanent impacts including widening and upgrading access roads and replacement of poles and towers with new structures, some of which are in new locations. The cumulative impacts of these three projects have been reduced since the Expanded Environmental Notification Forms (EENFs) were filed, but are still substantial, in the range of 250+ acres of tree clearing, 50+ acres of vegetated wetlands alterations, and 78+ acres of impacts to Article 97 lands[1]. These projects also cross many public trails including the Appalachian Trail.

These projects are necessary for the electric system reliability, to update old equipment and structures, and to improve the efficiency and capacity of existing transmission rights-of-way (ROWs) (e.g. by replacing old shield wire with new optical ground wire (OPGW). As the state makes the essential transition to clean energy, maximizing the efficiency and reliability of existing transmission lines is an important step.

At the same time, the Commonwealth also has goals for the role of natural and working lands including forests, wetlands and farmland in the Clean Energy and Climate Plan, the Resilient Lands Initiative, ResilientMass Plan, Executive Order 618 on Biodiversity, the Healthy Soils Action Plan, the Farmland Action Plan, Forest Action Plan, State Wildlife Action Plan, BioMap, Forests as Climate Solutions, and other plans and initiatives. Maximizing the use of existing transmission corridors can help minimize the need for new ROWs to meet energy system needs. And applying management practices that maintain the natural habitat and other resource supporting capacities utility ROWs as much as possible will help harmonize the multiple competing goals for land across the Commonwealth.

Mass Aud - 1

Our previous comments on the E131 project requested that MEPA consider working with the utilities to establish a programmatic approach to these projects. We reiterate that request here. Even if segments of these line

[1] The exact numbers were difficult to compile from the documents, particularly for Article 97 impacts since it is not entirely clear how much of the work is new impacts to these lands.

improvements need to be reviewed independently to align with the utilities' capital improvement programs, there should be a programmatic approach that includes:

- **Tracking of multiple projects in the context of larger system planning** at a level that is understandable to the public.
- **Comprehensive tracking and availability of data on cumulative impacts to key resources including forests, wetlands, farmlands, rare species habitats, and Article 97 lands.**
- **Standardized approaches to avoidance and minimization of impacts.**
- **Mitigation for all unavoidable impacts and tracking of follow-through on mitigation commitments and results**. The extent of Article 97 impacts and mitigation to comply with the Public Lands Protection Act are not entirely clear in these DEIRs. There are references to ongoing consultations with DCR as well as claims regarding the breadth of pre-existing easement rights including rights of access across lands beyond the limits of the actual easements. MassWildlife, municipal, and land trusts lands are also impacted. The Final EIRs should clarify these points and provide definitive commitments to mitigation for unavoidable Article 97 impacts, in addition to the other forms of mitigation already described (e.g. land protection for wetlands impacts and rare species habitat construction period conditions from the Natural Heritage and Endangered Species Program).
- **Best practices for ongoing maintenance to minimize impacts on habitat, water resources, and recreational uses.** While there is already a system for reviewing Vegetation Management Plans in relation to use of pesticides, the standard best practices for these ROWs should be expanded to include these other important considerations. For example, tree clearing, brush hogging, and mowing generally should not occur during the bird nesting season. Expansion of scrub/shrub habitat for birds, pollinators, and other wildlife dependent on such habitats is an important goal of the state's Wildlife Action Plan and BioMap. To the extent these corridors can support such habitats, vegetation management practices should be optimized to achieve that. It is appropriate for the utilities to make such commitments throughout their ROW corridors, as mitigation for the ongoing impacts to Article 97 lands, forests, and wetland resources and as overall best practices for their land stewardship.

