EVERSOURCE ENERGY

REVIEWED
By Ridgely Mauck at 1:26 pm, Apr 29, 2024

Public Service Company of New Hampshire d/b/a Eversource Energy
X178-3 Transmission Line Rebuild Project

New Hampshire Department of Environmental Services
Alteration of Terrain Permit Application

Sugar Hill, Bethlehem, Dalton, and Whitefield, New Hampshire

Stantec Consulting Services Inc.
30 Park Drive, Topsham ME 04086-1737

February 28, 2024
File: 195602579

Attention: Mr. Michael Schlosser
NHDES Land Resources Management
Alteration of Terrain Bureau
29 Hazen Drive
Concord, NH 03302

Reference: Alteration of Terrain Permit Application, Eversource X178-3 Transmission Line Rebuild Project, Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

Dear Mr. Schlosser,

On behalf of the Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource), Stantec Consulting Services Inc. is submitting this Alteration of Terrain (AoT) permit application for the proposed Eversource X178-3 Transmission Line Rebuild Project (Project) in accordance with Terrain Alteration Law (RSA 485-A:17), New Hampshire Department of Environmental Services (NHDES) Administrative Rules (Env-Wq 1500 Alteration of Terrain) and discussions between the NHDES AoT Bureau and Eversource.

The proposed Project includes replacement of the existing wooden utility structures and overhead wires along the X178-3 Transmission Line, which runs approximately 14 miles between Sugar Hill and Whitefield, New Hampshire. Areas of upland disturbance associated with the Project are subject to AoT permitting. Replacement of the existing utility structures is necessary to maintain the safety and reliability of the system. To conduct the structure replacement work more efficiently and safely, as well as allow for future routine maintenance of the existing X178-3 Transmission Line, work pad grading and access road improvements are proposed as part of this Project.

The proposed Project will require disturbance subject to AoT permitting through the NHDES as a result of upland disturbances exceeding 100,000 square feet of contiguous disturbed area. The application fee of $31,875 is based on the amount of total ground disturbance, minus wetland matting (2,403,608 square feet), and the latest NHDES fee schedule.

Included with this permit application is the completed AoT Permit Application Form, a detailed Project description and narrative, required plans and figures, additional required materials, and the Natural Heritage Bureau DataCheck Results letters. The application fee check will be sent separately by Eversource to NHDES. Consultation with the New Hampshire Fish and Game Department (NHFG) is complete, and final recommendations and best management practices have been incorporated into the Project materials and provided to NHDES. Waiver requests for the preparation of a stormwater drainage report, drainage area plans, and hydrologic soil group plans (Env-Wq 1509.04, notification of project deviations (Env-Wq 1503.21), and measurement of contiguous area disturbed (Env-Wq 1503.12) are included in the application, consistent with previous discussion with the AoT Bureau and previous Eversource AoT applications. The

Reference: **Alteration of Terrain Permit Application, Eversource X178-3 Transmission Line Rebuild Project, Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire**

proposed Project is scheduled to be constructed Fall 2024 through Fall 2026. Eversource appreciates the efforts of the AoT Bureau in helping to maintain the anticipated construction schedule.

A copy of this AoT permit application has been sent to the four municipalities along the X178-3 Transmission Line. Proof of delivery will be provided to NHDES via email from Stantec.

Please contact me if you need additional information or have any questions or concerns regarding the enclosed application materials.

Regards,

Stantec Consulting Services Inc.

Andrew Ackerman
Senior Environmental Scientist
Phone: 603 413 7731
andrew.ackerman@stantec.com

Attachment: Alteration of Terrain Permit Application
Municipal Delivery Confirmations (submitted via email)

c. Town of Sugar Hill, New Hampshire
Town of Bethlehem, New Hampshire
Town of Dalton, New Hampshire
Town of Whitefield, New Hampshire
Ammonoosuc River LAC

Stantec

NHDES ALTERATION OF TERRAIN PERMIT APPLICATION
X178-3 Transmission Line Rebuild Project
Sugar Hill, Bethlehem, Dalton, and Whitefield, New Hampshire

February 28, 2024

Prepared for:

Public Service Company of New Hampshire
d/b/a Eversource Energy
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1.0 PROJECT BACKGROUND AND PURPOSE

Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource) owns and maintains the X178 electrical transmission line (X178 line) in Campton, Thornton, Woodstock, Lincoln, Easton, Sugar Hill, Bethlehem, Dalton, and Whitefield, New Hampshire. The X178 line will be constructed in three different segments. Segment 3 of the X178 line (X178-3 line; Project) runs within an existing right-of-way (ROW) between the Streeter Pond Switchyard off Streeter Pond Road in Sugar Hill and the Whitefield Substation off Lancaster Road in Whitefield, New Hampshire (Figures 1 and 2). Eversource has identified 188 existing wooden structures that will need to be replaced for the Project (22 in Sugar Hill, 95 in Bethlehem, 29 in Dalton, and 42 in Whitefield) due to age, cracking, leaning, and/or woodpecker damage. The existing wooden structures will be replaced with new, weathered steel structures to provide more reliable electrical infrastructure. Natural resource impacts have been minimized and avoided to the greatest extent practicable through careful siting of access roads and work pads.

The Project requires approximately 3,277,827 square feet (sf; 75.25 acres) of total ground area, including 864,137 sf (19.84 acres) of temporary wetland matting, 10,082 sf (0.23 acres) of upland matting, 1,623,640 sf (37.27 acres) of gravel work/pull pads and 779,968 sf (17.91 acres) of proposed access roads. The total upland ground disturbance of 2,403,608 sf (55.20 acres) for the Project will be collectively referred to hereinafter as the Alteration of Terrain (AoT) project area (see Figure 3 – Alteration of Terrain Permitting Plan and Appendix A – Alteration of Terrain Application Form).

2.0 SITE INFORMATION

2.1 SITE LOCATION AND DESCRIPTION

The AoT project area includes portions of the X178-3 line ROW in Sugar Hill, Bethlehem, Dalton, and Whitefield, New Hampshire. The X178-3 line is approximately 14 miles in length and varies in width from 150 feet (ft) to 300 ft in width. The X178-3 line shares the ROW with other electrical infrastructure at various locations, including another transmission line and a distribution line.

The AoT project area crosses 21 streams including 11 perennial streams, 4 intermittent streams, and 6 ephemeral streams (see Figure 3 – Alteration of Terrain Permitting Plans). There are 101 wetlands located within the AoT project area. The AoT project area crosses 11 public roads with 23 access points off those public roads. Ground disturbance as a result of the Project is associated with establishment of access roads, temporary wetland matting, and work pads within uplands.

2.2 TAX MAP AND LOT INFORMATION

Eversource holds easements or is the landowner for parcels located within the AoT project area (see parcel lines on Figures 3 and 4).

There are 48 abutting properties that contain pre-existing Eversource easements for the ROW within the AoT project area. Within the AoT project area, the ROW is considered the "subject property" because Eversource is the applicant/owner and only has control over the easement area. AoT project area abutters have been identified and are listed in Appendix B.

2.3 IDENTIFICATION OF NATURAL AND CULTURAL RESOURCES

In addition to preparing this permit application, Stantec Consulting Services Inc. (Stantec) has been retained by Eversource to provide professional services related to natural and cultural resource identification and assessment for this Project. Stantec is also preparing permit applications for natural resource impacts required to complete the Project. Stantec has conducted and coordinated field evaluations and has corresponded with appropriate agencies to identify natural and cultural resources present within the vicinity of the AoT project area and X178-3 line ROW

2.3.1 Identification of Cultural and Historical Resources

The Project does not anticipate any adverse effects to cultural resources and is currently in consultation with the New Hampshire Division of Historical Resources (NHDHR) to identify and avoid any such impacts. A Phase 1A survey was conducted for the full length of the transmission line corridor from the Sugar Hill Switchyard to the Whitefield Substation for archaeological sensitive areas. Phase 1B surveys were also conducted at sensitive areas by AECOM archeological staff. Following the completion of the reporting associated with the archaeological surveys, AECOM and Eversource will consult with NHDHR with a Request for Project Review. Additional avoidance and minimization measures will be implemented following that consultation, if recommended by NHDHR. The NHDHR response will be forwarded to the New Hampshire Department of Environmental Services (NHDES) if requested.

2.3.2 Identification of Jurisdictional Wetlands and Vernal Pools

Stantec conducted on-site delineations within the existing ROW between May 8 and May 12, 2023. The delineations were overseen by Matt Arsenault, New Hampshire Certified Wetland Scientist #278, with field assistance from wetland scientists Derek Benedix, Gabe Pelletier, and Lissa Pelletier. Additional wetland delineations occurred on October 30, 2023 to identify wetlands along potential off-ROW access routes. The delineations were conducted using the technical criteria described in the U.S. Army Corps of Engineers (Corps) *Corps of Engineers Wetlands Delineation Manual*[1] and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regional Supplement.*[2] Wetland communities were classified according to the *Classification of Wetlands and Deepwater Habitats*

[1] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
[2] U.S. Army Corps of Engineers. 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

of the United States.[3] Hydric soil determinations were made in accordance with the Corps wetland delineation manuals and the *Field Indicators for Identifying Hydric Soils in New England (Version 4).*[4] The results of the wetland delineation and verification are shown on Figures 3 and 4.

Vernal pools were identified and evaluated in accordance with the *Identification and Documentation of Vernal Pools in New Hampshire*.[5] Vernal pools were identified based on their physical characteristics and the presence of vernal pool indicator species. Observations of approximate size, hydrology, number of egg masses, and evidence of disturbance were recorded. The boundaries of the vernal pools were located with GPS receivers, and photographs were taken of each vernal pool identified.

2.3.3 Identification of Watercourses

Watercourses (e.g., streams) identified during the delineations were identified based on the definitions in NHDES Certified Administrative Rules Env-Wt 406.04, as well as the technical guidance available from the Corps on the identification of an Ordinary High Water Mark.[6] Surface waters included wherever freshwater flows or stands and tidal waters. This includes, but is not limited to, rivers, perennial and intermittent streams, lakes, ponds, intertidal zones, and tidal waters. The limits of jurisdiction for surface waters were delineated as the top of bank (where a natural bank occurs) or the Ordinary High Water Mark (where a natural bank is not present). Watercourses within the AoT project area include four segments of Black Brook, Chase Brook, six unnamed perennial streams, four unnamed intermittent streams, and six unnamed ephemeral streams. The X178-3 line crosses Indian Brook, Miller Pond, Johns River, and the Ammonoosuc River, but no disturbances are proposed in or over these water resources.

2.3.4 Natural Heritage Bureau Results and Rare Species Consultation

A review completed by the Natural Heritage Bureau (NHB) through their DataCheck Tool determined that state-listed animal species are present in the vicinity of the Project. The identified species and avoidance and minimization measures recommended by NHB and the New Hampshire Fish and Game Department (NHFG) are provided herein. The NHB DataCheck results letter and NHB and NHFG correspondence conducted to date are included in Appendix C. Associated preliminary avoidance and minimization measures for botanical resources were determined through correspondence with NHB, included in Appendix C.

Construction Best Management Practices (BMPs) and protection measures for state- and federally listed wildlife species anticipated to occur in the Project area have been developed through consultation with NHFG and based on Eversource's proposed measures (Appendix C). These measures include a

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[3] Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.

[4] New England Hydric Soils Technical Committee. 2017. Field Indicators for Identifying Hydric Soils in New England (Version 4).

[5] Marchand, M. 2016. *Identifying and Documenting Vernal Pools in New Hampshire.* Third Edition, New Hampshire Fish and Game Department, Nongame and Endangered Wildlife Program.

[6] U.S. Army Corps of Engineers. 2005. Regulatory Guidance Letter: Ordinary High Water Mark Identification. December 8, 2005. No. 05-05.

combination of time of year restrictions, construction techniques (e.g., temporary matting), contractor training programs, and/or work area sweeps, isolations measures, and biological monitoring.

3.0 Existing Conditions

The proposed structure replacement work is located within the existing and maintained X178-3 line ROW. The proposed AoT project areas cross through portions of Sugar Hill, Bethlehem, Dalton, and Whitefield, New Hampshire. Existing dirt and/or grass access routes traverse many portions of the existing ROW and are currently used for access to existing utility structures within the ROW. These existing access routes will need to be improved using gravel and stone as part of the Project. In areas where no existing access routes or trails are present, new gravel roads will be established. According to the Natural Resources Conservation Service (NRCS) soil survey for Coos County, New Hampshire, existing upland soils are generally well drained and derived from unconsolidated deposits of glacial till and alluvium, suitable for construction of gravel access roads and work pads. The NRCS web soil survey report for the AoT project area is included in Appendix D.

The open upland natural communities consist of early successional shrub, sapling, and herbaceous species. Characteristic woody vegetation includes gray birch (*Betula populifolia*), quaking aspen (*Populus tremuloides*), red maple (*Acer rubrum*), pin cherry (*Prunus pensylvanica*), sheep-laurel (*Kalmia angustifolia*), late lowbush blueberry (*Vaccinium angustifolium*), broad-leaf meadowsweet (*Spiraea latifolia*), steeplebush (*Spiraea* tomentosa), Allegheny blackberry (*Rubus allegheniensis*), beaked hazelnut (*Corylus cornuta*), black cherry (*Prunus serotina*), northern red oak (*Quercus rubra*), common red raspberry (*Rubus idaeus*), and mountain ash (*Sorbus americana*). Commonly observed herbaceous vegetation include false lily-of-the-valley (*Maianthemum canadense*), wrinkle-leaf goldenrod (*Solidago rugosa*), Canada goldenrod (*Solidago canadensis*), bracken fern (*Pteridium aquilinum*), hay-scented fern (*Dennstaedtia punctilobula*), Virginia strawberry (*Fragaria virginiana*), bristly dewberry (*Rubus hispidus*), yellow bluebead-lily (*Clintonia borealis*), Kentucky blue grass (*Poa pratensis*), and flattened wild oat grass (*Danthonia compressa*). Non-native invasive species abundance was generally low compared to native vegetation and included, rambler rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*), Morrow's honeysuckle (*Lonicera morrowii*), and glossy false buckthorn (*Frangula alnus*).

Routine vegetation maintenance is performed along the ROW on an approximate four-year cycle. Trees and shrub species capable of growing to heights that could interfere with conductors are mowed and allowed to regenerate until the next maintenance cycle.

AoT screening layers were requested from NHDES for Sugar Hill, Bethlehem, Dalton, and Whitefield within the AoT project area and are shown on Figure 4 – Surface Water and Groundwater Overlay Plans if they fall within the vicinity of the project area. AoT screening layers include:

- Coastal and Great Bay Communities
- Outstanding Resource Water Watersheds
- Class A Surface Waters
- Class A Surface Waters – Lakes within 0.25 miles

- Designated Rivers within 0.25 miles
- All Lakes within 0.25 miles
- Groundwater Protection Areas (Groundwater Classification Areas GAA, GA1, GA2)
- Wellhead Protection Areas
- Water Supply Intake Protection Areas
- Surface Water Impairments
- Local Potential Contamination Sources
- Designated Rivers within 0.25 miles
- All Lakes within 0.25 miles
- Surface Waters with Impairments (2016)
- Watersheds with Chloride Impairments (2016)
- Remediation Sites

AoT screening layers crossed by the AoT project area are described within each of the AoT jurisdictional areas below.

Existing conditions within each AoT jurisdictional area are further described below and consistent with recent guidance and discussion between Eversource and NHDES. Representative photographs of the AoT project area are included in Appendix E.

3.1 AOT PROJECT AREA: SUGAR HILL, BETHLEHEM, DALTON, AND WHITEFIELD, NEW HAMPSHIRE

The AoT project area includes work areas along the length of the X178-3 line ROW. The X178-3 line begins at the Streeter Pond Switchyard in Sugar Hill, New Hampshire and continues east, northeast through rural and residential areas. The line continues southeast, crossing the Ammonoosuc River. The line continues northeast through rural and residential areas to its termination at the Whitefield Substation in Whitefield.

3.1.1 Surface and Groundwater Protection

There are 20 surface waters located within the AoT project area: 10 perennial streams (named and unnamed), 4 intermittent streams, and 6 ephemeral streams (Figures 3 and 4). The AoT project area includes temporary matting in 99 wetland systems, including temporary matting in 14 Priority Resource Area wetlands, for access and work pad placement. Approximately 864,137 sf (19.84 acres) of temporary wetland matting is anticipated as part of the Project. A separate standard dredge and fill wetland permit application will be filed with NHDES. AoT disturbance area is summarized in Section 5.1.2.

According to Figure 4, portions of the AoT project area are within the following AoT screening layers:

- All Lakes with a Quarter Mile Buffer
    - Bruns Pond, Whitefield, proposed structures 543–550 (Figure 4, Sheets 23 and 24)
    - Mirror Lake, Dalton and Whitefield, proposed structures 587–589 (Figure 4, Sheet 31)
- Surface Waters with Impairments with A Quarter Mile Buffer

  - Miller Pond, Bethlehem, proposed structures 458–470 and portion of access route from Cherry Valley Road (Figure 4, Sheets 7 – 10)
  - Johns River, Dalton and Whitefield, proposed structures 575–581 and access route to proposed structure 580 (Figure 4, Sheets 28–30)
- Ground Water Classification Areas GA2
  - Dalton, between proposed structures 578–579 and portion of access route from Faraway Road (Figure 4, Sheets 29 and 30)
- Wellhead Protection Areas
  - Profile High School, Bethlehem, proposed structures 439–444 and access routes from Profile Road (Figure 4, Sheets 4 and 5)

3.1.2 FEMA 100-Year Floodplain, Shoreland Protection, Designated Rivers

According to the FEMA Flood Insurance layer on Figure 4, there are five 100-year floodplain zones within the AoT project area. These are associated with Stream S001 and Wetland W001 near the Streeter Pond Switchyard in Sugar Hill; Miller Pond between proposed structures 459 and 460 in Bethlehem; Stream S025 and Wetland W069 between proposed structures 485 and 486 in Bethlehem; Stream S026 and Wetland W079 between proposed structures 494 and 495 in Bethlehem; and the Ammonoosuc River between proposed structures 509 and 510 and along portions of the access route to proposed structures 507 and 509 in Bethlehem.

There are NHDES Protected Shorelands associated with Miller Pond in Bethlehem, the Ammonoosuc River in Bethlehem, and the Johns River in Dalton. NHDES Shoreland Permit by Notifications are being prepared for ground disturbances within the 250-foot protected shoreland areas.

According to the Consolidated List of Water Bodies Subject to RSA 483-B (May 11, 2020) and the NHDES Designated River Corridor Map, a portion of the AoT project area is located within the Designated River Corridors for the Johns River (approximately between proposed structures 578 and 579) and the Ammonoosuc River at three proposed structure segments (approximately between structures 484 to 490, structure 495, and structures 505 to 512).

4.0 Project Description

4.1 LINE REBUILD: STRUCTURE REPLACEMENT, CONDUCTOR AND OPGW REPLACEMENT

The proposed Project includes replacement of 188 existing wooden transmission line structures within the AoT area. With the exception of proposed structure 428, the proposed replacement (new) structures will be within approximately 10 ft of the previous structure location. Proposed structure 428 will be approximately 60 ft from existing structure 424 to facilitate crossing of Interstate 93. A majority of the new structures will be approximately 10 to 20 ft taller than the previous structure with most of that increase occurring above the cross member, giving more clearance between the conductor lines and the top grounding wires, per current electrical codes.

The structure replacement process consists of drilling holes near the existing structures and installing a caisson, also referred to as a can, below the ground surface. The new structure is installed in the can and backfilled with clean, suitable rock or gravel material. Spoils produced from drilling the hole will be disposed of in an approved upland location away from wetland areas and will be stabilized with an appropriate conservation/contractor's seed mix and weed-free straw mulch. Some replacement structures may require anchors. Anchors will be installed by excavating trenches, installing concrete block anchors, and backfilling trenches. If soil conditions allow, screw anchors may be installed to minimize ground disturbance. Temporary swamp mats (i.e., matting) will be utilized to access structures located within delineated wetlands or wetland areas that must be crossed for access. Mats will also be used on some occasions to mitigate impacts to maintained yards or farmed upland areas. Once the new structure is installed and stable, the wires from the old structure will be transferred to the new structure. Old structures will be cut and removed from the ground in upland locations. To minimize ground disturbance, old structures in wetlands are typically cut flush with the ground surface. In some cases, the bottom of the old structure may be able to be pulled from the wetland with minimal disturbance to the wetland. All construction materials and old structure pieces will be removed and disposed of off-site at an approved disposal facility.

Following completion of the structure replacement and wire work, temporary timber construction mats will be removed. Disturbed wetland areas will be restored and stabilized with weed-free straw mulch. Temporarily disturbed upland areas will also be restored and stabilized through seeding and mulching. Permanently disturbed wetland buffer areas will remain as permanent features. Seed and mulch will be applied along the shoulders and side slopes of the access roads as necessary, and the established access roads will be left in place,

4.1.1 Access

The proposed Project utilizes existing access roads within the X178-3 line ROW wherever possible. The majority of the existing access roads are comprised of dirt or gravel areas and are proposed to be improved through the addition of clean stone as part of the Project to allow for construction vehicle access. Proposed access roads are shown on the attached map set. Access road entrances are located off local roadways and utilize existing entrances wherever possible. Driveways permits are not anticipated to be required from the Towns of Sugar Hill, Bethlehem, Dalton, and Whitefield. There are state-owned roads in the Project area; therefore, temporary driveway permits and/or encumbrance permits from the New Hampshire Department of Transportation will be required for construction. The proposed access roads were sited to minimize ground disturbance and temporary wetland impacts to the greatest extent practicable while providing safe and efficient access to the existing structures. Timber matting will be used to cross all wetland and stream resources that cannot be avoided completely.

4.1.1.1 ROAD CONSTRUCTION

Proposed upland access road improvements include construction of approximately 16-ft-wide gravel and stone roads within the ROW and in some cases adjacent to the ROW. The roads will provide access to existing utility structures for replacement activities. The improved access roads will provide reliable, permanent access to utility infrastructure during future maintenance or emergency repairs. Where

possible, the proposed access roads will be located on top of existing dirt roads or trails. If no existing routes are available or suitable, a new road will be constructed. Minor grading may be necessary to remove large boulders and create a flat surface for the new rock or gravel.

4.1.1.2 WETLAND AND UPLAND TEMPORARY MATTING

Access through maintained fields and private property within uplands and delineated wetlands in the Project area will utilize temporary timber construction mats to minimize and prevent rutting. Where necessary in overly saturated conditions, runners (mats placed parallel to the direction of travel) will be placed on the wetland surface prior to setting the top, perpendicular layer of mats. This will help reduce settling and overall wetland disturbance.

4.1.2 Work Pad Construction

The proposed Project includes construction of structure replacement work pads approximately 100 ft by 100 ft each, with some exceptions. With the exception of work pads located within wetlands, upland work pads will be constructed using clean stone. The work pads will be top dressed with compacted 1.5- to 3-inch-diameter clean stone. After the structure replacement work is complete, restoration of upland work pads will consist of utilizing stockpiled topsoil to reduce work pads to approximately 30 ft by 60 ft. Restored areas will be stabilized with seed and mulch. Proposed work pads located in wetland areas will be constructed using temporary timber construction mats and will be removed upon completion of the work.

4.2 CONSTRUCTION SEQUENCE

The general Project construction sequence will be:

1. Installation of appropriate signage along public roads near construction entrances;
2. Installation of erosion control devices, as needed;
    a. Erosion control practices will follow the *Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetland and Waterbodies in New Hampshire* (Utility BMP Manual) published by the New Hampshire Department of Natural and Cultural Resources (March 2019).
3. Placement of construction mats in wetlands for access roads and work pads;
4. Grading and improvements of upland access roads and work pads;
5. Stabilization (seed and mulch) of exposed soils on created side slopes;
6. Replacement of structures:
    a. Drill new structure holes;
    b. Install new poles and structure components;
    c. Transfer electrical lines from old structure to new structure; and

   d. Remove and haul away old structure.

7. Clean up excess/stockpiled material at work pads;
8. Smoothing/grading upland work pads and stabilizing and restoring with seed and mulch as necessary;
9. Removing construction mats from wetland areas and stabilizing/restoring disturbed wetland areas with weed-free straw mulch; and
10. Stabilization, restoration, and clean up staging areas and entrance points.

Provided necessary permits are in place and to the extent possible, work is anticipated to begin in Fall 2024 and continue through Fall 2026. Entrances, access roads, and work pads will be created prior to structure replacement work. New structure holes will likely be drilled prior to mobilization of structure replacement equipment (cranes, bucket trucks). Installing new poles and transferring wires will be completed prior to moving on to the next structure. Multiple structure replacement crews may be working in different areas to expedite the process. Removal of mats and restoration will occur as individual work areas are completed.

4.3 BEST MANAGEMENT PRACTICES

4.3.1 Erosion and Sedimentation Control

Work will be conducted in accordance with Eversource's standard BMPs as designated by the Utility BMP Manual. Following these BMPs will minimize and avoid impacts to wetland and stream resources and the surrounding upland areas to the greatest extent practicable. Additionally, the AoT project area overlaps with a Town of Bethlehem Groundwater Protection District (GPD). BMPs to protect groundwater resources, including the Town of Bethlehem GPD are detailed in Figure 3, Notes Page 3.

Perimeter erosion controls consisting of silt fence, straw wattles, mulch, and straw bales will be installed as necessary around the work areas to minimize potential impacts to adjacent resource areas. Water bars, also known as diversion ditches, will be installed along access roads with steep slopes, where necessary, to prevent water from traveling long distances down the road causing erosion. Water bars will direct water off the road into adjacent upland areas. Exposed soil created during construction will be stabilized with seed and mulch as soon as possible after active work in the area is complete. No equipment or material will be stored within wetland areas.

4.3.2 Invasive Species Control Plan

Contractors will follow the invasive species recommendations in the Utility BMP Manual to help prevent the spread of invasive species, including inspection and cleaning of equipment and contractor training. Equipment, including construction mats, brought to the Project area will be inspected by the contractor and/or environmental monitor, and if plant material or soil is present, the equipment will be cleaned and dried prior to use on the Project. Contractors will be familiar with identification of common invasive species and will be required to clean mats and equipment prior to their use elsewhere. If possible and

without increasing wetland impacts, the contractors may also make slight shifts in access roads or work pads to avoid invasive species locations.

4.3.3 Construction Observation and Post Construction Monitoring

During construction, Eversource will contract an environmental monitor to perform routine construction observation visits. The environmental monitor will inspect the Project area for compliance with the Utility BMP Manual and applicable Project permits and conditions. Construction observation visits will occur at least once per week and/or after a significant rainfall (0.5 inches or greater) or snow melt event. Under the National Pollutant Discharge Elimination System, Eversource will file a Notice of Intent and Stormwater Pollution Prevention Plan (SWPPP) under the U.S. Environmental Protection Agency's Construction General Permit. Construction observation visits and associated reporting will follow the SWPPP and Construction General Permit guidelines and be performed by a qualified individual familiar with the SWPPP, Utility BMP Manual, and Project specific permit conditions.

A series of post-construction monitoring visits in the Project area will be performed by a qualified environmental scientist to document that disturbed areas are properly stabilized and vegetation is beginning to regrow. Site restoration will be considered successful when there is at least 85% cover by native or non-invasive herbaceous plant species within the restored portions of the ROW, including restored wetland areas. This does not include gravel work pads or access roads that existed prior to construction or were created during construction, which will be restored to natural grade, topsoil spread, and re-seeded. The environmental scientist will prepare a report following each post-construction monitoring visit that includes representative photographs and corrective actions (if applicable). Once the disturbed uplands and temporarily impacted wetlands within the Project area are determined to be permanently stabilized, post-construction monitoring will be considered complete, and a Notice of Termination will be filed under the U.S. Environmental Protection Agency's Construction General Permit.

5.0 Regulatory Compliance

5.1 ALTERATION OF TERRAIN

The NHDES requires an AoT permit whenever a project proposes to disturb more than 100,000 sf of contiguous terrain (50,000 sf, if any portion of the project is within the protected shoreland) or disturbs an area having a grade of 25 percent or greater within 50 feet of any surface water (Env-Wq-1500). The NHDES rule is intended to protect New Hampshire surface waters by controlling soil erosion and managing stormwater runoff from developed areas. The AoT project area is calculated based on overall area of disturbance. Details on impacts in the AoT project area are provided in Section 5.1.2 – Quantification of Impacts Subject to AoT.

5.1.1 Waiver Requests

Env-Wq 1503.12 (d)(1&2)
Eversource is requesting a waiver for including past disturbance in the measurement of contiguous

disturbed area included in this X178-3 Line AoT application. Existing terrain alteration associated with past transmission line maintenance has occurred. Existing trails or access roads that may have been created within the last 10 years that will be utilized and/or improved as part of this Project have been included in the current calculations within this application. Future structure maintenance may occur within the X178-3 ROW. Eversource, through consultation with NHDES, will evaluate whether future terrain disturbances within the X178-3 ROW will be permitted with an amendment to this application or subject to a new, separate application. These exemptions for transmission line maintenance projects were discussed previously between Eversource and NHDES and are similar to those included in the recent Eversource Whitefield to Berlin (S136) Project application (AoT-2526) A formal waiver request form is provided in Appendix F.

Env-Wq 1503.21 (d)(6&7)
Eversource is requesting a waiver for deviations from the approved plans without applying for an amended permit or a new permit if shifts in the proposed Project layout occur. Changes in Project layout are sometimes identified during construction by Eversource and their contractors and may be necessary to safely perform the work or avoid rare species or sensitive areas identified during the construction monitoring. This waiver would allow for shifts of access road centerlines and work pad center points within the existing ROW. A formal waiver request form is provided in Appendix F.

Env-Wq 1504.09
Eversource is requesting a waiver from the requirements to prepare a Stormwater Drainage Report, Drainage Area Plans, and Hydrologic Soil Group Plans. New impervious surfaces associated with the Project are limited to the footprint of the new transmission line structures. It is not anticipated that the proposed structures will have a significant impact on site drainage patterns, and stormwater treatment practices are not proposed. These exemptions for transmission line maintenance projects have been made previously by NHDES on another recent project (S136 as noted above). A formal waiver request form is provided in Appendix F.

5.1.2 Quantification of Impacts Subject to AoT

There is approximately 2,403,608 square feet (sf; 55.20 acres) of upland ground disturbance, 1,623,640 sf (37.27 acres) of gravel work/pull pads and 779,968 sf (17.91 acres) of proposed access roads, within the AoT project area. The disturbance requires an AoT permit in accordance with Env-Wq 1502.58. Specific areas are detailed below that exceed the AoT disturbance thresholds for Env-Wq 1502.58(b)(2) “An area that, over a 10- year period, cumulatively exceeds 100,000 sf of contiguous area or cumulatively exceeds 50,000 square feet of contiguous area if any portion of the disturbance is within the protected shoreland as defined in RSA 483-B.” The width of the proposed disturbance for new access roads is assumed to average approximately 16-ft-wide throughout the AoT project area, and temporary timber construction mats are 16-ft-wide. Additional details are shown on Figure 3.

AoT Project Area: Sugar Hill, Bethlehem, Dalton, Whitefield
Streeter Pond Switchyard to Whitefield Substation

Disturbance Type	Impact (sf)
Gravel Work/Pull Pad	1,623,640
Proposed Access Roads	779,968
Total Disturbed Area	**2,403,608**

5.2 OTHER REGULATORY PROGRAMS

Other regulatory permits and notifications required for the proposed Project are summarized below. Eversource and Stantec have corresponded with the Towns of Sugar Hill, Bethlehem, Dalton, and Whitefield regarding the proposed work. The Town of Sugar Hill may require some level of permitting. The towns will also receive a copy of the AoT permit application.

Agency	Permit/Notification	Status
NHDES	Wetlands Standard Dredge and Fill Permit	Under Review
NHDES	Shoreland Permit by Notification	Pending
NHDOT	Temporary Driveway Permit	Pending
EPA (Construction General Permit)	Stormwater Pollution Prevention Plan	Pending
Corps	Section 404 Pre-construction Notification	Pending
Sugar Hill	Building Permit	Pending Local Review

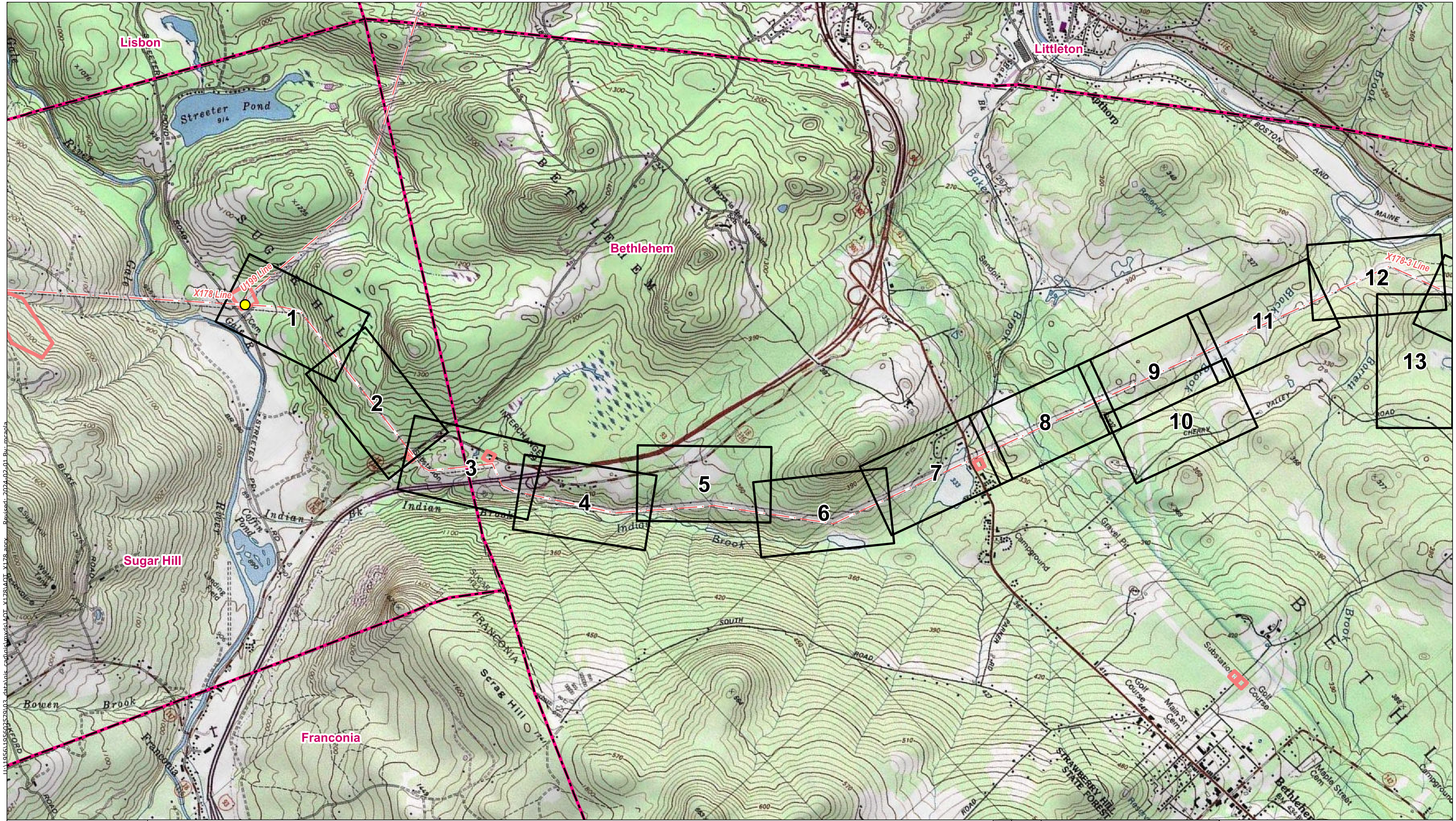
FIGURES

Figure 1: USGS Locus Plan

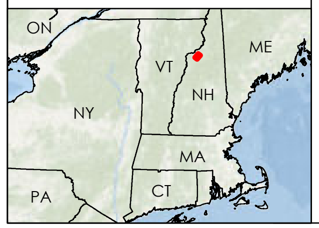
Figure 2: Aerial Site Plan

Figure 3: Alteration of Terrain Permitting Plan

Figure 4: Surface Water and Groundwater Overlay Plan



INDEX MAP



Legend

- Junction
- Substation
- Overhead Transmission Line
- Eversource Owned Property
- Map Sheet
- Municipal Boundary

Map Notes: *Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 FeetData source: Eversource easement lines, and transmission lines provided by Eversource Energy. Additional sources include: NH Granit*
Basemap: USGS Topographic map provided by The National Map Mapping Service (https://basemap.nationalmap.gov/arcgis/services/USGSImageryTopo)

N

1 inch = 2,167 feet

0 500 1,000 2,000 Feet

This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.

NO.	DATE	REVISIONS

EVERSOURCE ENERGY

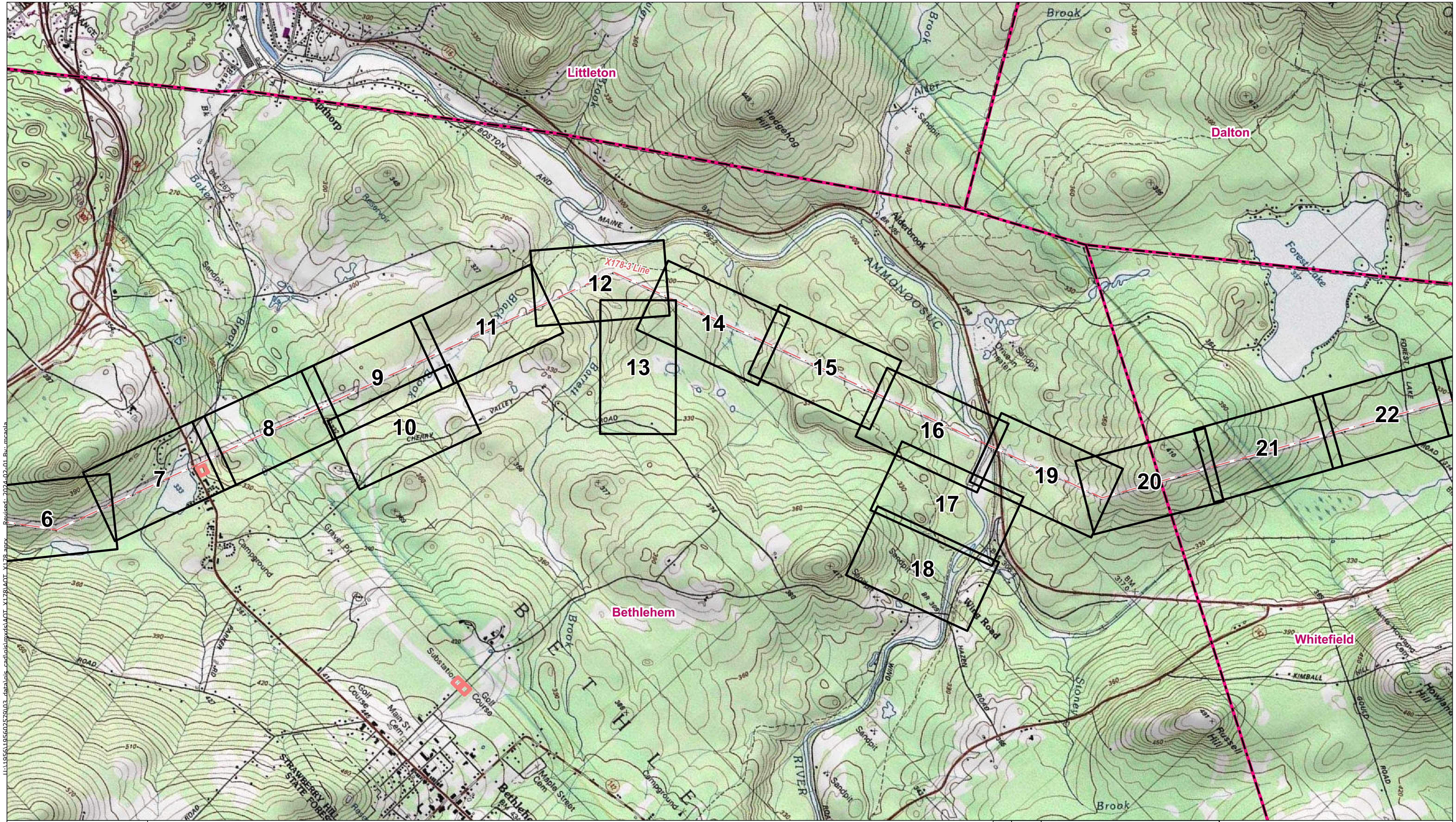
X178-3 Line
Structure Replacement Project
USGS Site Plan