Mass Aud - 2

Minimizing Avian Electrocution Risks: The DEIR for the A1/B2 project mentions existing problems with birds nesting on equipment and describes replacement of structures and wires with newer systems designed to deter bird nesting. This includes changing the shielding angle and raising the height of conductors. Updated designs that avoid and minimize potential conflicts between transmission infrastructure and wildlife including birds is an important consideration. It is unclear whether the designs for these projects will also eliminate or at least minimize potential for bird electrocutions. The Final EIRs should clarify this and there should be explicit commitments to utilizing designs that minimize the potential for avian harm and death[2]. As this is an evolving area of science and best practice, the utilities should make commitments to continuing to advance and apply the best available designs and retrofitting techniques.

Thank you for considering these comments. We hope that the review of these maintenance and refurbishment projects can help set the stage for consistent, cumulative review and the avoidance, minimization and mitigation of impacts from both existing transmission lines and future system expansion projects.

Sincerely,



E. Heidi Ricci
Director of Policy and Advocacy

Cc: Eve Shluter, Assistant Director, MassWildlife
Rebecca Weismann, SWCA
Priyanka Shrestha, BSC Group
Katy Wilkins, Tighe and Bond

[2] https://www.fws.gov/story/incidental-take-beneficial-practices-power-lines; https://media.audubon.org/2023-08/BirdsAndTransmissionReport.pdf

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

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MASS.GOV/MASSWILDLIFE

December 8, 2023

Secretary Rebecca Tepper
Executive Office of Energy and Environmental Affairs
Attention: MEPA Office
Jennifer Hughes, EEA No. 16607
100 Cambridge St.
Boston, Massachusetts 02114

Project Name:	*A1/B2 Asset Condition Refurbishment (ACR) Project*
Proponent:	*New England Power Company*
Location:	*Existing Right-of-way in Warwick, Royalston, Winchendon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Sterling*
Project Description:	*Structure Replacements and access roadway installation and upgrades on existing Right-of-way*
Document Reviewed:	*Draft Environmental Impact Report*
EEA File Number:	*16607*
NHESP Tracking No.:	*23-8583 (previously 22-41082)*

Dear Secretary Tepper:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the Division) has reviewed the *Draft Environmental Impact Report* (DEIR) for the "A1/B2 Asset Refurbishment Project" (the "Project") and would like to offer the following comments regarding state-listed species and their habitats.

According to the information provided in the DEIR and the *Massachusetts Natural Heritage Atlas* (15th Edition), portions of the Project site are mapped as *Priority* and *Estimated Habitat* for multiple state-listed species, including Wood Turtle (*Terrapene carolina*; Special Concern), American Bittern (*Botaurus lentiginosus,* Endangered) and Sand Violet (*Viola adunca*, Special Concern). These species and their habitats are protected pursuant to the Massachusetts Endangered Species Act (MGL c.131A) and its implementing regulations (MESA; 321 CMR 10.00). Fact Sheets for state-listed species can be found on our website, www.mass.gov/nhesp.

DFW - 1

The Proponent has engaged the Division in pre-filing consultations to discuss proposed impacts associated with the Project, and has been actively working with the Division to avoid and minimize permanent and temporary impacts to state-listed species and their habitats. A MESA filing is currently under review, and at this time it is unclear whether the project will result in a Take (321 CMR 10.18 (2)(b)) of state-listed species. Projects resulting in a Take of state-listed species may only be permitted if they meet the performance standards for a Conservation and Management Permit (CMP; 321 CMR 10.23).

DFW - 2

Since the filing of the EENF, the Applicant has met with the Division to discuss minimization of permanent impacts and the Applicant discussed using construction matting to avoid permanent impacts to sensitive nesting habitats, but these figures were not finalized before submittal of the DEIR. The Division recommends that the Proponent continue to work proactively with the Division to: (1) further evaluate reductions to permanent habitat loss associated with gravel work pads and access roads (2) develop updated botanical survey protocols for pre-construction surveys within suitable habitat; and (3) develop robust rare-species protection plan(s) focusing on time-of-year restrictions, avoidance of active and breeding seasons, and daily sweeps of the work area during any active season work.

DFW - 3

Based on the ongoing consultations, the Division anticipates being able to resolve any outstanding concerns related to state-listed species during the MESA review process. We look forward to continued coordination with the Proponent to ensure that the Project addresses all issues related to state-listed species.

The Division will not render a final decision until the MEPA review process and associated public and agency comment period is completed, and until all required MESA filing materials are submitted to the Division. As our MESA review is ongoing, no alteration to the soil, surface, or vegetation and no work associated with the Project shall occur until the Division has made a final determination. If you have any questions or need additional information, please contact Lauren Glorioso, Endangered Species Review Biologist, at lauren.glorioso@state.ma.us or 508-389-6361. We appreciate the opportunity to comment on the Project.

Sincerely,



Everose Schlüter, Ph.D.
Assistant Director

cc: Mike Tyrell, National Grid
Heidi Graff, VHB
MassDEP Central Regional Office
Town of Warwick Board of Selectmen
Town of Warwick Planning Board
Town of Warwick Conservation Commission
Town of Royalston Board of Selectmen
Town of Royalston Planning Board
Town of Royalston Conservation Commission
Town of Winchendon Board of Selectmen
Town of Winchendon Planning Board
Town of Winchendon Conservation Commission

Town of Gardner Board of Selectmen
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Town of Westminster Board of Selectmen
Town of Westminster Planning Board
Town of Westminster Conservation Commission
Town of Fitchburg Board of Selectmen
Town of Fitchburg Planning Board
Town of Fitchburg Conservation Commission
Town of Leominster Board of Selectmen
Town of Leominster Planning Board
Town of Leominster Conservation Commission
Town of Athol Board of Selectmen
Town of Athol Planning Board
Town of Athol Conservation Commission
Town of Sterling Board of Selectmen
Town of Sterling Planning Board
Town of Sterling Conservation Commission

Maura Healey, Governor
Kimberley Driscoll, Lieutenant Governor
Monica Tibbits-Nutt, Secretary & CEO

massDOT
Massachusetts Department of Transportation

December 8, 2023

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114-2150

RE: Fitchburg et al – A1/B2 Asset Condition Refurbishment Project – DEIR
(EEA #16607)

ATTN: MEPA Unit
Jennifer Hughes

Dear Secretary Tepper:

On behalf of the Massachusetts Department of Transportation, I am submitting comments regarding the Draft Environmental Impact Report (DEIR) filed for the proposed A1/B2 asset condition refurbishment project starting in Warwick and running through Winchendon, Leominster, Sterling, Royalston, Gardner, Fitchburg, Athol, and Westminster as prepared by the Office of Transportation Planning. If you have any questions regarding these comments, please contact J. Lionel Lucien, P.E., Manager of the Public/Private Development Unit, at (857) 368-8862.

Sincerely,

David J. Mohler
Executive Director
Office of Transportation Planning

DJM/jll

Ten Park Plaza, Suite 4160, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
www.mass.gov/massdot

cc: Jonathan Gulliver, Administrator, Highway Division
Carrie Lavallee, P.E., Chief Engineer, Highway Division
James Danila, P.E., State Traffic Engineer
Patricia Leavenworth, P.E., District 2 Highway Director
Barry Lorion, P.E., District 3 Highway Director
Franklin Regional Council of Governments (FRCOG)
Montachusett Regional Planning Commission (MRPC)

Maura Healey, Governor
Kimberley Driscoll, Lieutenant Governor
Monica Tibbits-Nutt, Secretary & CEO

massDOT
Massachusetts Department of Transportation

MEMORANDUM

TO: David J. Mohler, Executive Director
Office of Transportation Planning

FROM: J. Lionel Lucien, P.E., Manager
Public/Private Development Unit

DATE: December 8, 2023

RE: Fitchburg et al – A1/B2 Asset Condition Refurbishment Project – DEIR
(EEA #16607)

The Public/Private Development Unit (PPDU) has reviewed the Draft Environmental Impact Report (DEIR) for the A1/B2 Asset Condition Refurbishment Project (the "Project") entering Massachusetts in Warwick and running through Winchendon, Leominster, Sterling, Royalston, Gardner, Fitchburg, Athol, and Westminster submitted by the BSC Group, Inc. on behalf of New England Power Company (NEP) (the "Proponent"). The Project entails the refurbishment of existing overhead electrical utility lines, including replacing existing infrastructure, trimming vegetation, and in some cases providing new access drives to maintain the power lines. The overhead lines to be refurbished in this Project run from the Massachusetts state boundary in Warwick to the Pratts Junction #225 Substation in Sterling.