SUGAR HILL, BETHLEHAM, WHITEFIELD, DALTON, NH

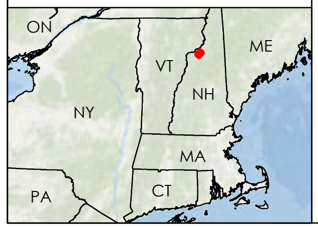
MAP SHEET 1 of 3

Date: February 01, 2024

Stantec



INDEX MAP



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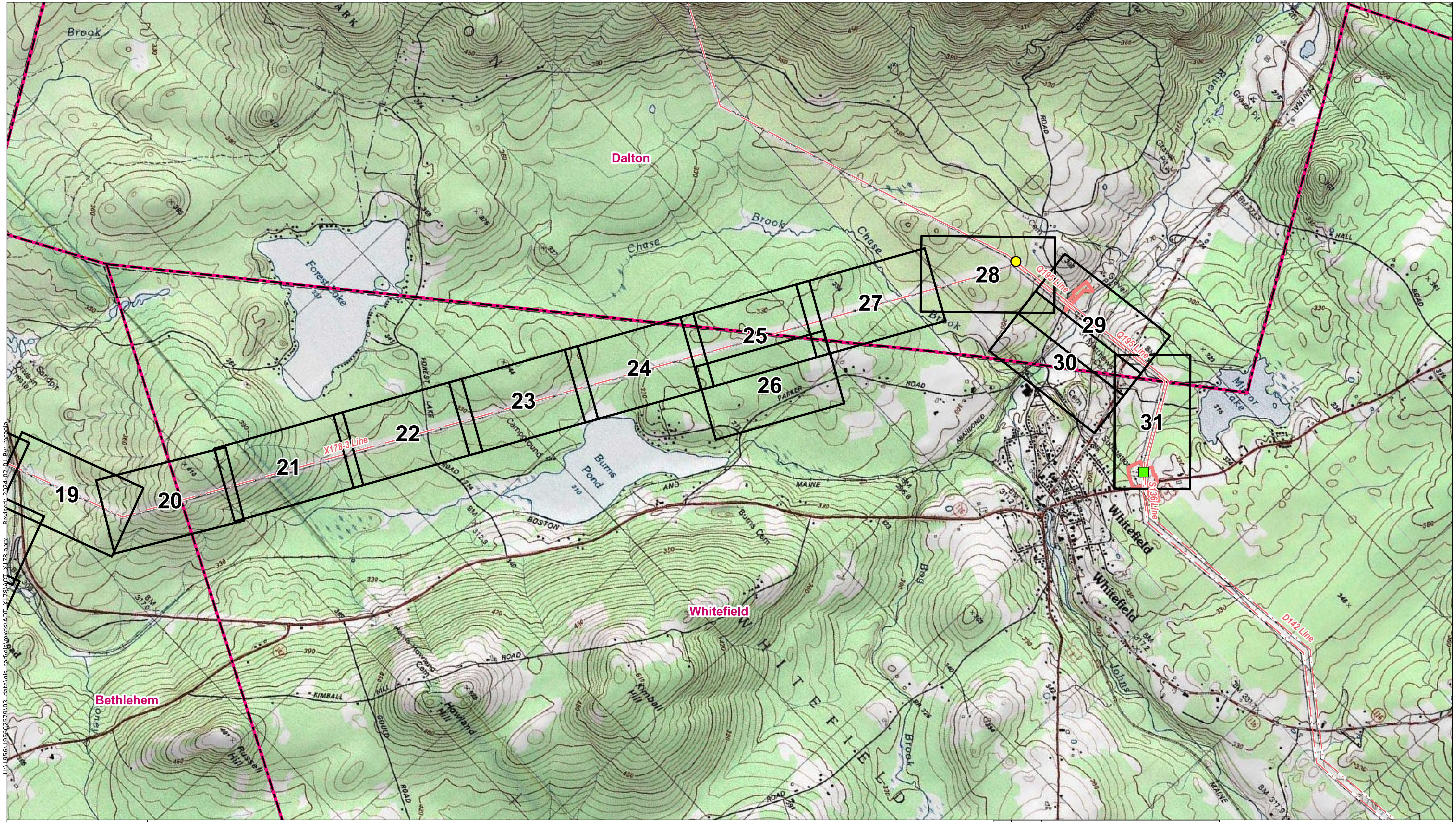
Structure Replacement Project
USGS Site Plan

SUGAR HILL, BETHLEHAM, WHITEFIELD, DALTON, NH

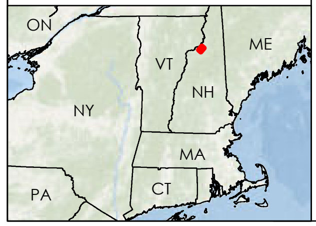
MAP SHEET 2 of 3

Date: February 01, 2024

Stantec



INDEX MAP



Legend

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0 500 1,000 2,000 Feet

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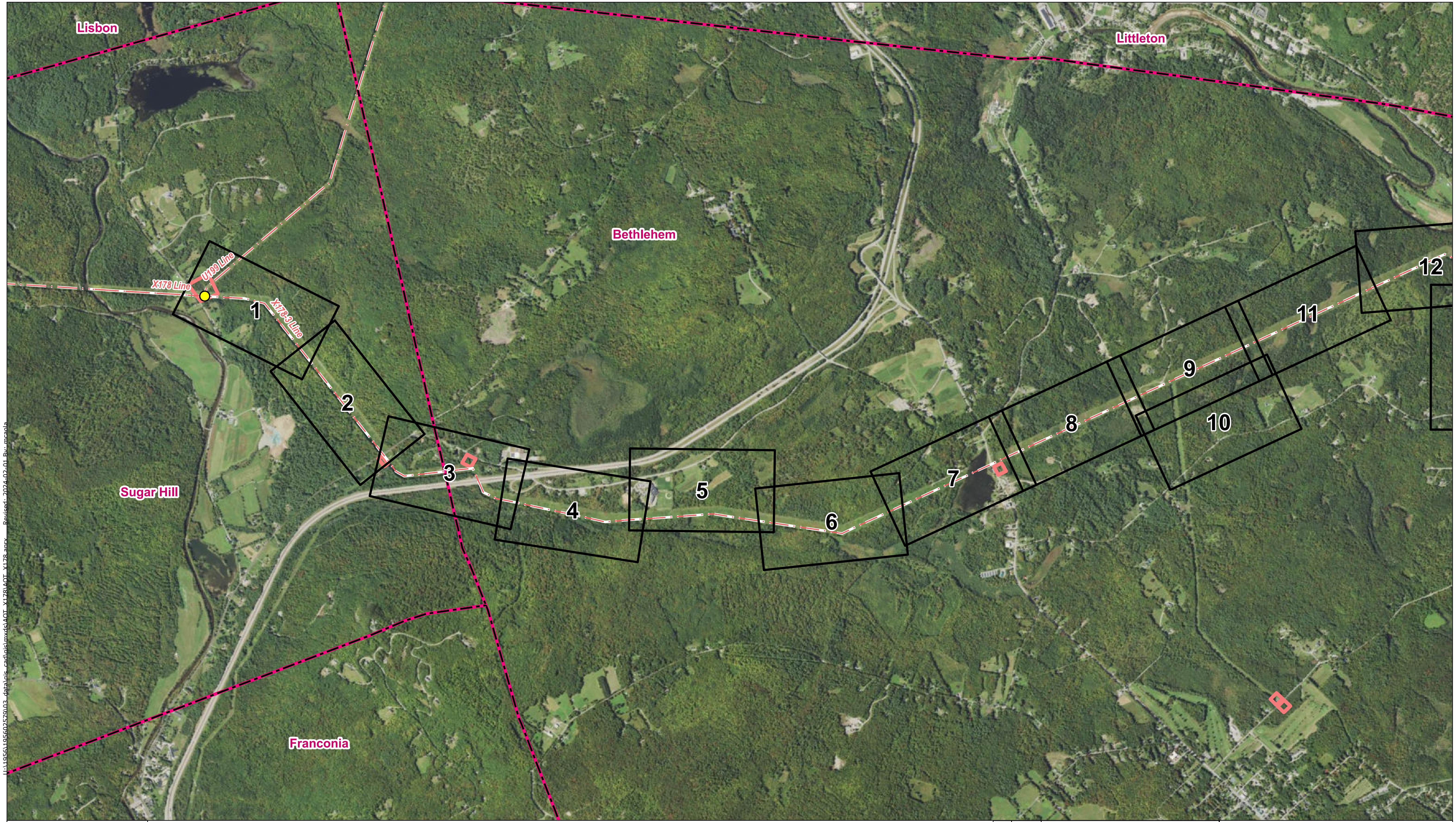
X178-3 Line
Structure Replacement Project
USGS Site Plan

SUGAR HILL, BETHLEHEM, WHITEFIELD, DALTON, NH

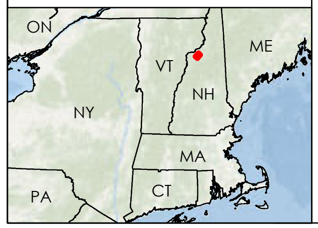
MAP SHEET 3 of 3

Date: February 01, 2024

Stantec



INDEX MAP



Legend

- Junction
- Substation
- Overhead Distribution Line
- Eversource Owned Property
- Map Sheet
- Municipal Boundary

Map Notes:
Coordinate System: NAD 1983 StatePlane Connecticut FIPS 0600 Feet
Data source: Eversource easement lines, structures, and transmission lines by Eversource Energy. Additional sources include: NH Granit
Basemap: National Agriculture Imagery Program (NAIP) aerial imagery

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0 500 1,000 2,000 Feet

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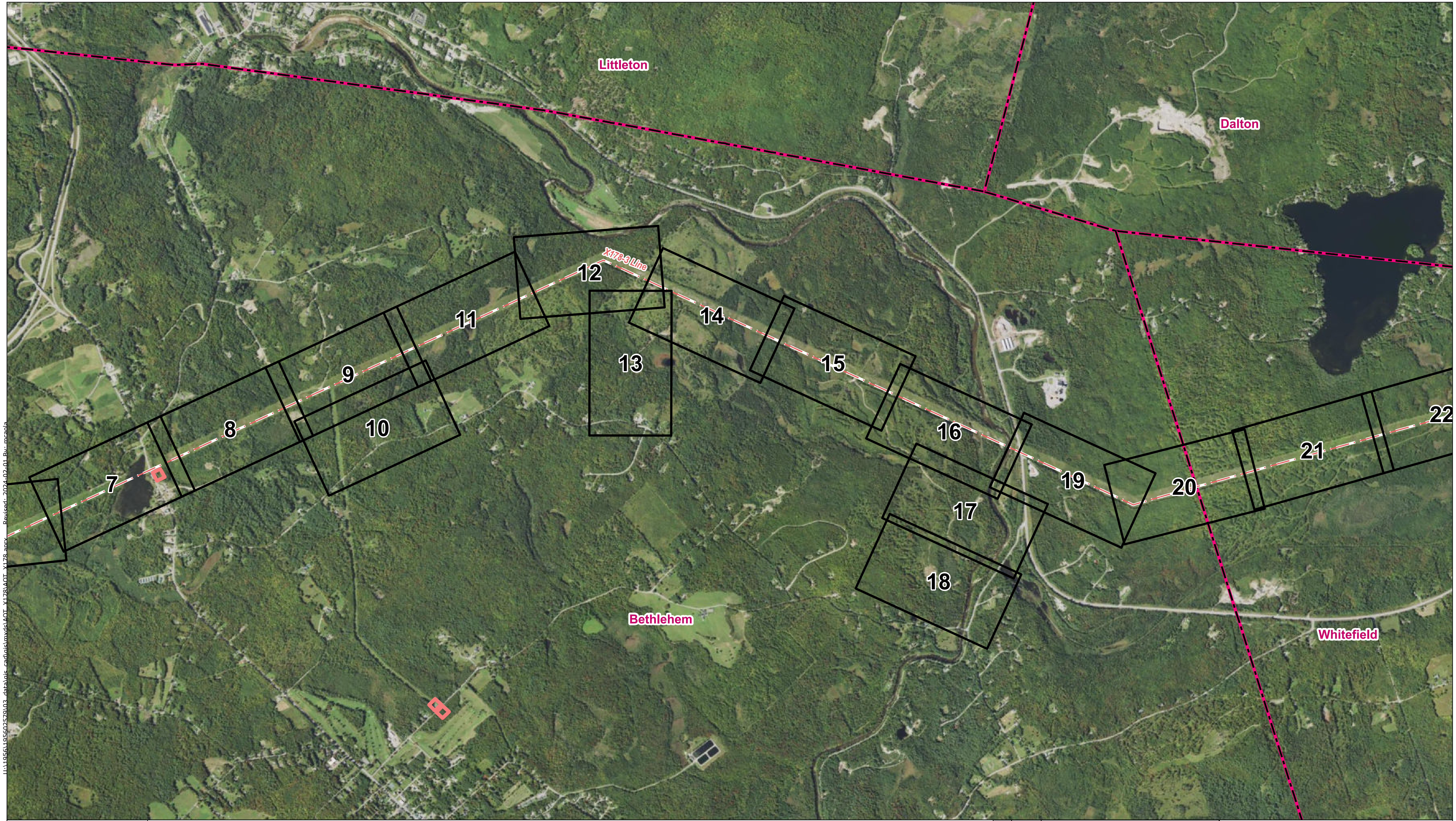
X178-3 Line
Structure Replacement Project
Aerial Site Plan

SUGAR HILL, BETHLEHAM, WHITEFIELD, DALTON, NH

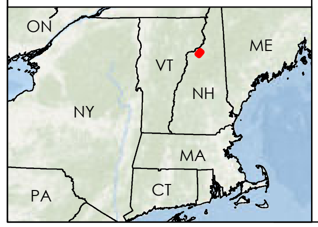
MAP SHEET 1 of 3

Date: February 01, 2024

Stantec



INDEX MAP



Legend

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- Map Sheet
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0 500 1,000 2,000 Feet

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X178-3 Line
Structure Replacement Project
Aerial Site Plan

SUGAR HILL, BETHLEHAM, WHITEFIELD, DALTON, NH

MAP SHEET 2 of 3

Date: February 01, 2024

Stantec

Dalton

Whitefield

Bethlehem

X178-3 Line

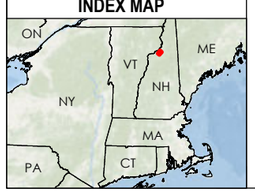
G193 Line

D142 Line

S339 Line

9 20 21 22 23 24 25 26 27 28 29 30 31

INDEX MAP



Legend

- Junction
- Substation
- Overhead Distribution Line
- Eversource Owned Property
- Map Sheet
- Municipal Boundary

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0 500 1,000 2,000 Feet

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X178-3 Line
Structure Replacement Project
Aerial Site Plan

SUGAR HILL, BETHLEHAM, WHITEFIELD, DALTON, NH

MAP SHEET 3 of 3

Date: February 01, 2024

Stantec

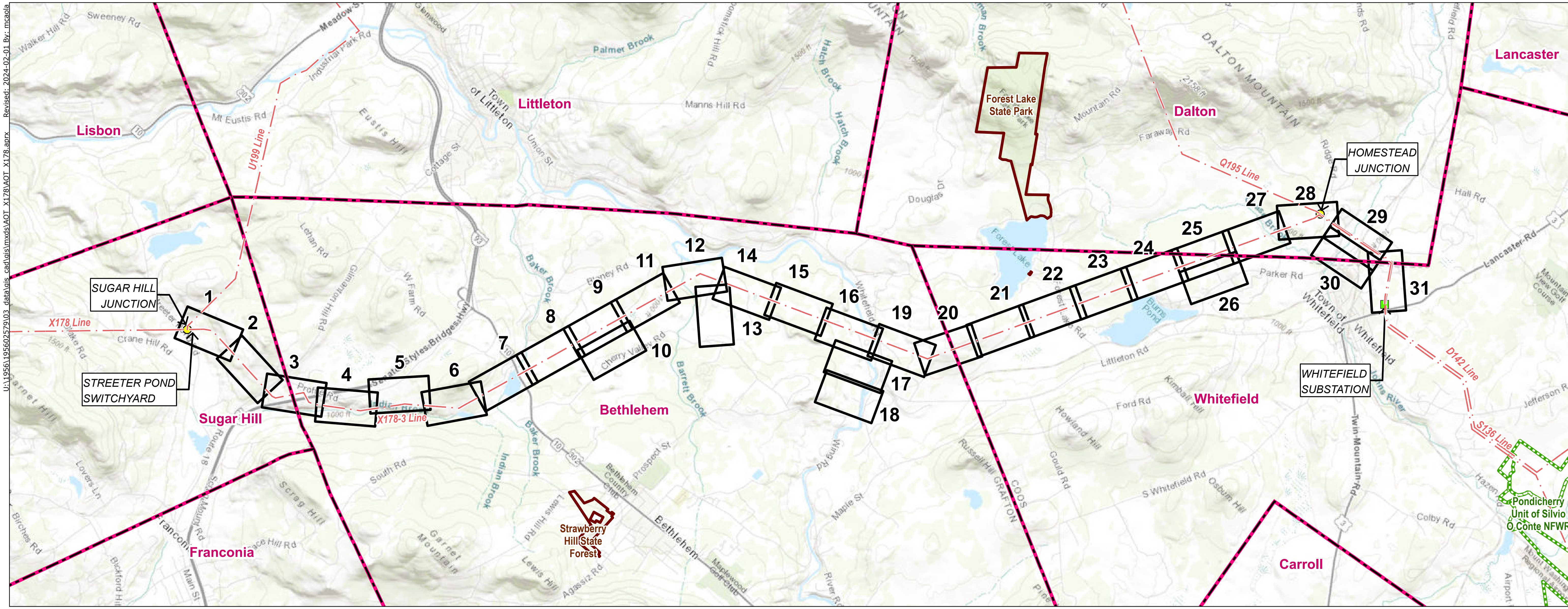
X178-3 - Transmission Line Rebuild Project (Northern Segment)

Sugar Hill, Bethlehem, Whitefield, Dalton, NH
Alteration of Terrain Permitting Plans

Date: February 01, 2024

REVIEWED
By Ridgely Mauck at 1:28 pm, Apr 29, 2024

U:\1956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola



Legend

Substation | Junction | Overhead Transmission Line | Map Sheet | Municipal Boundary | Federal Owned Property | State Owned Property

N

0 1 2 Miles

PREPARED FOR:

EVERSOURCE ENERGY

107 Selden Street
Berlin, CT 06037

INDEX OF FIGURES

Title Sheet / Index Map
Map Sheets 1-31

NO.	DATE	REVISIONS

PREPARED BY:

Stantec

30 Park Drive
Topsham, ME 04086

807-001
Tax Map ID: 204-07-000011
Kevin M. Godbout
Streeter Pond Road

806-172
Tax Map ID: 000207 000010 000000
Clifford T. Hughes
Streeter Pond Road

806-171
Tax Map ID: 2040040000000000
Bodan C Peters
900 Streeter Pond Road

806-175
Tax Map ID: 2040050000000000
Michael A Cavanaugh
864 Streeter Pond Road

808-126
Tax Map ID: 204-02-000012
715 Streeter Pond Realty Trust
715 Streeter Pond Road

Sugar Hill

Streeter Pond Switchyard

STREETER POND ROAD

Gale River

U199 Line

X178-3 Line

TEMPORARY WETLAND IMPACT: +/-5,625 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,116 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,330 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-292 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,784 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-267 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-9,675 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-713 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,059 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-541 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-62,856 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-22,443 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,677 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,287 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

PROTECT RECREATIONAL TRAILS.

PULL PAD

SPAN STREAM NO IMPACT

W001-PSS
W002-PSS
W003-PSS
W004-PSS

S001
S002
S003

TT-05
TT-06
TT-07
TT-08
TT-09
TT-10

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

INDEX MAP

Dalton, Whitefield, Littleton, Carroll, Bethlehem, Sugar Hill

Legend

- Existing Structure
- Existing Structure to be Removed
- Proposed Structure
- Existing Right-Of-Way (ROW)
- Overhead Transmission Line
- Overhead Distribution Line
- Existing Access
- Off-ROW Access Pending Rights
- Suggested Erosion and Sediment Control (TYP)
- AoT Distubance Area - Access
- AoT Disturbance Area - Pad
- Temporary Construction Matting
- Upland Construction Matting
- Stone Work Pad
- Eversource Owned Property
- Parcel Boundary
- Abutter Number
- Municipal Boundary
- 2ft Contour
- 10ft Contour
- Confirmed Vernal Pool 50ft buffer
- Confirmed Vernal Pool Extent
- Field Delineated Ephemeral Watercourse
- Field Delineated Intermittent Watercourse
- Field Delineated Perennial Watercourse
- Field Delineated Wetland Boundary Outline
- Field Delineated Wetland
- Open Water
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
- Railroad
- Stone Wall
- Gate
- Culvert

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1 inch = 200 feet
0 50 100 200 Feet

Map Notes:
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Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Sugar Hill, NH | MAP SHEET 1 of 31

Date: February 01, 2024

Stantec

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806-172
Tax Map ID: 000207 000010 000000
Clifford T. Hughes
Streeter Pond Road

Sugar Hill

PROTECT RECREATIONAL TRAILS.

PROTECT RECREATIONAL TRAILS.

TEMPORARY WETLAND IMPACT: +/-132 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-392 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-442 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-412 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-756 SQ.FT.