The Project previously filed an Expanded Environmental Notification Form (EENF) on September 23, 2022, with the request for a Single Environmental Impact Report (SEIR). On October 31, 2022, the Secretary of Energy and Environmental Affairs issued a Certificate determining that the Project as outlined in the EENF would require the submission of an Environmental Impact Report and that the Project should prepare a Draft and a Final EIRs rather than a Single EIR as requested by the Proponent in the EENF. While Project's details subject to MassDOT review remain substantially unchanged from the EENF proposal, the DEIR is responsive to specific requests made by the EEA and MassDOT during review of the EENF.

The Project route will intersect with the state jurisdictional highway layout at multiple locations, including Route 202 in Winchendon, Route 2 in Westminster, Fitchburg, and Leominster, Central Street in Leominster, Depot Road in Westminster, and State Road in Westminster. Further MassDOT permits will be required for temporary construction access at approximately ten access points, overhead wire crossings of the above listed state routes, and new access roadways proposed within the state highway right-of-way (ROW).

The transmission line installation could temporarily affect traffic flow of the roadways but does not involve physical modifications to the roadway or roadway ROW. Typical performance standards associated with the MassDOT permit include notification 48 hours

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prior to the beginning of work; submission of MassDOT's standard work notification form; compliance with MassDOT's requirements regarding traffic delays; and the use of police details as specified on the traffic management plans and required by MassDOT. The day of the week and time of day that the work will be performed could vary based on the roadway classification and historical traffic volumes. NEP will prepare and submit a Traffic Management Plan (TMP) to MassDOT for its review and approval. The Project will comply fully with the performance standards specified in the permit to ensure a safe environment for traffic flow and construction crews in and around the roadways.

Once completed, the Project is anticipated to result in fewer than one vehicle trip per day. Based on the limited trip generation and limited expansion of the proposed electrical infrastructure, MassDOT does not anticipate that the transportation impacts resulting from Project development would significantly impact the transportation system and recommends no further environmental review based on transportation. The Proponent should coordinate with appropriate MassDOT sections, including the Public Private Development Unit (PPDU) and Districts 2 and 3 during the permitting process for the Project. If you have any questions regarding these comments, please contact *William.M.Simon@dot.state.ma.us*.

DOT - 1

dcr
Massachusetts

December 11, 2023

Secretary Rebecca L. Tepper
Executive Office of Energy and Environmental Affairs
Attn: Jennifer Hughes, MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: EEA#16607 A1/B2 Asset Condition Refurbishment Project DEIR

Dear Secretary Tepper:

The Department of Conservation and Recreation ("DCR" or "the Department") is pleased to submit the following comments in response to the Draft Environmental Impact Report ("DEIR") filed by New England Power Company ("NEP" or the "Proponent") for the proposed A1/B2 Asset Condition Refurbishment Project (the "Project") from Sterling to Warwick.

NEP's mainline right-of-way ("ROW") is of variable width, and the Project proposes tree clearing to 100 feet throughout. Additional tree clearing related to new or improved access roads is also proposed. NEP proposes to replace structures and wires within the ROW to address poor asset conditions. A fiber optic ground wire will be installed between substations. The ROW passes through Leominster State Forest, Otter River State Forest, Royalston State Forest, and Warwick State Forest. The ROW intersects with the Metacomet-Monadnock Trail, a long- distance hiking trail that is part of the New England Trail, in Warwick State Forest. The DEIR Table 3-4 indicates that the Project will result in 47,103 square feet of off-ROW permanent alterations and impacts within the state forests.