GILMANTON HILL ROAD

18

PROFILE ROAD

SUGAR HILL SUBSTATION

W011-PSS

CVP01

W005-PSS

W006-PSS

W007-PSS

W009-PEM

W010-PSS

W008-PSS

X178-3 Line

410 414 411 415 412 416 413 417 414 418 415 419 416 420

1180 1210 1200 1190 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020

TEMPORARY WETLAND IMPACT: +/-1,963 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,547 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,331 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-5,614 SQ.FT.

806-169
Tax Map ID: 000205 000014 000000
Thomas H. Heath
750 Route 18

806-168
Tax Map ID: 2040070000000000
No Information Per Assessors Office
Route 18

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

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*16' disturbance area for gravel access

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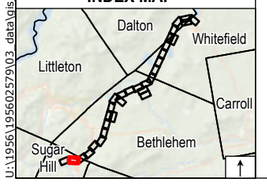

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Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Sugar Hill, NH	MAP SHEET 2 of 31
Date: February 01, 2024	Stantec

U:\19561956025793\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

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*16' disturbance area for gravel access

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Wetland	864,137
Upland	10,082
Total Matting	**874,219**

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-805 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-191 SQ.FT.

SPAN STREAM NO IMPACT

TEMPORARY WETLAND IMPACT: +/-1,170 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,030 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,088 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-722 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,444 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-783 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-725 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-420 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-174 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-602 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-183 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-487 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-939 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,986 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-504 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-985 SQ.FT.

PULL PAD

PULL PAD

806-159
Tax Map ID: 402-015-000-000
Renewable Properties Incorporated (Eversource)
1082 Profile Road

806-165
Tax Map ID: 000205 000006 000001
Patricia Correnti Brown Trust
914 Route 18

806-162
Tax Map ID: 2050030000000000
Kenneth M. King III
Gilmanton Hill Road

806-166
Tax Map ID: 000205 000009 000000
The Travis Family Trust
798 Route 18

806-167
Tax Map ID: 2050110000000000
Public Service Company Of
New Hampshire (Eversource)
772 Route 18

806-169
Tax Map ID: 000205 000014 000000
Thomas H. Heath
750 Route 18

806-170
Tax Map ID: 2050090000000000
Thomas H. Heath
Corral Road

806-161
Tax Map ID: 402-014-000-000
Brown Living Trust
Franconia Road

806-160
Tax Map ID: 410-002-000-000
Spinelli Holdings LLC
Old Franconia Road

806-164
Tax Map ID: 410-003-000-000
Spinelli Holding LLC
Franconia Line

Bethlehem

Sugar Hill

NORTHWOOD LANE

PROFILE ROAD

PROFILE ROAD

SUGAR HILL SUBSTATION

X178-3 Line

W010-PSS
W011-PSS
W012-PSS
W013-PSS
W014-PSS
W015-PSS
W016-PSS
W017-PSS
W018-PEM
W019-PSS
W020-PSS
W021-PSS
W022-PEM

S004
S005

416
417
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18
93

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960
1020
1010

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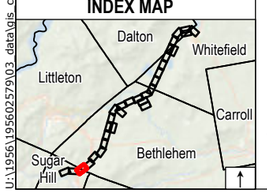
INDEX MAP



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- Railroad
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- Gate
- Culvert

1 inch = 200 feet
0 50 100 200 Feet

Map Notes:
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Basemap: NAIP 2021

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STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

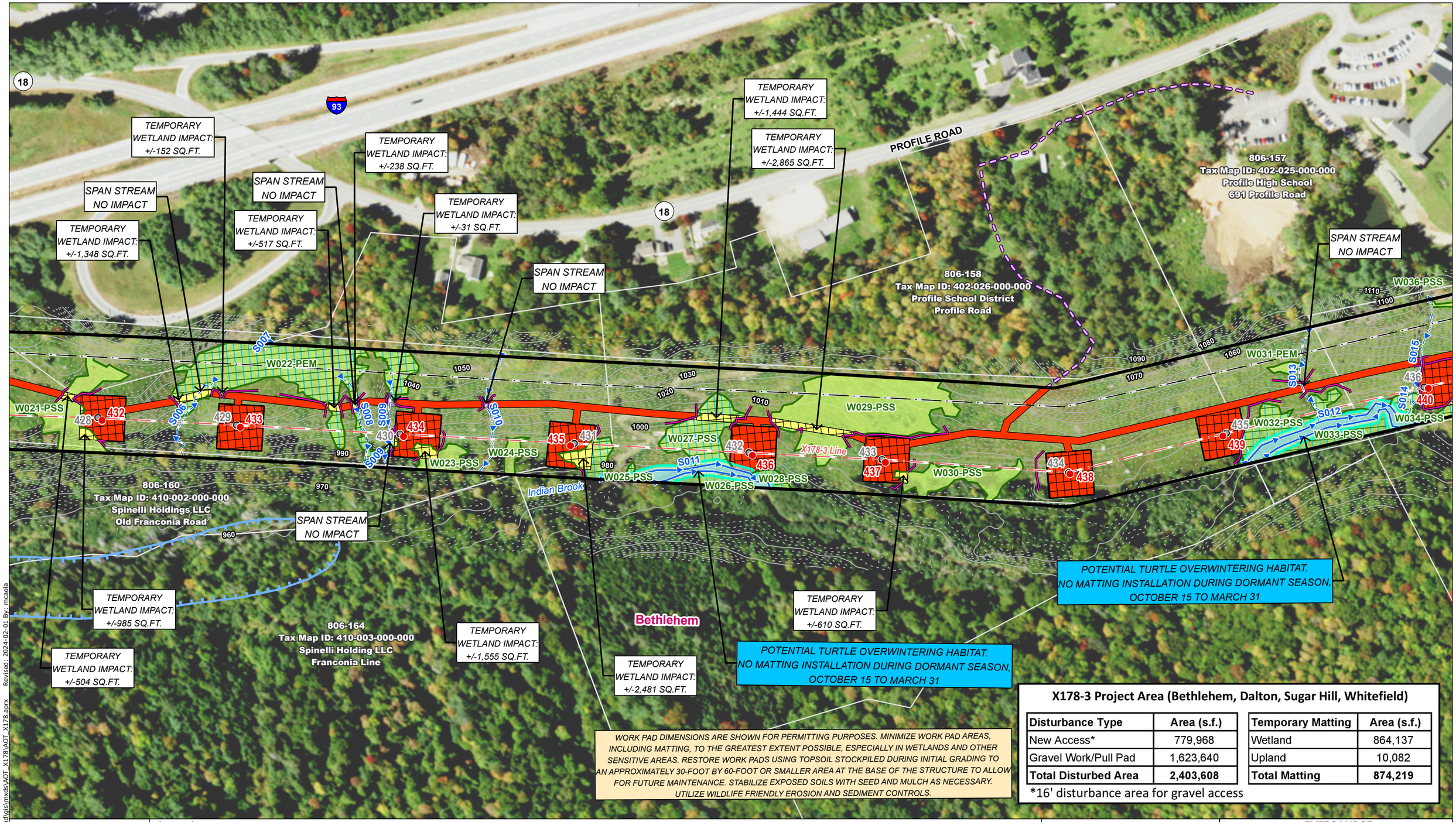
Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Sugar Hill/Bethlehem, NH | MAP SHEET 3 of 31

Date: February 01, 2024

Stantec

U:\19560\19560279\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola



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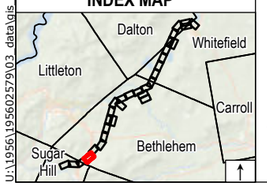
X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

INDEX MAP



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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH	MAP SHEET 4 of 31
Date: February 01, 2024	Stantec

U:\11956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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PROFILE ROAD

18

806-157
Tax Map ID: 402-025-000-000
Profile High School
691 Profile Road

Profile High School

TEMPORARY WETLAND IMPACT: +/-540 SQ.FT.

60 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-1,663 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

806-156
Tax Map ID: 201-068-000-000
Society For The Protection Of New Hampshire Forests
107 Glessner Road

TEMPORARY WETLAND IMPACT: +/-134 SQ.FT.

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

Bethlehem

TEMPORARY WETLAND IMPACT: +/-644 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,474 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,049 SQ.FT.

W037-PSS

W036-PSS

W041-PSS

W031-PEM

S018

X178-3 Line

S013

S015

S016

S017

W039-PSS

W040-PSS

W042-PSS

W032-PSS

S014

S012

W038-PSS

W033-PSS

W034-PSS

W035-PFO

SPAN STREAM NO IMPACT

806-156
Tax Map ID: 201-068-000-000
Society For The Protection Of New Hampshire Forests
107 Glessner Road

SPAN STREAM NO IMPACT

TEMPORARY WETLAND IMPACT: +/-832 SQ.FT.

Indian Brook

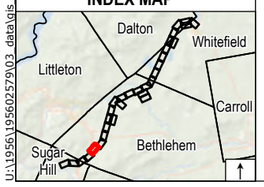
TEMPORARY WETLAND IMPACT: +/-965 SQ.FT.

W043-PSS

1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190

436 437 438 439 440 441 442 443 444 445 446 447

INDEX MAP



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Bethlehem, NH	MAP SHEET 5 of 31
Date: February 01, 2024	Stantec

Revised: 2024-02-01 By: mcaola
U:\19560\19560279\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx

806-156
Tax Map ID: 201-068-000-000
Society For The Protection Of New Hampshire Forests
107 Glessner Road

TEMPORARY WETLAND IMPACT: +/-3,795 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-881 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

AVOID VERNAL POOL

CVP02

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-709 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,305 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,049 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-847 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-318 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-7,667 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,878 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,045 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,047 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,311 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-171 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,848 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,248 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,973 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,688 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,401 SQ.FT.

Bethlehem

Indian Brook

W043-PSS
W044-PSS
W045-PSS
W046-PSS
W047-PSS
W048-PSS
W049-PSS
W050-PSS

X178-3 Line

S019

1220 1210 1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100

443 447 444 448 445 449 446 450 448 452 447 451 453 449 450 454 451

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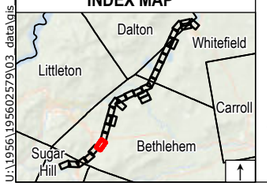

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0 50 100 200 Feet

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH	MAP SHEET 6 of 31
Date: February 01, 2024	Stantec

U:\19560\2579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

806-156
Tax Map ID: 201-068-000-000
Society For The Protection Of New Hampshire Forests
107 Glessner Road

Bethlehem

MILLERS RUN

BROOK ROAD

302

ROCKS EDGE ROAD

MAIN STREET

806-149
Tax Map ID: 201-034-000-000
Carla Avard
70 Rocks Edge Road

806-150
Tax Map ID: 201-035-000-000
The Alicia J. Brawn Trust - 2019
90 Rocks Edge Road

806-146
Tax Map ID: 201-025-000-000
Timothy J Wennrich
Main Street

Baker Brook

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,739 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-363 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,907 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,224 SQ.FT.

FOUNDATION

TEMPORARY WETLAND IMPACT: +/-1,148 SQ.FT.

S019

W050-PSS

W051-PSS

W052-PSS

W053-PSS

W054-PSS

W055-PEM

W049-PSS

X178-3 Line

TEMPORARY WETLAND IMPACT: +/-650 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-522 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,486 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,665 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-5,833 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

POTENTIAL TURTLE OVERWINTERING HABITAT.
NO MATTING INSTALLATION DURING DORMANT SEASON, OCTOBER 15 TO MARCH 31

806-148
Tax Map ID: 201-026-000-000
Renewable Properties Incorporated (Eversource)
1071 Main St

PULL PAD

TEMPORARY WETLAND IMPACT: +/-2,169 SQ.FT.

Miller Pond

806-154
Tax Map ID: 201-028-000-000
Presidential Mountain Resort, LLC
1108 Main Street

Baker Brook

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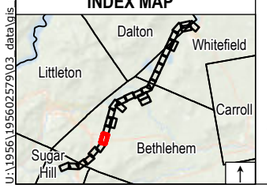

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PROPOSED OSPREY PLATFORM

EXISTING OSPREY NEST

Baker Brook

806-146
Tax Map ID: 201-025-000-000
Timothy J Wennrich
Main Street

806-145
Tax Map ID: 404-035-000-000
Warren E.& V Howland
Blaney Road

Bethlehem

TEMPORARY WETLAND IMPACT: +/-2,169 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,984 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,119 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,392 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,635 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-898 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,605 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,222 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,511 SQ.FT.

W055-PEM
W056-PEM
W057-PSS
W058-PEM
W059-PEM
W060-PEM
W061-PSS

458 462 459 463 460 464 461 465 466 462 463 467 464 468

S020

X178-3 Line

CVP03

1030 1040 1050 1060 1070 1080 1090 1020

SPAN STREAM NO IMPACT

TEMPORARY WETLAND IMPACT: +/-1,282 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,507 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-184 SQ.FT.

AVOID VERNAL POOL

806-147
Tax Map ID: 201-027-000-000
Presidential Mountain Resort, LLC
Main Street

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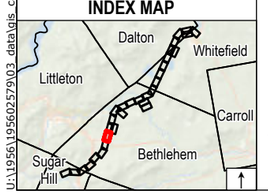

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- Railroad
- Stone Wall
- Gate
- Culvert

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N

1 inch = 200 feet

0 50 100 200 Feet

Map Notes:
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Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH	MAP SHEET 8 of 31
Date: February 01, 2024	Stantec

U:\11956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

TEMPORARY WETLAND IMPACT: +/-1,861 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,931 SQ.FT.

806-144
Tax Map ID: 404-035-011-000
Gingue Family Trust
96 Stony Acres Drive

STONEY ACRES DRIVE

806-142
Tax Map ID: 404-035-005-000
Glenn W Raymond
97 Stony Acres Drive

TEMPORARY WETLAND IMPACT: +/-6,980 SQ.FT.

Bethlehem

AVOID VERNAL POOL

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-2,983 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

W061-PSS

W062-PEM

W063-PSS

W064-PEM

X178-3 Line

CVP04

CVP05

CVP06

469 465 466 470 471 467 468 472 473 469 470 474 471 475 476

1060 1050 1070 1080 1040 1030 1020 1010 1000

PULL PAD

PULL PAD

GUARD TRUCK PAD

40 SQ.FT. PERMANENT WETLAND IMPACT

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-999 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-419 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,244 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,884 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,208 SQ.FT.

806-145
Tax Map ID: 404-035-000-000
Warren E.& V Howland
Blaney Road

W142-PSS

TEMPORARY WETLAND IMPACT: +/-1,629 SQ.FT.

806-143
Tax Map ID: 404-039-001-000
Raeann Guarnier Cortez
Cherry Valley Road

TEMPORARY WETLAND IMPACT: +/-1,093 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,467 SQ.FT.

806-141
Tax Map ID: 404-040-000-000
David G. Van Houten
Cherry Valley Road

806-140
Tax Map ID: 404-034-020-004
MS Wire LLC
Blaney Road

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

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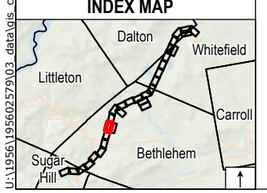
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

INDEX MAP



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STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH | MAP SHEET 9 of 31

Date: February 01, 2024

Stantec

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806-145
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David G. Van Houten
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Tax Map ID: 404-034-020-004
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Blaney Road

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Cherry Valley Road

W142-PSS

TEMPORARY WETLAND IMPACT: +/-1,629 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,093 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,467 SQ.FT.

W143-PEM

TEMPORARY WETLAND IMPACT: +/-697 SQ.FT.

Black Brook

W144-PSS

TEMPORARY WETLAND IMPACT: +/-362 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-414 SQ.FT.

LYONS DRIVE

CHERRY VALLEY ROAD

W145-PSS

TEMPORARY WETLAND IMPACT: +/-2,052 SQ.FT.

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Upland	10,082
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*16' disturbance area for gravel access

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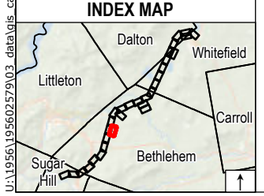

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Basemap: NAIP 2021

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EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Alteration of Terrain Permitting Plans

Bethlehem, NH | MAP SHEET 10 of 31

Date: February 01, 2024

Stantec

U:\11956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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806-140
Tax Map ID: 404-034-020-004
MS Wire LLC
Blaney Road

806-138
Tax Map ID: 404-031-023-000
Timothy Wennrich
632 Blaney Road

806-139
Tax Map ID: 404-031-022-000
Timothy Wennrich
Blaney Road

POTENTIAL TURTLE OVERWINTERING HABITAT. NO MATTING INSTALLATION DURING DORMANT SEASON, OCTOBER 15 TO MARCH 31

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,103 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-8,884 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,400 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

AVOID EXISTING SNOWMOBILE BRIDGE

TEMPORARY WETLAND IMPACT: +/-7,527 SQ.FT.

Bethlehem

Black Brook

W064-PEM

X178-3 Line

S021

S022

S023

S024

W066-PSS

W065-PEM

472 473 474 475 476 477 478 479 480 481 482

1000 970 980 990

1010 1020

TEMPORARY WETLAND IMPACT: +/-3,884 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,546 SQ.FT.

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-676 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-160 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-288 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-250 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-704 SQ.FT.

806-137
Tax Map ID: 404-042-000-000
James G. Derrington
953 Cherry Valley Road

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
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*16' disturbance area for gravel access

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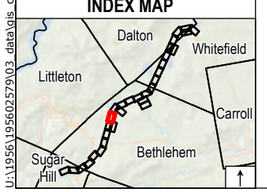

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MATTHEW ARSENAULT
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CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH | MAP SHEET 11 of 31

Date: February 01, 2024

Stantec

U:\1956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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Ammonoosuc River

806-136
Tax Map ID: 404-031-111-000
Estate Of Asa Prescott Brebner
633 Blaney Road

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-9,038 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-792 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,866 SQ.FT.

PULL PAD

TEMPORARY WETLAND IMPACT: +/-1,886 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,327 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,892 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,087 SQ.FT.

Black Brook

Barrett Brook

S025

W069-PSS

CVP07

W070-PSS

W071-PEM

X178-3 Line

SPAN STREAM NO IMPACT

PULL PAD

W068-PSS

W067-PSS

TEMPORARY WETLAND IMPACT: +/-598 SQ.FT.

Bethlehem

TEMPORARY WETLAND IMPACT: +/-713 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,210 SQ.FT.

W072-PEM

W146-PEM

S024

W066-PSS

ACCESS FROM CHERRY VALLEY ROAD

806-135
Tax Map ID: 405-075-000-000
Sevilla F. Pilpil-Reyes
Cherry Valley Road

TEMPORARY WETLAND IMPACT: +/-1,201 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-704 SQ.FT.

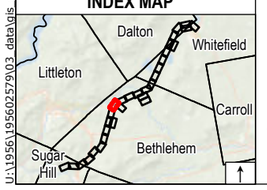
TEMPORARY WETLAND IMPACT: +/-2,442 SQ.FT.

806-137
Tax Map ID: 404-042-000-000
James G. Derrington
953 Cherry Valley Road

W147-PSS

TEMPORARY WETLAND IMPACT: +/-968 SQ.FT.

INDEX MAP



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EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH	MAP SHEET 12 of 31
Date: February 01, 2024	Stantec

U:\19561\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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W074-PEM

1040

1050

1060

1070

TEMPORARY WETLAND IMPACT: +/2,389 SQ.FT.

W148-PEM

W147-PSS

TEMPORARY WETLAND IMPACT: +/-2,901 SQ.FT.

W149-PFO

W150-PFO

806-135
Tax Map ID: 405-075-000-000
Sevilla F. Pilpil-Reyes
Cherry Valley Road

AVOID VERNAL POOL

CVP25

AVOID VERNAL POOL

CVP26

W151-PFO

CHERRY VALLEY ROAD

ACCESS TO STRUCTURES 490 & 491

W153-PFO

W152-PFO

806-137
Tax Map ID: 404-042-000-000
James G. Derrington
953 Cherry Valley Road

U:\11956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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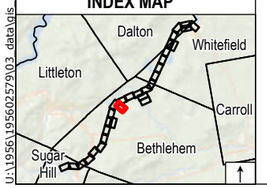

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Whitefield/Dalton, NH	MAP SHEET 13 of 31
Date: February 01, 2024	Stantec

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806-133
Tax Map ID: 406-038-000-000
750 Acre Club, LLC
Whitefield Road

806-135
Tax Map ID: 405-075-000-000
Sevilla F. Pilpil-Reyes
Cherry Valley Road

Bethlehem

TEMPORARY WETLAND IMPACT: +/-642 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-474 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-901 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-1,057 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-291 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-2,111 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-3,071 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.
40 SQ.FT. PERMANENT WETLAND IMPACT
TEMPORARY WETLAND IMPACT: +/-2,595 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-3,867 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-150 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-1,232 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-2,272 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-8,262 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-2,500 SQ.FT.
SPAN STREAM NO IMPACT
ACCESS FROM CHERRY VALLEY ROAD
ACCESS FROM PROSPECT STREET

W072-PEM
W073-PSS
W074-PEM
W075-PSS
W076-PEM
W077-PSS
W078-PSS
W079-PSS
W147-PSS
W148-PEM
W154-PFO
W155-PFO
W156-PFO
W157-
S026
S036
X178-3 Line

1020 1030 1040 1050 1060 1070 1010 1000 990 980 970

486 487 488 489 490 491 492 493 494 495 496 497

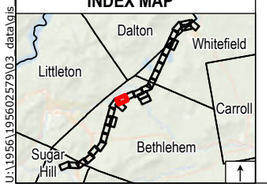
X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

INDEX MAP



Legend

- Existing Structure
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- Proposed Structure
- Existing Right-Of-Way (ROW)
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- Overhead Distribution Line
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- AoT Disturbance Area - Pad
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- Upland Construction Matting
- Stone Work Pad
- Eversource Owned Property
- Parcel Boundary
- 806 Abutter Number
- Municipal Boundary
- 2ft Contour
- 10ft Contour
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- Confirmed Vernal Pool Extent
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- Field Delineated Intermittent Watercourse
- Field Delineated Perennial Watercourse
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- Field Delineated Wetland
- Open Water
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
- Railroad
- Stone Wall
- Gate
- Culvert

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N

1 inch = 200 feet
0 50 100 200 Feet

Map Notes:
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Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH | MAP SHEET 14 of 31
Date: February 01, 2024 | Stantec

U:\11956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

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Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

TEMPORARY WETLAND IMPACT: +/-2,595 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,388 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-681 SQ.FT.

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-3,418 SQ.FT.

ACCESS FROM PROSPECT STREET

ACCESS FROM PROSPECT STREET TO STRUCTURES 492 & 493

Bethlehem

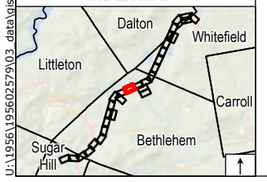
W079-PSS
W080-PSS
W081-PEM
W082-PSS
W083-PSS
W084-PEM
W158-PFO
W171-PSS
W172-PSS
S037
X178-3 Line

493 497 498 499 495 499 496 500 497 501 498 502 499 503

990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100

806-133
Tax Map ID: 406-038-000-000
750 Acre Club, LLC
Whitefield Road

INDEX MAP



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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH	MAP SHEET 15 of 31
Date: February 01, 2024	Stantec

U:\19561\9560257903_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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*16' disturbance area for gravel access

Bethlehem

806-127
Tax Map ID: 406-039-000-000
Karen L. Burrill-Murray
Whitefield Road

806-134
Tax Map ID: 406-037-000-000
750 Acre Club, LLC
1539 Prospect Street

NEW HAMPSHIRE CENTRAL RAILROAD

116 WHITEFIELD ROAD

TEMPORARY WETLAND IMPACT: +/-224 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,056 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,360 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-666 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,586 SQ.FT.

AVOID VERNAL POOL

ACCESS FROM PROSPECT STREET

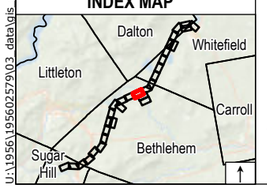
ACCESS FROM PROSPECT STREET TO STRUCTURE 502

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

W083-PSS
W084-PEM
W085-PEM
W086-PSS
W087-PEM
W088-PUB
W089-PSS
W090-PSS
W159-PSS
W160-PFO
W164-PFO
W170-PSS
S021
S022
S027
Ammonoosuc River
CVP08
X178-3 Line
500 501 502 503 504 505 506 507 508 509

1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 980 990 970

INDEX MAP



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CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH	MAP SHEET 16 of 31
Date: February 01, 2024	Stantec

U:\19561\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

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*16' disturbance area for gravel access

806-134
Tax Map ID: 406-037-000-000
750 Acre Club, LLC
1539 Prospect Street

806-132
Tax Map ID: 406-036-000-000
Stephen J Butler
Whitefield Road

ACCESS FROM PROSPECT STREET TO STRUCTURE 509

ACCESS FROM PROSPECT STREET TO STRUCTURE 507

ACCESS TO STRUCTURE 506

Bethlehem

S027

Ammonoosuc River

W164-PFO

W161-PFO

W165-PSS

W163-PFO

W162-PFO

S038

116

WHITEFIELD ROAD

NEW HAMPSHIRE CENTRAL RAILROAD

POND VIEW DRIVE

WING ROAD

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

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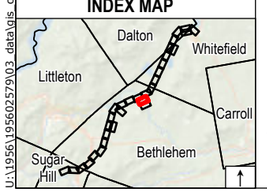

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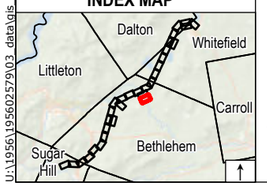
ACCESS TO STRUCTURES 507 & 509

S038
W163-PFO
W162-PFO
W166-PFO
S021
W167-PEM
W168-PFO
W169-PSS
WING ROAD
SAWMILL RD
WING RD
PROSPECT ST

U:\11956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaiola

INDEX MAP



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Bethlehem, NH	MAP SHEET 18 of 31
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TEMPORARY WETLAND IMPACT: +/-3,360 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-247 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-317 SQ.FT.

GUARD TRUCK PAD

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-7,826 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-217 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,835 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,457 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-4,854 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,863 SQ.FT.

806-126
Tax Map ID: 406-021-001-000
Dylan Whitcomb
Briar Hill Road

806-130
Tax Map ID: 406-021-002-000
David Alan Taylor Trust
Whitefield Road

806-129
Tax Map ID: 406-021-003-000
Town Of Bethlehem
Briar Hill Road

Bethlehem

116

S027

S028

W089-PSS

W090-PSS

W091-PSS

W092-PSS

W093-PSS

W094-PSS

W095-PSS

W096-PSS

W097-PSS

W098-PSS

506 507 508 509 510 511 512 513 514 515 516

X178-3 Line

CVP09

970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200

806-131
Tax Map ID: 406-021-004-000
Ralph D. Ross
Briar Hill Road

806-128
Tax Map ID: 406-021-005-000
Dylan Whitcomb
Briar Hill Road

40 SQ.FT. PERMANENT WETLAND IMPACT

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-921 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,679 SQ.FT.

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-3,788 SQ.FT.

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TEMPORARY WETLAND IMPACT: +/-6,586 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-244 SQ.FT.

WHITEFIELD ROAD

W170-PSS

ACCESS FROM WING ROAD

Ammonoosuc River

806-132
Tax Map ID: 406-036-000-000
Stephen J Butler
Whitefield Road

NEW HAMPSHIRE CENTRAL RAILROAD

116

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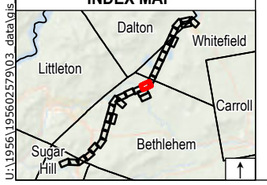

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0 50 100 200 Feet

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Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem, NH	MAP SHEET 19 of 31
Date: February 01, 2024	Stantec

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806-125
Tax Map ID: 244-007
Servad Management LLC
Forest Lake Road

806-126
Tax Map ID: 406-021-001-000
Dylan Whitcomb
Briar Hill Road

Bethlehem

Whitefield

Shooting Range/Mitigation Site

W097-PSS

W098-PSS

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-244 SQ.FT.

X178-3 Line

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

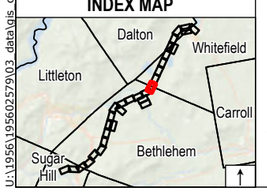
X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

INDEX MAP



Legend

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- Field Delineated Wetland
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- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
- Railroad
- Stone Wall
- Gate
- Culvert

1 inch = 200 feet
0 50 100 200 Feet

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CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Bethlehem/Whitefield, NH | MAP SHEET 20 of 31

Date: February 01, 2024

Stantec

U:\19561\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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*16' disturbance area for gravel access

Whitefield

SPAN WETLAND NO IMPACT

TEMPORARY WETLAND IMPACT: +/-214 SQ.FT.

W099-PSS

W100-PSS

W101-PSS

X178-3 Line

520 521 522 523 524 525 526 527 528 529 530 531

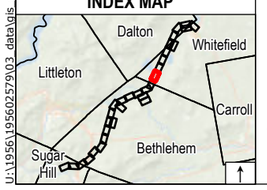
1290 1280 1270 1260 1250 1240 1230 1220 1210 1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070

806-125
Tax Map ID: 244-007
Servad Management LLC
Forest Lake Road

ACCESS FROM FOREST LAKE ROAD

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

INDEX MAP



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EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Whitefield, NH	MAP SHEET 21 of 31
Date: February 01, 2024	Stantec

U:\19561\19560257903_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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806-124
Tax Map ID: 244-008
Elmer C Lupton
75 Newell Lane

Whitefield

TEMPORARY WETLAND IMPACT: +/-3,745 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-635 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-489 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,771 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,893 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-1,734 SQ.FT.

FOREST LAKE ROAD

806-122
Tax Map ID: 244-042
Peter J Myles
166 Forest Lake Road

RAMBLE ON ROAD

AVOID VERNAL POOL

GUARD TRUCK PAD

1090
1080
1070
1060

W102-PSS
W101-PSS
W103-PSS
W104-PSS
W105-PSS
W106-PSS
W107-PSS
W108-PSS
W109-PSS
W110-PSS
W111-PSS

CVP10
CVP11
CVP12

X178-3 Line

S029
S030

528 531 532 529 530 533 531 534 532 535 533 536 534 537 535 538

TEMPORARY WETLAND IMPACT: +/-673 SQ.FT.

AVOID EXISTING SNOWMOBILE BRIDGE

TEMPORARY WETLAND IMPACT: +/-255 SQ.FT.

SPAN STREAM NO IMPACT

PULL PAD

PULL PAD

806-123
Tax Map ID: 244-043-001
Melhem Enterprises Retreats, LLC
152 Forest Lake Road

TEMPORARY WETLAND IMPACT: +/-3,479 SQ.FT.

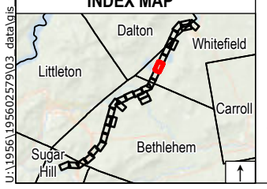
TEMPORARY WETLAND IMPACT: +/-1,489 SQ.FT.

806-125
Tax Map ID: 244-007
Servad Management LLC
Forest Lake Road

ACCESS TO STRUCTURES 528 & 529

806-121
Tax Map ID: 244-043
Melhem Enterprises Retreats, LLC
90 Melhem Estates Drive

INDEX MAP



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Basemap: NAIP 2021

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STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Whitefield, NH	MAP SHEET 22 of 31
Date: February 01, 2024	Stantec

U:\19560\19560257903_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

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*16' disturbance area for gravel access

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RAMBLE ON ROAD

806-116
Tax Map ID: 242-016-001
Bruce E Brekke
Ramble On Road

806-122
Tax Map ID: 244-042
Peter J Myles
166 Forest Lake Road

806-120
Tax Map ID: 242-018
Dale Macconnell
Ramble On Road

806-119
Tax Map ID: 242-018
David Gaipo
62 Ramble On Road

806-118
Tax Map ID: 242-017
George Olsen
74 Ramble On Road

Whitefield

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-2,078 SQ.FT.

PROPOSED OSPREY NEST PLATFORM

TEMPORARY WETLAND IMPACT: +/-1,159 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-945 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

AVOID VERNAL POOL

W110-PSS
CVP12
CVP13
535
538
536
539
W111-PSS
W112-PSS
TEMPORARY WETLAND IMPACT: +/-358 SQ.FT.
540
537
W113-PSS
W114-PSS
541
538
X178-3 Line
539
542
W115-PSS
543
540
W116-PSS
544
541
W117-PEM
542
545
CVP14
1090
1080
1050
1040
1060
1070
1030

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-254 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,174 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-377 SQ.FT.

EXISTING OSPREY NEST

TEMPORARY WETLAND IMPACT: +/-1,359 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,387 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,129 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,438 SQ.FT.

806-121
Tax Map ID: 244-043
Melhem Enterprises Retreats, LLC
90 Melhem Estates Drive

806-117
Tax Map ID: 242-019
Georges A. Melhem
Forest Lake Road

806-115
Tax Map ID: 242-020
Georges A. Melhem
Pierce Road

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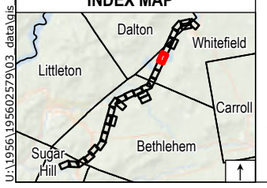
INDEX MAP



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- Culvert

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Whitefield, NH	MAP SHEET 23 of 31
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Tax Map ID: 242-016-001
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Ramble On Road

Dalton

806-107
Tax Map ID: 408-103
Mark Thomas Roberts
57 Evergreen Drive

Whitefield

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-837 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-14,631 SQ.FT.

AVOID VERNAL POOL

AVOID VERNAL POOL

AVOID VERNAL POOL

CVP14

CVP15

CVP16

W117-PEM

W118-PSS

W119-PSS

W120-PSS

W121-PSS

W122-PSS

X178-3 Line

1020 1030 1040 1050 1060 1070 1080 1090

543 544 545 546 547 548 549 550 551 552 553

TEMPORARY WETLAND IMPACT: +/-1,438 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-341 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,254 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-610 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-9,330 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-3,816 SQ.FT.

806-115
Tax Map ID: 242-020
Georges A. Melhem
Pierce Road

806-114
Tax Map ID: 241-082
Diana Webster-Campbell
Pierce Road

806-113
Tax Map ID: 230-017
Karen H. Keller
56 Pierce Road

806-112
Tax Map ID: 230-019
Edward W Foley
Pierce Road

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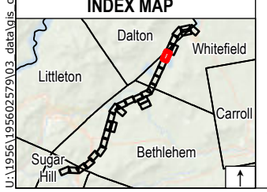

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Whitefield, NH	MAP SHEET 24 of 31
Date: February 01, 2024	Stantec

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806-107
Tax Map ID: 408-103
Mark Thomas Roberts
57 Evergreen Drive

806-108
Tax Map ID: 408-103-001
Mark Thomas Roberts
Evergreen Drive

806-105
Tax Map ID: 408-105
Edwin Faria
Evergreen Drive

806-114
Tax Map ID: 241-082
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Pierce Road

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56 Pierce Road

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Tax Map ID: 230-019
Edward W Foley
Pierce Road

806-111
Tax Map ID: 230-025
Jeffrey N. Wiseman
Parker Road

806-110
Tax Map ID: 230-030
Richard Lally
Evergreen Drive

806-109
Tax Map ID: 408-106
Edwin Faria
Evergreen Drive

Dalton

Whitefield

TEMPORARY WETLAND IMPACT: +/-9,982 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,286 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-315 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-475 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,357 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,614 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,478 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-918 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-513 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-643 SQ.FT.

AVOID VERNAL POOL

AVOID VERNAL POOL

40 SQ.FT. PERMANENT WETLAND IMPACT

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-2,738 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,695 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,933 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-9,996 SQ.FT.

ACCESS FROM PARKER ROAD

PULL PAD

EVERGREEN DRIVE

W122-PSS
W123-PSS
W124-PEM
W125-PSS
W126-PSS
W127-PSS
W128-PSS

CVP16
CVP17

X178-3 Line

1070
1080
1090

550 551 552 553 554 555 556 557 558 559 560

INDEX MAP

Legend

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- Gate
- Culvert

1 inch = 200 feet
0 50 100 200 Feet

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Map Notes:
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Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Whitefield/Dalton, NH | MAP SHEET 25 of 31

Date: February 01, 2024

Stantec

U:\19561\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

ACCESS TO STRUCTURE 559

EVERGREEN DRIVE

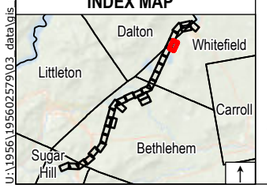
PARKER ROAD

PIERCE ROAD

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

U:\1956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

INDEX MAP



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Basemap: NAIP 2021

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Whitefield/Dalton, NH	MAP SHEET 26 of 31
Date: February 01, 2024	Stantec

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

*16' disturbance area for gravel access

Temporary Matting	Area (s.f.)
Wetland	864,137
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806-105
Tax Map ID: 408-105
Edwin Faria
Evergreen Drive

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

Dalton

Chase Brook

TEMPORARY WETLAND IMPACT: +/-3,532 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,438 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-5,500 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

SPAN STREAM NO IMPACT

AVOID EXISTING SNOWMOBILE BRIDGE

TEMPORARY WETLAND IMPACT: +/-5,532 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-7,788 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

W128-PSS
W129-PSS
W130-PSS
CVP18
CVP19
CVP20
X178-3 Line
CVP21
CVP22
S037
561
558
562
559
563
560
564
561
565
562
563
566
564
567
565
568
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000

PULL PAD

PULL PAD

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-9,604 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,330 SQ.FT.

806-106
Tax Map ID: 414-2
Edwin Faria
Parker Road Extension

TEMPORARY WETLAND IMPACT: +/-3,348 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

POTENTIAL TURTLE OVERWINTERING HABITAT. NO MATTING INSTALLATION DURING DORMANT SEASON, OCTOBER 15 TO MARCH 31

40 SQ.FT. PERMANENT WETLAND IMPACT

AVOID VERNAL POOL

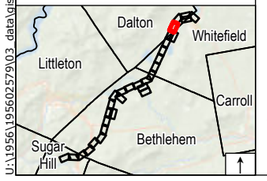
TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,635 SQ.FT.

806-104
Tax Map ID: 408-1
Frank Porfido Jr
Faraway Road

Whitefield

INDEX MAP



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MATTHEW ARSENAULT
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EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Whitefield/Dalton, NH	MAP SHEET 27 of 31
Date: February 01, 2024	Stantec

U:\19561\19560257903_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

*16' disturbance area for gravel access

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

805-081
Tax Map ID: 413-8.3
Jennifer J. Goodsell
53 Homestead Lane

805-082
Tax Map ID: 413-2
John Phillip Boswell
23 Parker Road Extension

805-083
Tax Map ID: 413-1
Town Of Dalton
Faraway Road

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

HOMESTEAD LANE
HOMESTEAD JUNCTION
FARAWAY ROAD
Dalton

020 019 018 017 016 015

573 570 574 571 572 569 568 567 570 565 568 569 572 575 576 573

1040 1030 1020 1010 1000 990 980 970 960 950 940 930

CVP23 CVP22

W131-PSS W130-PSS W132-PSS W133-PSS

Q795 Line X178-3 Line

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-815 SQ.FT.

60 SQ.FT. PERMANENT WETLAND IMPACT

60 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-1,799 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

AVOID VERNAL POOL

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-220 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,777 SQ.FT.

SPAN WETLAND NO IMPACT

TEMPORARY WETLAND IMPACT: +/-490 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,718 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,992 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,572 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-304 SQ.FT.

40 SQ.FT. PERMANENT WETLAND IMPACT

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,959 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-472 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,385 SQ.FT.

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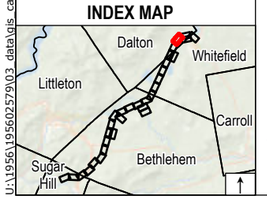
INDEX MAP



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STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
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CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Alteration of Terrain Permitting Plans

Dalton, NH	MAP SHEET 28 of 31
Date: February 01, 2024	Stantec

X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
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Total Matting	**874,219**

*16' disturbance area for gravel access

Dalton

STEVES PATH ROAD

PAGE ROAD

John's River

NEW HAMPSHIRE CENTRAL RAILROAD

WHITEFIELD ROAD

805-089
Tax Map ID: 413-62
Renewable Properties Incorporated (Eversource)
Faraway Road

805-088
Tax Map ID: 413-66
A.B. Aggregates, LLC
Faraway Road

805-092
Tax Map ID: 413-71
Misty Meadows Trailer Park, LLC
Meadow Mist Drive

805-095
Tax Map ID: 413-75
John Shaw Jr.
Whitefield Road

806-100
Tax Map ID: 413-076
John Shaw Jr
1044 Whitefield Road

805-100
Tax Map ID: 413-123
Ridgeview LLC
4 Riverview Terrace

805-086
Tax Map ID: 413-5.1
Boston & Maine Corporation
Faraway Road

805-097
Tax Map ID: 413-75.2
Dean A. Coulter Sr.
1056 Whitefield Road

805-099
Tax Map ID: 413-106
Chester C. Savage Jr
Whitefield Road

TEMPORARY WETLAND IMPACT: +/-3,385 SQ.FT.