Article 97

The proposed Project includes the ongoing use and "improvement" of woods roads outside of the ROW to enable access through DCR forest land to get to the NEP ROW for Project activities. Proposed changes to the access roads and trails include tree clearing, widening, grading and improving the corridors, which will result in permanent impacts to the state forests. DCR is in consultation with the Proponent to gain more details on the proposed off ROW activities and their impacts to the natural and recreational resources within the state forest, and is in the process of determining whether the permanent impacts to off-ROW DCR property would amount to a change in use or control that will invoke the EEA Article 97 Land Disposition Policy and the requirements of the Public Lands Preservation Act, codified at M.G.L. c. 3, § 5A.

Natural, Cultural and Recreational Resources

DCR - 1

DCR requests that the Proponent continue to coordinate with DCR Forestry, Ecology, Archaeology and Park staff to minimize impacts to sensitive resources, minimize clearing to the extent possible, and identify mitigation opportunities should a loss or conversion of wetlands, rare species habitat or other forest or

Department of Conservation and Recreation
State Transportation Building
10 Park Plaza, Suite 6620
Boston, MA 02116-3978
617-626-1250 617-626-1351 Fax
www.mass.gov/dcr

Maura T. Healey
Governor
Kimberley Driscoll
Lt. Governor

Rebecca L. Tepper, Secretary
Executive Office of Energy & Environmental Affairs
Brian Arrigo, Commissioner
Department of Conservation & Recreation

DCR - 2 recreational resources result from Project work activities. We look forward to reviewing specific protection and restoration measures to be taken for sensitive natural and cultural resources on public conservation lands. Environmental permits for work activities on DCR land must be signed by the Department as 'Owner' following review by DCR staff members and prior to submission to regulatory agencies.

DCR - 3 DCR is concerned about recreational impacts of the access point in Warwick State Forest that is proposed to be co-located with the Metacomet Monadnock Trail for approximately 2,300 feet. DCR is also concerned that

DCR - 4 the Project may result in increased Off Highway Vehicle access to the state forests, potentially causing degradation of natural and cultural resources. The Department requests coordination with NEP to develop and implement strategies to deter this unauthorized trail use.

DCR - 5 Work activities on DCR property outside of existing easements associated with the NEP ROW, or requiring access across DCR property, will require a Construction and Access Permit ("CAP"). The CAP will include conditions to minimize impacts to trail access and ensure safety of trail users.

Thank you for the opportunity to comment on the DEIR. Please contact DCR's Director of Land Protection Jennifer Howard, jennifer.howard@mass.gov related to the Article 97 process. If you have any additional questions regarding these comments, or to request information and coordination with DCR, please contact Andy Backman, andy.backman@mass.gov.

Sincerely,



Brian Arrigo,
Commissioner

cc: Nancy Putnam, Jonathan Patton, Sean Grant, Dwayne Ericson, Priscilla Geigis, Patrice Kish, Peter Mulcahy, Jennifer Howard

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
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Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

January 10, 2024

Tori Kim
Assistant Secretary / MEPA Director
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Ms. Kim,

The Massachusetts Department of Environmental Protection (MassDEP) Wetlands Program has reviewed the Draft Environmental Impact Report and has the following comments for the proposed A1/B2 Asset Condition Refurbishment Project in Warwick, Royalston, Winchedon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Serling, Massachusetts (EOEEA# 16607).

DEP - 1

1. As noted in our prior comments on the EENF, the proposed activities will substantially change and/or enlarge an existing service, and therefore the activity does not qualify as exempt from the Wetlands Protection Act (WPA) as maintenance pursuant to 310 CMR 10.02(a)2.

DEP - 2

2. The project likely qualifies to be permitted as a limited project pursuant to 310 CMR 10.53(3)(d) provided that no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59 (unless a variance is issued). This will be determined during the WPA application review process.

DEP - 3

3. Based on the information provided in the EENF, a Water Quality Certification (WQC) application for Major Fill/Excavation (BRP WW 10) pursuant to 314 CMR 9.04 will be required since the Project and its cumulative effects of dredged or fill material to Bordering Vegetated Wetland (BVW) and Land Under Water (LUW) and other impacts may jeopardize water quality and since there will be a discharge of dredge or fill material to Outstanding Resource Waters including Crystal Lake, Goodfellow Pond, Simonds Pond, Notown Reservoir, Morse Reservoir, Fall Brook Reservoir, and Perley Brook Reservoir. Furthermore, a Variance to the 401 WQC will be required pursuant 314 CMR 9.08 since the project will result in a discharge of dredged or fill

DEP - 3

material in wetlands or waters of the Commonwealth within 400 feet of a Class A surface water (314 CMR 9.06(4)).

4. MassDEP acknowledges National Grid's efforts to reduce wetland resource area impacts to BVW from tree clearing, construction matting and other project activities. These efforts advance the goals of MEPA, and the WPA and WQC requirements to protect wetland resources while still providing much needed infrastructure that will help to support renewable and reliable energy.

DEP - 4

5. National Grid should submit mitigation alternatives consistent with the WPA and WQC performance standards for jurisdictional wetland resource area impacts. For permanent loss of BVW, a 2:1 replacement ratio should be provided for all BVW impacts in ORWs, and 1:1 for other permanent BVW impacts. In Lieu Fee as compensatory mitigation for secondary impacts from tree clearing would not be acceptable. Preservation would be an acceptable mitigation option if provided at an appropriate mitigation to impact ratio. For example, see Appendix C of the *New England District Compensatory Mitigation Standard Operating Procedures* (USACE 2020).

DEP - 5

DEP - 6

Additionally, please provide techniques proposed to be used for tree clearing and management and removal of the tree debris. For temporary wetland alteration (which is not a loss) resulting from construction mats, please confirm that vegetation will be allowed to fully grow back and will not be managed. In addition to in-situ restoration, the proponent should propose mitigation for temporary loss of wetland function, such as increased preservation ratios.

DEP - 7

DEP - 8

6. Please see MassDEP's comments on the EENF dated October 19, 2022, as it pertains to comments made that are not addressed herein, and as it pertains to jurisdictional impacts under Wetlands Protection Act and Water Quality Certification requirements.

DEP - 9

Note that 401 jurisdictional discharges that also impact state protected waters (see 314 CMR 9.02) should also be protected. MassDEP reserves the right to make additional comments during the permitting process based on the application materials.

MassDEP is available to discuss these comments further. Please feel free to contact Christina Wu at Christina.Y.Wu@mass.gov or (617) 356-2063.

Sincerely,

Lisa Rhodes
Wetlands Program Chief

Attached: October 19, 2022, MassDEP letter on EENF
Ecc:, Tom Rebula, Judy Schmitz, MassDEP CERO
Catherine Skiba, Mike McHugh, MassDEP WERO

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

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Charles D. Baker
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Karyn E. Polito
Lieutenant Governor

Bethany A. Card
Secretary

Martin Suuberg
Commissioner

Wetlands Program/Boston Comments
October 19, 2022

The Massachusetts Department of Environmental Protection (MassDEP) Wetlands Program has reviewed the Expanded Environmental Notification Project Narrative (EENF) and has the following comments for the proposed A1/B2 Asset Condition Refurbishment Project in Warwick, Royalston, Winchedon, Gardner, Westminster, Fitchburg, Leominster, Athol, and Serling, Massachusetts (EOEEA# 16607).

DEP - 10

1. The proposed activities will substantially change and/or enlarge an existing service, and therefore the activity does not qualify as exempt from the Wetlands Protection Act (WPA) as maintenance pursuant to 310 Code of Massachusetts Regulations (CMR) 10.02(a)2.