PULL PAD

AVOID VERNAL POOL

S032 S033 S035 GVP24

W132-PSS W133-PSS W134-PSS W135-PSS

Q195 Line X178-3 Line

015 014 013 012 011 010 009 008 007

900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040

805-090
Tax Map ID: 413-67
Ronald J. Sheltry
70 Faraway Road

MIRROR LAKE ROAD

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

805-087
Tax Map ID: 413.5.21
Katharine A. Berrio
Faraway Road

805-094
Tax Map ID: 413-73
Boston & Maine Corporation
Whitefield Road

805-098
Tax Map ID: 413-75.1
Kenneth E. Head
1068 Whitefield Road

805-100
Tax Map ID: 413-123
Ridgeview LLC
4 Riverview Terrace

GUARD TRUCK AREA

RIDGEVIEW TERRACE

MEADOWMIST DRIVE

FARAWAY ROAD

870 880 890

POTENTIAL TURTLE OVERWINTERING HABITAT.
NO MATTING INSTALLATION DURING DORMANT SEASON, OCTOBER 15 TO MARCH 31

TEMPORARY WETLAND IMPACT: +/-4,449 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,610 SQ.FT.

ACCESS FROM FARAWAY ROAD

142

ACCESS TO STRUCTURE 587

ELM STREET

Whitefield

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

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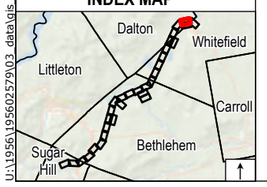

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N

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Dalton, NH	MAP SHEET 29 of 31
Date: February 01, 2024	Stantec

U:\19561\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

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John's River

MERRITT ROAD

FARAWAY ROAD

MEADOWMIST DRIVE

MEADOWMIST DRIVE

NEW HAMPSHIRE CENTRAL RAILROAD

142

Whitefield

ELM STREET

ACCESS TO STRUCTURE 580

Dalton

PARKER ROAD EXT

PARKER ROAD

BROWN STREET

SPRUCE LANE

PINE STREET

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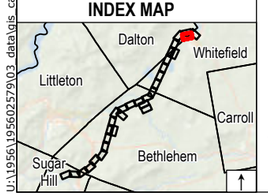

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- 10ft Contour
- Confirmed Vernal Pool 50ft buffer
- Confirmed Vernal Pool Extent
- Field Delineated Ephemeral Watercourse
- Field Delineated Intermittent Watercourse
- Field Delineated Perennial Watercourse
- Field Delineated Wetland Boundary Outline
- Field Delineated Wetland
- Open Water
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
- Railroad
- Stone Wall
- Gate
- Culvert

N

1 inch = 200 feet

0 50 100 200 Feet

This mapping product has been created to comply with submittal requirements to obtain certain regulatory approvals and, as such, there is no reliance on the information contained herein for any other purpose.

Map Notes:
Coordinate System: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet
Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Alteration of Terrain Permitting Plans

Dalton, NH	MAP SHEET 30 of 31
Date: February 01, 2024	Stantec

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X178-3 Project Area (Bethlehem, Dalton, Sugar Hill, Whitefield)

Disturbance Type	Area (s.f.)
New Access*	779,968
Gravel Work/Pull Pad	1,623,640
Total Disturbed Area	**2,403,608**

Temporary Matting	Area (s.f.)
Wetland	864,137
Upland	10,082
Total Matting	**874,219**

*16' disturbance area for gravel access

805-101
Tax Map ID: 413-109
Lisa Nast
Mirror Lake Road

Dalton

MIRROR LAKE ROAD

WHISPERING PINES DRIVE

805-105
Tax Map ID: 219-062
No Information Per Assessors Office
Off Whispering Pines Drive

805-107
Tax Map ID: 219-018
Jerome E McGee
18 Whispering Pines Drive

805-099
Tax Map ID: 413-106
Chester C. Savage Jr
Whitefield Road

805-106
Tax Map ID: 219-063
No Information Per Assessors Office
Off Whispering Pines Drive

AVOID PRIVATE MEMORIAL

TEMPORARY WETLAND IMPACT: +/-1,086 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-232 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,917 SQ.FT.

805-114
Tax Map ID: 219-023-001
Andrew G Lowell
Lancaster Road

LANCASTER ROAD

60 SQ.FT. PERMANENT WETLAND IMPACT

806-102
Tax Map ID: 101-014
S&S Property, LLC
101 Lancaster Road

PULL PAD

005 004 003 002 001 006 007

584 586 585 587 586 588 587 589 588 590 589 591 583 582 581

X178-3 Line

Q195 Line

1050 1060 1040

W136-PSS W137-PSS W138-PSS W139-PSS W140-PSS W141-PSS

805-102
Tax Map ID: 413-122
Ridgeview LLC
Mirror Lake Road

TEMPORARY WETLAND IMPACT: +/-476 SQ.FT.

805-108
Tax Map ID: 219-017-001
Raymond G Belanger
Whispering Pines Drive

TEMPORARY WETLAND IMPACT: +/-1,490 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,407 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,000 SQ.FT.

Whitefield

805-110
Tax Map ID: 219-022
David Chase
110 Elm Street

PULL PAD

TEMPORARY WETLAND IMPACT: +/-8,562 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,619 SQ.FT.

WHITEFIELD SUBSTATION

D142 Line

S136 Line

353

804-001
Tax Map ID: 101-13
Public Service Company Of New Hampshire (Eversource)
85 Lancaster Road

806-103
Tax Map ID: 101-045
O'Neil Family Trust
43 Holly Heights

1020 1030 1010 1000 990 980

805-100
Tax Map ID: 413-123
Ridgeview LLC
4 Riverview Terrace

142

RIDGEVIEW TERRACE

805-098
Tax Map ID: 413-75.1
Kenneth E. Head
1068 Whitefield Road

WHITEFIELD ROAD

ELM STREET

805-095
Tax Map ID: 413-75
John Shaw Jr.
Whitefield Road

HOLLY HEIGHTS

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

U:\19561\19560257903_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

INDEX MAP

Legend

- Existing Structure
- Existing Structure to be Removed
- Proposed Structure
- Existing Right-Of-Way (ROW)
- Overhead Transmission Line
- Overhead Distribution Line
- Existing Access
- Off-ROW Access Pending Rights
- Suggested Erosion and Sediment Control (TYP)
- AoT Distubance Area - Access
- AoT Disturbance Area - Pad
- Temporary Construction Matting
- Upland Construction Matting
- Stone Work Pad
- Eversource Owned Property
- Parcel Boundary
- Abutter Number
- Municipal Boundary
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- 10ft Contour
- Confirmed Vernal Pool 50ft buffer
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Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment) Alteration of Terrain Permitting Plans

Whitefield/Dalton, NH	MAP SHEET 31 of 31
Date: February 01, 2024	Stantec

Eversource X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

New Hampshire Fish and Game Department Recommended Permit Conditions

1. Wood turtle (state species of special concern) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information. See Notes Page 1.
2. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be posted on site at all times and communicated during morning tailgate meetings prior to work commencement.
3. Turtles and snakes may be attracted to disturbed ground during nesting season. Turtle nesting season occurs approximately May 15th – June 30th. Nesting areas may include work pads and access roads that are not hard pack gravel and other sandy/gravel work areas. All turtle species nests are protected by NH laws. Be aware of the potential to encounter nesting wildlife in these areas.
4. If a nest is observed or suspected, operators shall contact Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802) at NHFG immediately for further consultation. The nest or suspected nest shall be marked (surrounding roped off or cone buffer) and avoided; this shall be communicated to all personnel onsite. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.
5. Vernal pools and potential vernal pools (PVP) shall be flagged prior to work, and impacts shall be avoided.
6. No disturb vegetative buffers of 50' shall be maintained around vernal pools wherever possible. NHFG acknowledges impacts within 50' of the following vernal pools:
    a. CVP04, CVP07, CVP08, CVP09, CVP14, CVP16, CVP17, CVP19, CVP20, and CVP21.
7. All matting which will be placed in waterbodies deemed suitable for hibernating rare turtles will be placed prior to the start of the inactive season (October 16-March 31) so as to prevent accidental placement atop hibernating turtles. Areas identified as suitable hibernation habitat shall be identified on plan sheets and provided to NHFG at least two weeks prior to beginning work.
8. Immediately prior to the placement of matting in wetlands during the active season (April 1-October 15), the areas shall be cleared by a trained individual. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site. Contact NHFG if turtles in matting areas are observed or suspected.
9. For all work pads, staging areas, matting, and access roads, searches and sweeps shall be conducted by trained individuals immediately before the start of work and movement of equipment in order to minimize the chance of animals entering an area between the sweep and work. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site.

10. All work activities shall be restricted to the defined roads, construction areas, and staging areas, with no equipment or materials staged or stored outside of the defined areas as shown on plan sheets or equivalent document.
    a. Minor field changes to access roads and work pads including: shifting access from one side of the right of way to the other, shifting of work pads and staging areas forward or backwards, but not increasing the overall square footage of the work pads or staging areas, may be considered based on location. NHFG shall be notified of any proposed changes.
11. Work, pull pads, and access shall be minimized to the greatest extent possible.
12. Work pads shall be reduced post-construction to 30' x 60' and restored with a native vegetative seed mix.
13. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches; See Notes Pages 3 and 4.
14. All observations of threatened or endangered species on the project site shall be reported immediately to the NHFG nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at NHFGreview@wildlife.nh.gov, with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation;
15. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible;
16. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG.
    a. Site operators or Trained Individuals shall be allowed to relocate wildlife encountered if discovered within the active work zone and if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. NHFG shall be contacted immediately if this action occurs.
17. The NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

SEEKING REPORTS OF RARE TURTLES

The NH Fish & Game Department is collecting observations of four turtle species:

Wood turtle (*Glyptemys insculpta*) species of special concern

<u>May occur within the X178-3 Project Area</u>

- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land
- Turtles may be attracted to disturbed work areas for nesting.
- Operators shall notify the environmental contact immediately if nesting is observed or suspected. Environmental contact will notify NHFG immediately: Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802)

Report sightings to RAARP@wildlife.nh.gov or 603-271-2461 Please report promptly, noting specific location and date – Photographs strongly encouraged

Eversource X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

Notes Page 1

EVERSOURCE ENERGY

Stantec

December 4, 2023

RARE SPECIES ALERT

CANADA LYNX

Photos courtesy of USFWS

IDENTIFYING FEATURES:

- Medium to large cat, 15–30 lbs
- Grizzled gray fur
- Proportionately large paws and hind legs
- Ears with long, black tufts
- Tail short and black-tipped
- Most similar to bobcat

IF OBSERVED:

- Stop work and allow animal to pass
- Document date and time, and take photograph, if possible
- Maintain 5 mph on access roads
- Notify environmental contact immediately if observed.

CONSTRUCTION SEQUENCE:

1. WETLAND BOUNDARIES TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.

2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED, AS NECESSARY.

3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES

4. ADEQUATE PRECAUTION SHALL BE EXERCISED TO AVOID SPILLAGE OF FUEL OILS, CHEMICALS, OR SIMILAR SUBSTANCES; NO FUELS, LUBRICANTS, CHEMICALS OR SIMILAR SUBSTANCES SHALL BE STORED BENEATH TREES OR IN THE VICINITY OF ANY WETLANDS, RIVER, STREAM OR OTHER BODY OF WATER; OR IN THE VICINITY OF NATURAL OR MAN-MADE CHANNELS LEADING THERETO. NO POWER EQUIPMENT SHALL BE STORED, MAINTAINED, OR FUELED IN ANY AREA ADJACENT TO A WETLAND, RIVER, STREAM OR OTHER BODY OF WATER.

5. REMOVE COMPLETELY ALL CONTAMINATION FROM ANY SPILLAGE OF CHEMICALS OR PETROLEUM PRODUCT WITH COMPLETE REHABILITATION OF THE AFFECTED AREA.

6. ACCESS ROUTES HAVE BEEN SELECTED TO PREVENT DEGRADATION OF THE RIGHT-OF-WAY AND MINIMIZE ENVIRONMENTAL IMPACT. OPERATIONS SHALL BE CONFINED TO THE SPECIFIED ACCESS ROUTES WITHIN THE PROPOSED WETLAND IMPACT AREA. MATTED ACCESS ROUTES SHALL NOT EXCEED A 16 FOOT-WIDTH, UPLAND ROUTES SHOULD BE APPROXIMATELY 12-FEET WIDE.

7. IMPACT TO VEGETATION WITHIN WETLANDS WILL BE LIMITED TO THE EXTENT NECESSARY TO PLACE THE SWAMP MATS WHERE REQUIRED. NO ADDITIONAL CLEARING IS PERMITTED.

8. LOW GROWING VARIETIES OF VEGETATION ADJACENT TO WETLANDS SHALL BE PRESERVED TO THE EXTENT POSSIBLE. STUMPS AND ROCKS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATION IS NEEDED FOR ACCESS.

9. TIMBER MATS WILL BE USED ALONG ACCESS ROUTES WITHIN WETLAND AREAS. THESE MATS ARE CONSTRUCTED OF HEAVY TIMBERS OR COMPOSITE MATERIAL, BOLTED TOGETHER, AND ARE PLACED END-TO-END IN THE WETLAND TO SUPPORT HEAVY EQUIPMENT. ALL SWAMP MATS SHALL BE PLACED AND REMOVED SO AS NOT TO CAUSE ANY RUTS, CHANNELS OR DEPRESSIONS, OR OTHERWISE CAUSE ANY UNDUE DISTURBANCE TO WETLANDS.

10. IF TIMBER MAT BMP IS NOT SUFFICIENT DUE TO HIGH WATER, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC UNDER MATS OR USING A LAYER OF RUNNER MATS TO ELEVATE MATS TO MAINTAIN HYDROLOGIC CONNECTIVITY. ALL MATERIAL WILL BE REMOVED FROM JURISDICTIONAL AREAS AFTER CONSTRUCTION COMPLETION.

11. NO MATERIAL SHALL BE PLACED IN ANY LOCATION OR IN ANY MANNER SO AS TO IMPAIR SURFACE WATER FLOW INTO, THROUGH OR OUT OF ANY WETLAND AREA. NO INSTALLATION SHALL CREATE AN IMPOUNDMENT THAT WILL IMPEDE THE FLOW OF WATER OR CAUSE FLOODING.

12. NO MATERIAL SHALL BE TAKEN FROM THE WETLANDS AREA EXCEPT THAT WHICH MUST NECESSARILY BE REMOVED FOR THE STRUCTURE INSTALLATION. ALL EXCESS MATERIAL TAKEN FROM THE WETLAND WILL BE REMOVED FROM THE SITE AND DISPOSED IN UPLAND.

13. ANY PROPOSED SUPPORT FILLS SHALL BE CLEAN GRAVEL AND STONE, FREE OF WASTE METAL PRODUCTS, ORGANIC MATERIALS AND SIMILAR DEBRIS AND SHALL NOT EXCEED THE AMOUNT PERMITTED. THIS ALLOWABLE FILL IS THE ONLY FILL THAT MAY REMAIN IN THE WETLAND AFTER CONSTRUCTION. ALL CUT AND FILLS SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. IMPORTATION OF COMMERCIAL LOAM IS PROHIBITED.

14. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.

15. CABLE INSTALLATION WILL BE PERFORMED IN A MANNER SO AS TO AVOID, OR LIMIT TO THE MAXIMUM EXTENT POSSIBLE, TRAVERSING WETLANDS WITH HEAVY EQUIPMENT. IN SOME CASES, A HELICOPTER MAY BE USED DURING THE INSTALLATION TO MINIMIZE IMPACTS.

16. ALL SWAMP MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.

17. UPLAND DISTURBED AREAS SHALL BE RESTORED AND STABILIZED UPON COMPLETION OF CONSTRUCTION. WORK PAD RESTORATION SHOULD INCLUDE REDUCING THE WORK PAD TO A 30 BY 60 FOOT AREA, AND REDUCING SLOPES TO A MAXIMUM OF 25%. STOCKPILED MATERIAL SHOULD BE SPREAD TO REDUCE ANY UNNECESSARY SLOPES. GRAVEL WORK PADS AND SLOPES SHOULD BE SCARIFIED TO A MINIMUM OF 3" BEFORE SPREADING TOPSOIL/LOAM.

18. ALL TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS FOLLOWING CONSTRUCTION, IF NEEDED. NEW ENGLAND EROSION CONTROL/RESTORATION MIX, OR EQUIVALENT SEED MIX SHALL BE APPLIED IN WETLAND AREAS THAT ARE NOT INUNDATED, AS NECESSARY.

19. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.

20. COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.

21. WHERE PEATLANDS ARE MAPPED ADJACENT TO THE ROW, THE ASSOCIATED WETLANDS WITHIN THE ROW SHALL BE TREATED AS A PEATLAND AND PRIORITY RESOURCE AREA. ELEVATED MATTING SHALL BE USED AS NECESSARY TO PREVENT EXCESSIVE GROUND DISTURBANCE WITHIN THESE AREAS.

WINTER CONSTRUCTION NOTES

1. PROP0SED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED. STABILIZATION METHODS SHALL INCLUDE SEEDING AND MULCH, AND INSTALLATION OF EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS

2. DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE TEMPORARILY STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL (NHDOT 304.3).

GENERAL NOTES:

OWNER: PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE d/b/a EVERSOURCE ENERGY
13 LEGENDS DRIVE
HOOKSETT, NH 03106

1. BASE PLAN PROVIDED BY EVERSOURCE ENERGY. STANTEC PROVIDED THE WETLAND DATA. EVERSOURCE ENERGY PROVIDED THE UTILITY DESIGN.

2. JURISDICTIONAL WETLANDS WERE DELINEATED BY STANTEC IN 2020. WETLANDS WERE DELINEATED IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS' "WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1," AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION," JANUARY 2012.

3. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.

4. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

5. IN ACCORANCE WITH ENV-WQ 1505.02, THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   - A MINIMUM 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED
   - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL HAS BEEN INSTALLED
   - OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

6. IN THE EVENT THAT A RARE OR THREATENED SPECIES IS OBSERVED, THE NEW HAMPSHIRE FISH AND GAME AND NEW HAMPSHIRE NATURAL HERITAGE BUREAU (NHB) WILL BE NOTIFIED.

EROSION CONTROL NOTES:

1. INSTALLATION OF EROSION CONTROL GRINDINGS AND/OR SILT FENCES SHALL BE COMPLETE PRIOR TO THE START OF WORK IN ANY GIVEN AREA. EROSION CONTROLS SHALL BE USED DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A HEALTHY STAND OF VEGETATION COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER .25" OR GREATER RAINFALL EVENTS.

2. AS REQUIRED, CONSTRUCT TEMPORARY BERMS, SILTATION FENCES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION & SEDIMENTATION OF WETLANDS.

3. THE WORK AREA SHALL BE GRADED AND OTHERWISE SHAPED IN SUCH A MANNER AS TO MINIMIZE SOIL EROSION, SILTATION OF DRAINAGE CHANNELS, DAMAGE TO EXISTING VEGETATION, AND DAMAGE TO PROPERTY OUTSIDE LIMITS OF THE WORK AREA. EROSION CONTROL GRINDINGS WILL BE NECESSARY TO ACCOMPLISH THIS END.

4. ANY STRIPPED TOPSOIL SHALL BE STOCKPILED, WITHOUT COMPACTION, AND STABILIZED WITH BMPS.

5. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS, PLANT ANNUAL RYEGRASS PRIOR TO OCTOBER 15TH.

6. EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.

7. EROSION CONTROL MATTING, IF REQUIRED, WILL CONSIST OF JUTE MATTING. MATTING WITH WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD WILL BE AVOIDED TO LIMIT UNINTENTIONAL MORTALITY TO SNAKES OR OTHER SMALL ANIMALS.

8. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTICE, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AND OPENING SIZE OF GREATER THAN 1/8 INCHES.

GROUNDWATER PROTECTION NOTES:

Eversource has reviewed the U199 and X178 Section 3 Line Rebuild Projects for overlap with the Groundwater Protection District (GPD) based on the November 27, 2023 Bethlehem Conservation Commission meeting. While there are no overlaps between the U199 Line Rebuild Project, Eversource acknowledges that portions of the X178-3 ROW traverse the Bethlehem GPD. The majority of activities associated with the proposed construction fall under Article XVI.XI Exemptions D. and F, however, the following measures and precautions are followed and will be provided to contractors to protect ground water resources:

1. During construction, the entire project area will have an approved Stormwater Pollution Prevention Plan (SWPPP) and erosion and sediment control Best Management Practices (BMPs) will be monitored for compliance and effectiveness. The monitoring will continue post-construction to ensure the stabilization of soils has occurred.
2. Project construction sites and equipment will be secured with fencing and locks, where feasible, during non-operational hours. In addition, the project will not permit, for any period of time, parking of construction vehicles of any type over wetlands.
3. All vehicles on-site for extended periods of time (more than 24 hours) will have placed beneath them secondary containments per DES Utility BMP manual.
4. On-site chemicals are limited to those associated with the operation of construction vehicles and equipment, including fuel (diesel and unleaded gasoline), hydraulic fluid, lubricants, and other engine or transmission-related fluids. Fueling and fuel storage will be conducted in accordance with the Utility BMP manual, which requires on-site fueling be conducted at least 100 feet away from wetlands and waterbodies and the use of secondary containment for all fuel pumps.
5. Contractors are required to provide and implement a spill prevention and control plan (SPCC), have spill kits on site, and inspect equipment daily for leaking fluids. No other chemical use or storage within the Project site is anticipated beyond those associated with the operation of motor vehicles, including construction equipment.