DEP - 11

2. The project may qualify to be permitted as a limited project pursuant to 310 CMR 10.53(3)(d) provided that no such project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.59 (unless a variance is issued). Additionally, the proponent should document why the project qualifies for limited project status per 310 CMR 10.53(3) given the magnitude of the alteration and the significance of the project site to the interests of the Wetlands Protection Act; and the proponent should provide a serious evaluation of reasonable alternatives to the proposed activity (including alternatives to reduce the full extent of the proposed cutting), an evaluation of the extent to which adverse impacts are minimized, and documentation that full mitigation is provided for unavoidable impacts. Based on this demonstration, a Variance to the WPA regulations may be required pursuant to 310 CMR 10.05(10).

DEP - 12

3. Based on the information provided in the EENF, a Water Quality Certification (WQC) application for Major Fill/Excavation (BRP WW 10) will be required since the Project is proposed to result in the loss of more than 5000 square feet cumulatively of ordering vegetated wetland (BVW) and land under water (LUW) (314 CMR 9.04(1)) and since there will be a discharge of dredge or fill material to Outstanding Resource Waters including Goodfellow Pond, Simonds Pond, Notown Reservoir, Distributing Reservoir, Morse Reservoir, Fall Brook Reservoir, and Perley Brook Reservoir. Furthermore, a Variance to the 401 WQC will be required pursuant 314 CMR 9.08 since the project will result in a discharge of dredged or fill material in wetlands or waters of the Commonwealth within 400 feet of a Class A surface water (314 CMR 9.06(4)).

DEP - 13

4. The Applicant must demonstrate that all efforts have been made to avoid adverse impacts to BVW. When avoidance is not possible, demonstration must be made that the impacts have been minimized and that unavoidable impacts have been mitigated. The Environmental Impact Report must identify all temporary and permanent roads and/or routes in relation to resource areas that will be utilized for mechanized equipment to be engaged in tree clearing and on-going vegetation management. The proposed route bed should be identified (e.g., swamp mats to be placed at-grade, gravel roads, etc.). The Environmental Impact Report should analyze alternatives to avoid and minimize adverse impacts to BVW, and propose alternatives to mitigate for resource area alteration.

DEP - 14

5. Erosion and sediment control is required during the tree clearing and land destabilization phase pursuant to 310 CMR 10.05(6)(b) and Stormwater Management Standard 8 (310 CMR 10.05(6)(k)8. and 314 CMR 9.06(6)(a)8.). As such, a plan must be submitted with the Notice of Intent and Water Quality Certification application 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 (CP/PP Plan)). The CP/PP should include measures to reduce potential impacts to resource areas from areas used to store swamp mats and felled trees. Use of feller-bunchers during clearing, trimming, and removal operations should be analyzed as one alternative to reduce erosion and sediment control impacts to resource areas. Working from swamp mats should also be considered. However, any temporary impacts caused to resource area from swamp mats must be proposed to be fully mitigated. The proponent should note that the requirements at 310 CMR 10.05(6)(b), 10.05(6)(k)8., and 314 CMR 9.06(6)(a)8. to provide erosion and sediment controls apply even if the project qualifies as a limited project. The Environmental Impact Report should include a conceptual level Erosion and Sediment control plan for comment. Note that any land disturbance greater than 1-acre requires coverage under the U.S. Environmental Protection Agency's Construction General Permit (CGP). The Stormwater Pollution Prevention Plan (SWPPP) required by the CGP may serve as the CP/PP Plan, if it includes measures required to be in the CP/PP Plan in addition to the measures specifically required by the EPA Construction General Permit. The CP/PP Plan or SWPPP will need to be approved in the Final Order of Conditions and Water Quality Certification prior to the commencement of any tree clearing and disturbance within resource areas.

DEP - 15

DEP - 16

DEP - 17

DEP - 18

DEP - 19

6. If a project is within Estimated Habitat indicated on the most recent habitat map of State-Listed Rare Species published by the Natural Heritage and Endangered Species Program (NHESP), the applicant must demonstrate no short- or long-term adverse effects of habitat of local species in accordance with 310 CMR 10.59. The Environmental Impact Report should overlay the proposed scope of work atop the Estimated Habitat maps. Where tree clearing and disturbance is proposed within Estimated Habitat of Rare Species, the Environmental Impact Report should analyze alternatives to avoid adverse impacts.