Eversource X178-3 Transmission Line Rebuild Project

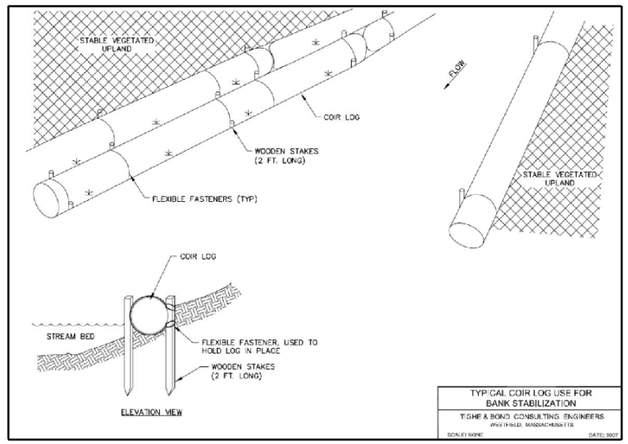
Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

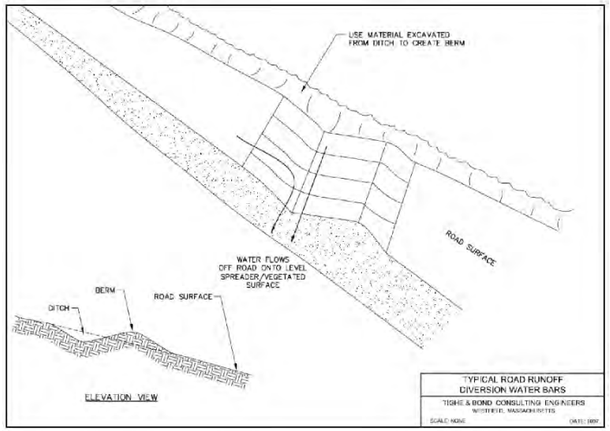
Notes Page 3

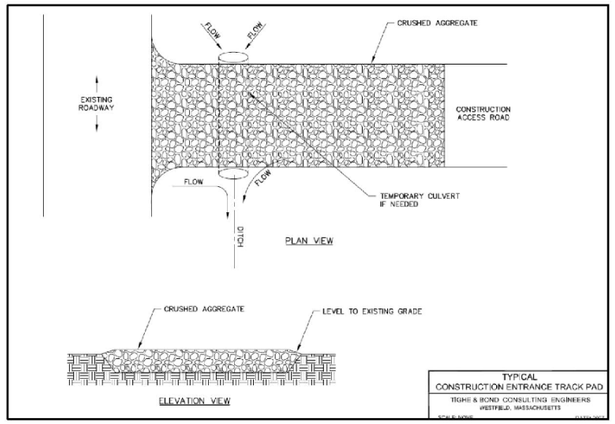
EVERSOURCE ENERGY

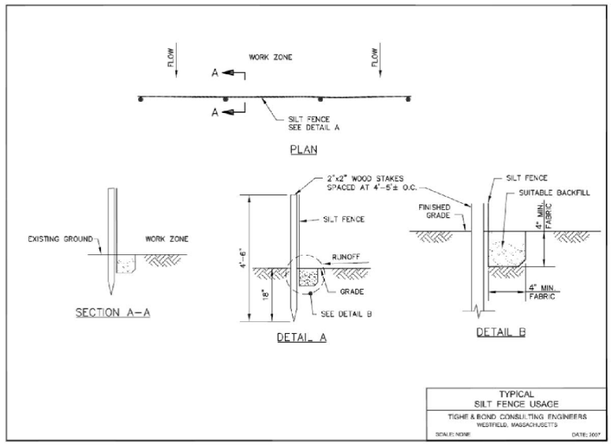
Stantec

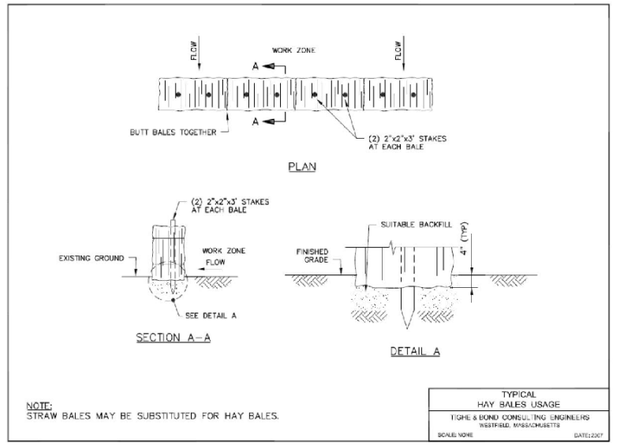
December 4, 2023

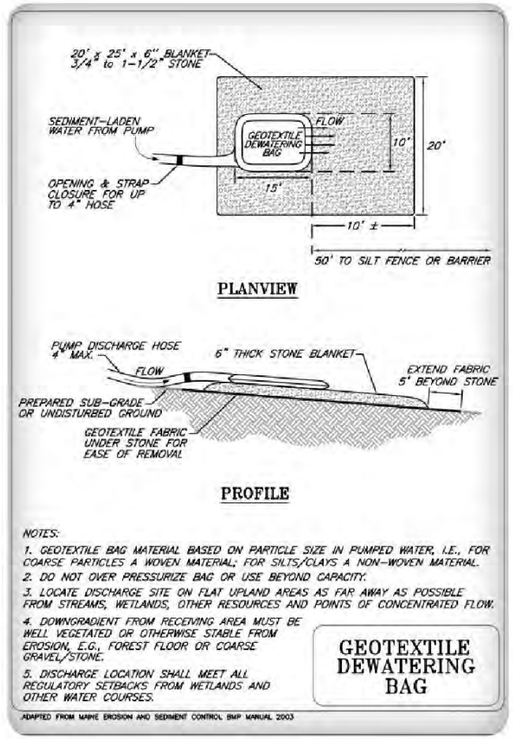


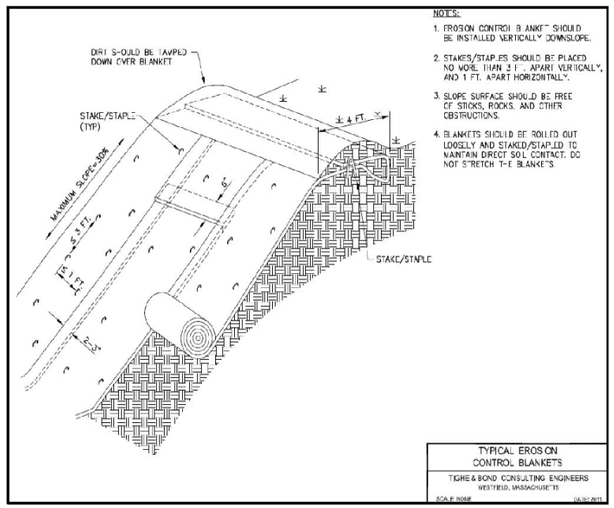


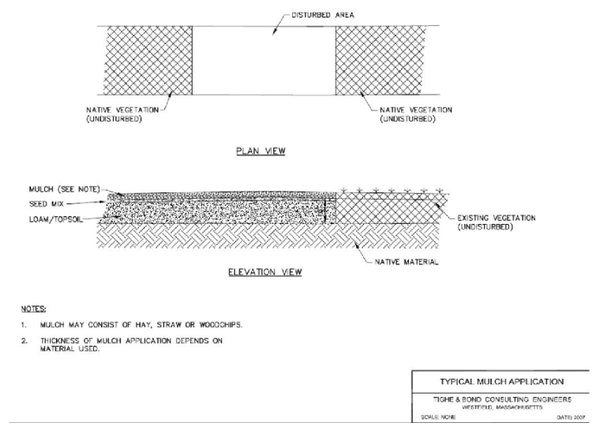












Eversource X178-3 Transmission Line Rebuild Project

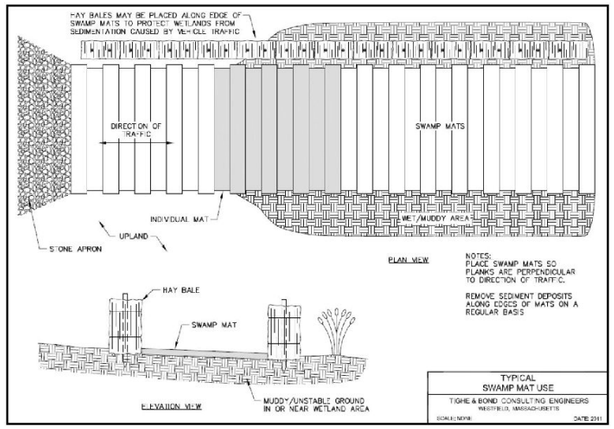
Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

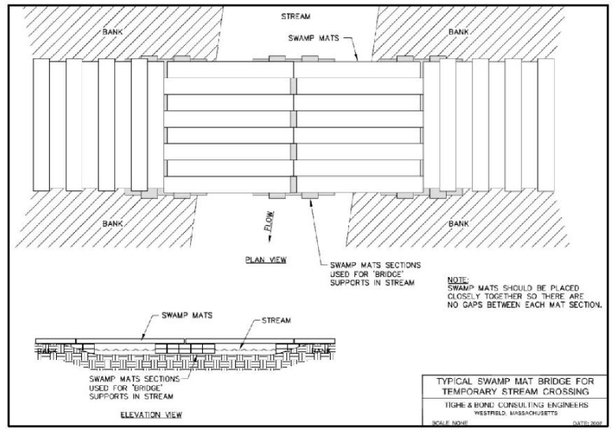
Notes Page 4

EVERSOURCE ENERGY

Stantec

December 4, 2023





Eversource X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

Notes Page 5

EVERSOURCE ENERGY

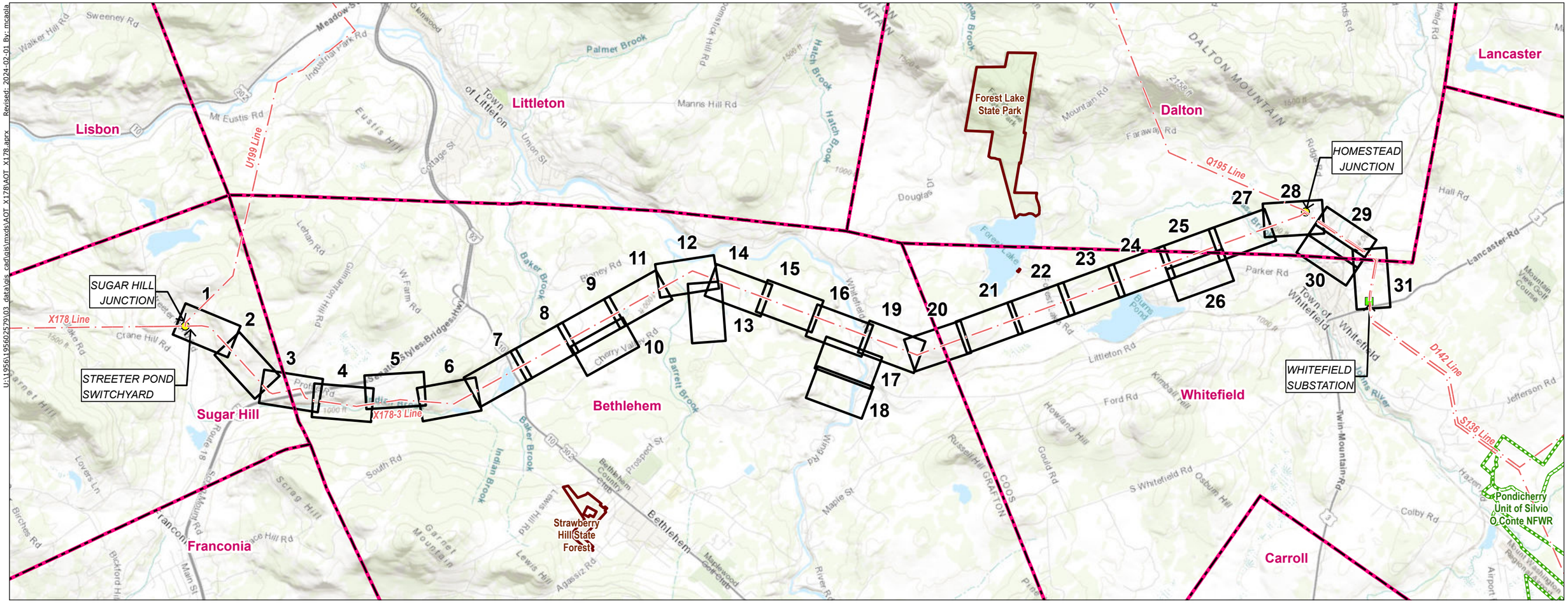
Stantec

December 4, 2023

X178-3 - Transmission Line Rebuild Project (Northern Segment)

Sugar Hill, Bethleham, Whitefield, Dalton, NH
Surface Water and Groundwater Overlay Plans

Date: February 01, 2024



Legend

Substation | Junction | Overhead Transmission Line | Map Sheet | Municipal Boundary | Federal Owned Property | State Owned Property

PREPARED FOR:

EVERSOURCE ENERGY

107 Selden Street
Berlin, CT 06037

0 1 2 Miles

INDEX OF FIGURES

Title Sheet / Index Map
Map Sheets 1-31

NO.	DATE	REVISIONS

PREPARED BY:

Stantec

30 Park Drive
Topsham, ME 04086

807-001
Tax Map ID: 204-07-000011
Kevin M. Godbout
Streeter Pond Road

806-172
Tax Map ID: 000207 000010 000000
Clifford T. Hughes
Streeter Pond Road

806-171
Tax Map ID: 2040040000000000
Bodan C Peters
900 Streeter Pond Road

806-175
Tax Map ID: 2040050000000000
Michael A Cavanaugh
864 Streeter Pond Road

808-126
Tax Map ID: 204-02-000012
715 Streeter Pond Realty Trust
715 Streeter Pond Road

Sugar Hill

Streeter Pond Switchyard

STREETER POND ROAD

Gale River

U199 Line

X178-3 Line

TEMPORARY WETLAND IMPACT: +/-62,856 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,116 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,625 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,330 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-267 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-292 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,784 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-9,675 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-713 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,059 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-541 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-22,443 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,677 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,287 SQ.FT.

PROTECT RECREATIONAL TRAILS.

PROTECT RECREATIONAL TRAILS.

PULL PAD

PULL PAD

PULL PAD

PULL PAD

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

W001-PSS

W002-PSS

W003-PSS

W004-PSS

S001

S002

S003

TT-05

TT-06

TT-07

TT-08

TT-09

TT-10

401

402

403

404

405

406

407

408

409

410

411

412

413

414

01B

112

113

114

115

890

900

910

920

930

940

950

960

970

980

990

1000

1010

1020

1030

1040

1050

1060

1070

1080

1090

1100

1110

1120

1130

1140

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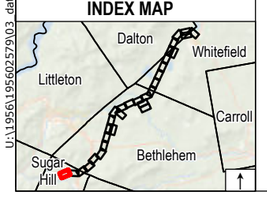
INDEX MAP



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- Railroad
- Stone Wall
- Gate
- Culvert

1 inch = 200 feet
0 50 100 200 Feet

Map Notes:
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Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Sugar Hill, NH	MAP SHEET 1 of 31
Date: February 01, 2024	Stantec

806-172
Tax Map ID: 000207 000010 000000
Clifford T. Hughes
Streeter Pond Road

Sugar Hill

PROTECT RECREATIONAL TRAILS.

PROTECT RECREATIONAL TRAILS.

TEMPORARY WETLAND IMPACT: +/-132 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-392 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-442 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-412 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-756 SQ.FT.

GILMANTON HILL ROAD

18

PROFILE ROAD

SUGAR HILL SUBSTATION

W011-PSS

CVP01

W006-PSS

W005-PSS

X178-3 Line

W007-PSS

W009-PEM

W010-PSS

W008-PSS

410 414 411 415 412 416 413 417 414 418 415 419 416 420

1180 1210 1200 1190 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020

TEMPORARY WETLAND IMPACT: +/-1,963 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,547 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,331 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,614 SQ.FT.

806-169
Tax Map ID: 000205 000014 000000
Thomas H. Heath
750 Route 18

806-168
Tax Map ID: 2040070000000000
No Information Per Assessors Office
Route 18

18

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

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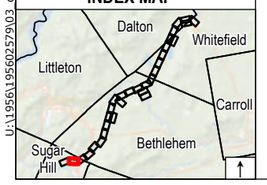
INDEX MAP



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- Confirmed Vernal Pool Extent
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- FEMA 100-Year Flood Zone
- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
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- Potential Turtle Overwintering Habitat
- Railroad
- Stone Wall
- Gate
- Culvert

N

1 inch = 200 feet

0 50 100 200 Feet

Map Notes:
Coordinate System: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet
Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Sugar Hill, NH	MAP SHEET 2 of 31
Date: February 01, 2024	Stantec

GILMANTON HILL ROAD

PROFILE ROAD

NORTHWOOD LANE

Bethlehem

Sugar Hill

18

93

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-805 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-191 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-783 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-725 SQ.FT.

SPAN STREAM NO IMPACT

PULL PAD

TEMPORARY WETLAND IMPACT: +/-1,170 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,030 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,088 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-722 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,444 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-420 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-174 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-602 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-183 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-487 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-939 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,986 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-504 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-985 SQ.FT.