DEP - 20

DEP - 21

7. The project activities including on-going vegetation management through numerous areas of Habitat of Potential Regional or Statewide Importance (MassDEP Important Habitat Maps can be found at: https://umasscaps.org/data_maps/massdep-maps.html); therefore, the applicant must submit a Detailed Habitat Evaluation and demonstrate no adverse impacts in accordance with 310 CMR 10.60 and MassDEP's *Massachusetts Wildlife Habitat Protection*

DEP - 21

Guidance for Inland Wetlands at https://www.mass.gov/doc/massachusetts-wildlife-habitat-protection-guidance-for-inland-wetlands/download.

DEP - 22

8. Although a Detailed Evaluation is required for permitting, the Environmental Impact Report should include an alternatives analysis to avoid adverse impacts that may be caused by on-going vegetation management. This shall include an analysis of Potential Vernal Pools and NHESP Certified Vernal Pools in each Resource Area and identify those that are presumed significant in accordance with the *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands*. Certified Vernal Pools are classified as Outstanding Resource Waters of the Commonwealth. Potential Vernal Pools should be analyzed by the proponent to determine whether they are eligible to be certified and present the results of this analysis in the Environmental Impact Report.

DEP - 23

9. Based on the EENF, the project will result in permanent fill in Bordering Land Subject to Flooding (BLSF) due to 632 square feet of concrete caissons. Compensatory flood storage must be provided for any fill in BLSF. Compensatory flood storage is a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation, on a foot-by-foot basis. The Applicant must demonstrate that seasonal high groundwater is at or below the elevation which the compensatory flood storage will be provided. The Environmental Impact Report should analyze alternatives to provide the compensatory flood storage and provide a cut-and-fill table for each alternative analyzed.

DEP - 24

10. The Applicant shall demonstrate that the proposed compensatory flood storage has an unrestricted hydraulic connection to same waterway or water body displaced by the Project as stated in 310 CMR 10.57(4)(a)(1). The compensatory flood storage analyzed in the Environmental Impact Report must be proposed near where the fill is proposed so as to provide an unrestricted connection to the same waterway.

DEP - 25

11. The Environmental Impact Report must include an analysis about Stormwater Management. Removal of trees increases the peak runoff rate, triggering compliance with 310 CMR 10.05(6)(k)2. and 314 CMR 9.06(6)(a)2. 10.05(6)(k)2. applies to alterations in resource areas regardless of if the project qualifies as a limited project. Alternatives must be analyzed in the Environmental Impact Report to reduce the peak runoff rate from the proposed alterations, including tree clearing. Tree clearing increases the peak runoff rate. Besides traditional methods to provide mitigation such as detention basins, replacement of trees should be analyzed as an alternative to reduce the peak runoff rate. Any trees replaced would need to be within the same sub-watershed to be considered as peak rate mitigation. A discussion should be included about canopy area lost due to the project and estimate the time period likely to recover the same or larger tree canopy. The recharge and TSS treatment standards apply when impervious area is being created or redeveloped. Towards those requirements, a discussion should be included in the Environmental Impact Report about whether the proposed caissons or access roads will create new impervious area. Special requirements apply to Critical Areas, such as Outstanding Resource Waters (310 CMR 10.05(6)(k)6. and 314 CMR 9.06(6)(a)6.).

DEP - 26

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DEP - 28

DEP - 29

12. The Environmental Impact Report should note whether any temporary or permanent stream crossings are proposed. If any crossings are proposed, the Environmental Impact Report

should include an alternatives analysis to ensure that the crossing will be designed to facilitate aquatic organism and wildlife passage, and not increase flood levels of the resource area. Any stream crossing should meet the criteria listed in 310 CMR 9.06(2)(b).