806-159
Tax Map ID: 402-015-000-000
Renewable Properties Incorporated (Eversource)
1082 Profile Road

806-165
Tax Map ID: 000205 000006 000001
Patricia Correnti Brown Trust
914 Route 18

806-166
Tax Map ID: 000205 000009 000000
The Travis Family Trust
798 Route 18

806-167
Tax Map ID: 2050110000000000
Public Service Company Of New Hampshire (Eversource)
772 Route 18

806-169
Tax Map ID: 000205 000014 000000
Thomas H. Heath
750 Route 18

806-170
Tax Map ID: 2050090000000000
Thomas H. Heath
Corral Road

806-162
Tax Map ID: 2050030000000000
Kenneth M. King III
Gilmanton Hill Road

806-161
Tax Map ID: 402-014-000-000
Brown Living Trust
Franconia Road

806-160
Tax Map ID: 410-002-000-000
Spinelli Holdings LLC
Old Franconia Road

806-164
Tax Map ID: 410-003-000-000
Spinelli Holding LLC
Franconia Line

SUGAR HILL SUBSTATION

W010-PSS
W011-PSS
W012-PSS
W013-PSS
W014-PSS
W015-PSS
W016-PSS
W017-PSS
W018-PEM
W019-PSS
W020-PSS
W021-PSS
W022-PEM

S004
S005
X178-3 Line

1020
1030
1040
1050
1060
1070
1080
1090
1100
1000
990
980
970
960

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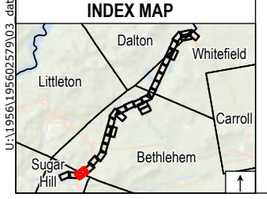
INDEX MAP



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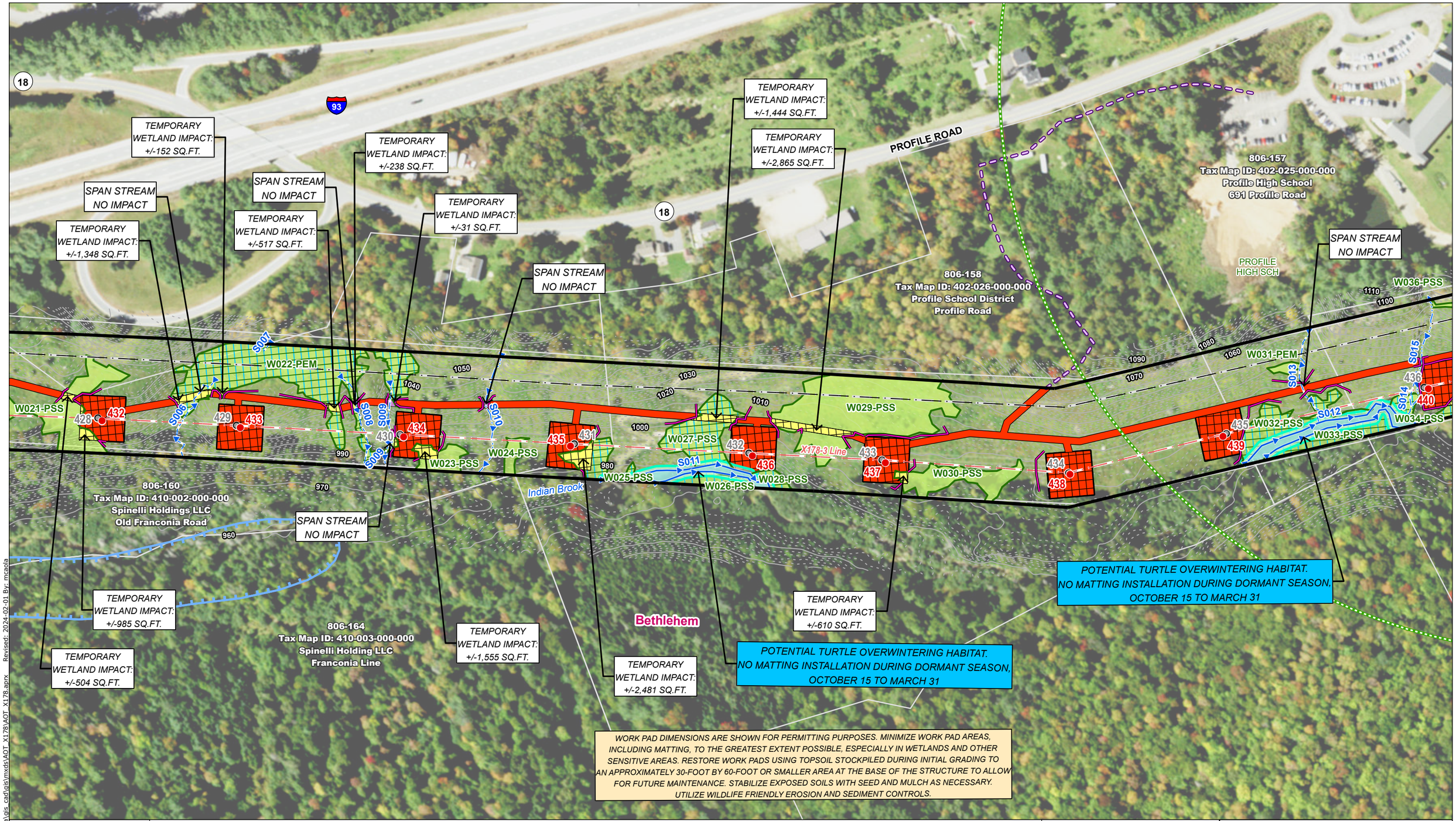
Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Sugar Hill/Bethlehem, NH	MAP SHEET 3 of 31
Date: February 01, 2024	Stantec

U:\19561\9562579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola



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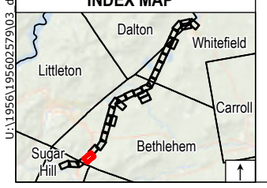

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Bethlehem, NH	MAP SHEET 4 of 31
Date: February 01, 2024	Stantec

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WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

PROFILE ROAD

806-157
Tax Map ID: 402-025-000-000
Profile High School
691 Profile Road

Profile High School

PROFILE HIGH SCH

PROFILE JR/SR HIGH SCHOOL

806-156
Tax Map ID: 201-068-000-000
Society For The Protection Of New Hampshire Forests
107 Glessner Road

Bethlehem

Indian Brook

TEMPORARY WETLAND IMPACT: +/-540 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,663 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-134 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-644 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,474 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,049 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-832 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-965 SQ.FT.

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

W031-PEM
W032-PSS
W033-PSS
W034-PSS
W035-PFO
W036-PSS
W037-PSS
W038-PSS
W039-PSS
W040-PSS
W041-PSS
W042-PSS
W043-PSS

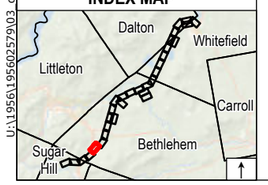
S012
S013
S014
S015
S016
S017
S018

X178-3 Line

436 437 438 439 440 441 442 443 444 445 446 447

1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190

INDEX MAP



Legend

- Local Potential Contamination Sources
- Remediation Sites
- Remediation Site Area
- Wellhead Protection Areas
- Class A Surface Waters RSA 485A9
- Coastal and Great Bay Region Communities (none)
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- Groundwater Classification Areas GA2
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- Watersheds with Chloride Impairments 2016
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- Proposed Structure
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- Overhead Transmission Line
- Overhead Distribution Line
- Existing Access
- Off-ROW Access Pending Rights
- AoT Disturbance Area - Access
- AoT Disturbance Area - Pad
- Temporary Construction Matting
- Upland Construction Matting
- Stone Work Pad
- Eversource Owned Property
- 808 Abutter Number
- Parcel Boundary
- Municipal Boundary
- 2ft Contour
- 10ft Contour
- Field Delineated Ephemeral Watercourse
- Field Delineated Intermittent Watercourse
- Field Delineated Perennial Watercourse
- Field Delineated Wetland Boundary Outline
- Field Delineated Wetland
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- Confirmed Vernal Pool Extent
- NHDES Protected Shorland
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
- Suggested Erosion and Sediment Control (TYP)
- Potential Turtle Overwintering Habitat
- Railroad
- Stone Wall
- Gate
- Culvert

1 inch = 200 feet
0 50 100 200 Feet

Map Notes:
Coordinate System: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet
Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH	MAP SHEET 5 of 31
Date: February 01, 2024	Stantec

Revised: 2024-02-01 By: mcaola
U:\19561956025793\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx

806-156
Tax Map ID: 201-068-000-000
Society For The Protection Of New Hampshire Forests
107 Glessner Road

TEMPORARY WETLAND IMPACT: +/-3,795 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-881 SQ.FT.

AVOID VERNAL POOL

CVP02

Bethlehem

PULL PAD

TEMPORARY WETLAND IMPACT: +/-709 SQ.FT.

S019

W050-PSS

X178-3 Line

W049-PSS

W048-PSS

TEMPORARY WETLAND IMPACT: +/-2,305 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,049 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-847 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-318 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-7,667 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,878 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,045 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,047 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,000 SQ.FT.

PULL PAD

TEMPORARY WETLAND IMPACT: +/-4,688 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,401 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,311 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,848 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,248 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,973 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-171 SQ.FT.

W043-PSS

W044-PSS

W045-PSS

W046-PSS

W047-PSS

1220 1210 1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100

443 447 444 448 445 449 446 450 448 452 449 453 450 454 447 451

Indian Brook

806-154
Tax Map ID: 201-028-000-000
Presidential Mountain Resort, LLC
1108 Main Street

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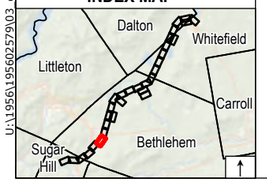
INDEX MAP



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Basemap: NAIP 2021

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH	MAP SHEET 6 of 31
Date: February 01, 2024	Stantec

806-156
Tax Map ID: 201-068-000-000
Society For The Protection Of New Hampshire Forests
107 Glessner Road

Bethlehem

KARLYN RAMSAY RESIDENCE

MILLERS RUN

ROCKS EDGE ROAD

BROOK ROAD

302

Baker Brook

MAIN STREET

806-149
Tax Map ID: 201-034-000-000
Carla Avard
70 Rocks Edge Road

806-150
Tax Map ID: 201-035-000-000
The Alicia J. Brawn Trust - 2019
90 Rocks Edge Road

806-146
Tax Map ID: 201-025-000-000
Timothy J Wennrich
Main Street

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,739 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-363 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,907 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,224 SQ.FT.

FOUNDATION

TEMPORARY WETLAND IMPACT: +/-1,148 SQ.FT.

1200 1190 1180 1170 1160 1150 1140 1130 1120 1110 1100 1090 1080 1070 1060 1050 1040 1030

S019

W050-PSS W051-PSS W052-PSS W053-PSS W054-PSS W055-PEM W049-PSS

451 455 452 456 453 457 454 458 459 455 456 460 457 461

X178-3 Line

TEMPORARY WETLAND IMPACT: +/-5,833 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-650 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,486 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-522 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,665 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

806-148
Tax Map ID: 201-026-000-000
Renewable Properties Incorporated (Eversource)
1071 Main St

PULL PAD

TEMPORARY WETLAND IMPACT: +/-2,169 SQ.FT.

POTENTIAL TURTLE OVERWINTERING HABITAT.
NO MATTING INSTALLATION DURING DORMANT SEASON,
OCTOBER 15 TO MARCH 31

Miller Pond

Baker Brook

806-154
Tax Map ID: 201-028-000-000
Presidential Mountain Resort, LLC
1108 Main Street

806-147
Tax Map ID: 201-027-000-000
Presidential Mountain Resort, LLC
Main Street

302

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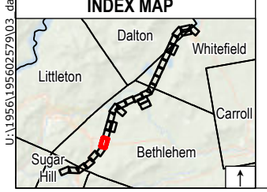
INDEX MAP



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- Gate
- Culvert

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0 50 100 200 Feet

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EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH	MAP SHEET 7 of 31
Date: February 01, 2024	Stantec

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PROPOSED OSPREY PLATFORM

EXISTING OSPREY NEST

Baker Brook

806-146
Tax Map ID: 201-025-000-000
Timothy J Wennrich
Main Street

806-145
Tax Map ID: 404-035-000-000
Warren E.& V Howland
Blaney Road

Bethlehem

TEMPORARY WETLAND IMPACT: +/-2,169 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,984 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,119 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,392 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,635 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-898 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,605 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,222 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,511 SQ.FT.

W055-PEM
W056-PEM
W057-PSS
W058-PEM
W059-PEM
W060-PEM
W061-PSS

458 462 459 463 460 464 461 465 466 462 463 467 464 468

S020

X178-3 Line

CVP03

1080 1070 1090 1030 1000 1040 1050 1060

SPAN STREAM NO IMPACT

TEMPORARY WETLAND IMPACT: +/-1,282 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,507 SQ.FT.

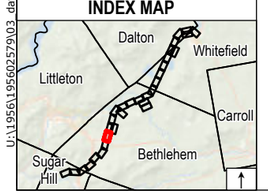
TEMPORARY WETLAND IMPACT: +/-184 SQ.FT.

AVOID VERNAL POOL

806-147
Tax Map ID: 201-027-000-000
Presidential Mountain Resort, LLC
Main Street

U:\11956\11956025790\3_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

INDEX MAP



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TEMPORARY WETLAND IMPACT: +/-1,861 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,931 SQ.FT.

806-144
Tax Map ID: 404-035-011-000
Gingue Family Trust
96 Stony Acres Drive

STONEY ACRES DRIVE

806-142
Tax Map ID: 404-035-005-000
Glenn W Raymond
97 Stony Acres Drive

TEMPORARY WETLAND IMPACT: +/-6,980 SQ.FT.

Bethlehem

AVOID VERNAL POOL

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-2,983 SQ.FT.

W061-PSS

W062-PEM

W063-PSS

W064-PEM

CVP04

CVP05

CVP06

X178-3 Line

465 466 467 468 469 470 471 472 473 474 475 476

1060 1050 1040 1030 1020 1010 1000 1070

PULL PAD

PULL PAD

GUARD TRUCK PAD

TEMPORARY WETLAND IMPACT: +/-1,208 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-419 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,244 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-999 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,884 SQ.FT.

806-145
Tax Map ID: 404-035-000-000
Warren E.& V Howland
Blaney Road

W142-PSS

TEMPORARY WETLAND IMPACT: +/-1,629 SQ.FT.

806-143
Tax Map ID: 404-039-001-000
Raeann Guarnier Cortez
Cherry Valley Road

TEMPORARY WETLAND IMPACT: +/-1,093 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,467 SQ.FT.

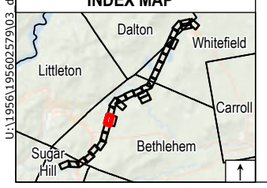
806-141
Tax Map ID: 404-040-000-000
David G. Van Houten
Cherry Valley Road

Black Brook

806-140
Tax Map ID: 404-034-020-004
MS Wire LLC
Blaney Road

U:\119561\19560257903_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

INDEX MAP



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Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH	MAP SHEET 9 of 31
Date: February 01, 2024	Stantec

806-145
Tax Map ID: 404-035-000-000
Warren E.& V Howland
Blaney Road

806-141
Tax Map ID: 404-040-000-000
David G. Van Houten
Cherry Valley Road

806-140
Tax Map ID: 404-034-020-004
MS Wire LLC
Blaney Road

806-143
Tax Map ID: 404-039-001-000
Raeann Guarnier Cortez
Cherry Valley Road

W142-PSS

TEMPORARY WETLAND IMPACT: +/-1,629 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,093 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,467 SQ.FT.

W143-PEM

TEMPORARY WETLAND IMPACT: +/-697 SQ.FT.

W144-PSS

TEMPORARY WETLAND IMPACT: +/-362 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-414 SQ.FT.

W145-PSS

TEMPORARY WETLAND IMPACT: +/-2,052 SQ.FT.

Black Brook

LYONS DRIVE

CHERRY VALLEY ROAD

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

U:\11956\19560257903_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

INDEX MAP

Legend

- Local Potential Contamination Sources
- Remediation Sites
- Remediation Site Area
- Wellhead Protection Areas
- Class A Surface Waters RSA 485A9
- Coastal and Great Bay Region Communities (none)
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- AoT Disturbance Area - Pad
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- Stone Work Pad
- Eversource Owned Property
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- Municipal Boundary
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- 10ft Contour
- Field Delineated Ephemeral Watercourse
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- Potential Turtle Overwintering Habitat
- Railroad
- Stone Wall
- Gate
- Culvert

N

1 inch = 200 feet

0 50 100 200 Feet

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Surface Water & Groundwater Overlay Plans

Bethlehem, NH | MAP SHEET 10 of 31

Date: February 01, 2024

Stantec

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806-140
Tax Map ID: 404-034-020-004
MS Wire LLC
Blaney Road

806-138
Tax Map ID: 404-031-023-000
Timothy Wennrich
632 Blaney Road

806-139
Tax Map ID: 404-031-022-000
Timothy Wennrich
Blaney Road

806-137
Tax Map ID: 404-042-000-000
James G. Derrington
953 Cherry Valley Road

POTENTIAL TURTLE OVERWINTERING HABITAT. NO MATTING INSTALLATION DURING DORMANT SEASON, OCTOBER 15 TO MARCH 31

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,103 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,400 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,884 SQ.FT.

AVOID EXISTING SNOWMOBILE BRIDGE

TEMPORARY WETLAND IMPACT: +/-7,527 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,884 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,546 SQ.FT.

SPAN STREAM NO IMPACT

SPAN STREAM NO IMPACT

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-676 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-160 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-250 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-288 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-704 SQ.FT.

Bethlehem

Black Brook

W064-PEM

W065-PEM

W066-PSS

S021

S022

S023

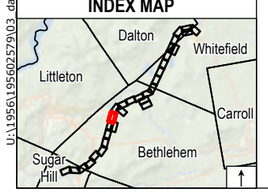
S024

X178-3 Line

472 473 474 475 476 477 478 479 480 481 482 483

1000 970 990 990 1010 1020

INDEX MAP



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0 50 100 200 Feet

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Basemap: NAIP 2021

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH | MAP SHEET 11 of 31

Date: February 01, 2024

Stantec

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Ammonoosuc River

806-136
Tax Map ID: 404-031-111-000
Estate Of Asa Prescott Brebner
633 Blaney Road

TEMPORARY WETLAND IMPACT: +/-9,038 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-792 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,866 SQ.FT.

PULL PAD

TEMPORARY WETLAND IMPACT: +/-1,886 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,892 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,087 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,327 SQ.FT.

Black Brook

Barrett Brook

S025

W069-PSS

W070-PSS

CVP07

W071-PEM

X178-3 Line

SPAN STREAM NO IMPACT

PULL PAD

W068-PSS

W067-PSS

W072-PEM

Bethlehem

TEMPORARY WETLAND IMPACT: +/-598 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-713 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,210 SQ.FT.

S024

W066-PSS

W146-PEM

ACCESS FROM CHERRY VALLEY ROAD

806-135
Tax Map ID: 405-075-000-000
Sevilla F. Pilpil-Reyes
Cherry Valley Road

TEMPORARY WETLAND IMPACT: +/-1,201 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-704 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,442 SQ.FT.

806-137
Tax Map ID: 404-042-000-000
James G. Derrington
953 Cherry Valley Road

W147-PSS

TEMPORARY WETLAND IMPACT: +/-968 SQ.FT.

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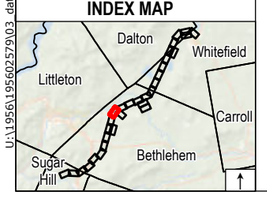
INDEX MAP



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1 inch = 200 feet
0 50 100 200 Feet

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH	MAP SHEET 12 of 31
Date: February 01, 2024	Stantec

W074-PEM

1040

1050

1060

1070

TEMPORARY WETLAND IMPACT: +/-2,389 SQ.FT.

W148-PEM

W147-PSS

TEMPORARY WETLAND IMPACT: +/-2,901 SQ.FT.

W149-PFO

W150-PFO

806-135
Tax Map ID: 405-075-000-000
Sevilla F. Pilpil-Reyes
Cherry Valley Road

AVOID VERNAL POOL

CVP25

AVOID VERNAL POOL

CVP26

W151-PFO

ACCESS TO STRUCTURES 490 & 491

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

CHERRY VALLEY ROAD

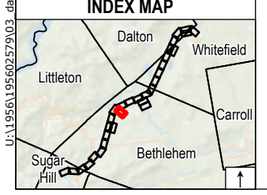
W153-PFO

W152-PFO

806-137
Tax Map ID: 404-042-000-000
James G. Derrington
953 Cherry Valley Road

U:\1956\195602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

INDEX MAP



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0 50 100 200 Feet

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Whitefield/Dalton, NH | MAP SHEET 13 of 31

Date: February 01, 2024

Stantec

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806-133
Tax Map ID: 406-038-000-000
750 Acre Club, LLC
Whitefield Road

Bethlehem

TEMPORARY WETLAND IMPACT: +/-642 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-474 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-901 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-1,057 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-291 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-2,111 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-3,071 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-2,595 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-3,867 SQ.FT.

W072-PEM
W073-PSS
W074-PEM
W075-PSS
W076-PEM
W077-PSS
W078-PSS
W079-PSS
S026
X178-3 Line
1020
1030
1040
1000
990
980
970
1060
1050
1070
1010
486
487
488
489
490
491
492
493
494
495
496
497

TEMPORARY WETLAND IMPACT: +/-150 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-1,232 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-2,272 SQ.FT.
SPAN STREAM NO IMPACT
TEMPORARY WETLAND IMPACT: +/-8,262 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-2,500 SQ.FT.

ACCESS FROM CHERRY VALLEY ROAD
ACCESS FROM PROSPECT STREET

806-135
Tax Map ID: 405-075-000-000
Sevilla F. Pilpil-Reyes
Cherry Valley Road

W147-PSS
W148-PEM
W154-PFO
W155-PFO
W156-PFO
S036
W157-

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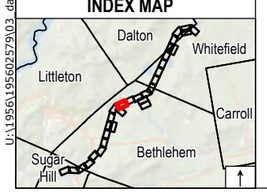
INDEX MAP



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Bethlehem, NH | MAP SHEET 14 of 31

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Stantec

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TEMPORARY WETLAND IMPACT: +/-2,595 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,388 SQ.FT.

Bethlehem

S037

W158-PFO

W079-PSS

W080-PSS

W081-PEM

W082-PSS

W083-PSS

W084-PEM

X178-3 Line

493 497 498 499 495 499 496 500 497 501 498 502 499 503

TEMPORARY WETLAND IMPACT: +/-681 SQ.FT.

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-3,418 SQ.FT.

ACCESS FROM PROSPECT STREET

W171-PSS

W172-PSS

806-133
Tax Map ID: 406-038-000-000
750 Acre Club, LLC
Whitefield Road

ACCESS FROM PROSPECT STREET TO STRUCTURES 492 & 493

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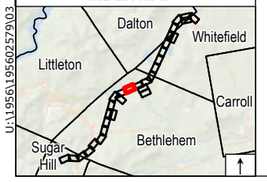

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- Gate
- Culvert

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1 inch = 200 feet

0 50 100 200 Feet

Map Notes:
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Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH | MAP SHEET 15 of 31

Date: February 01, 2024

Stantec

806-133
Tax Map ID: 406-038-000-000
750 Acre Club, LLC
Whitefield Road

Bethlehem

806-127
Tax Map ID: 406-039-000-000
Karen L. Burrill-Murray
Whitefield Road

NEW HAMPSHIRE CENTRAL RAILROAD

116

WHITEFIELD ROAD

TEMPORARY WETLAND IMPACT: +/-3,360 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-224 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,056 SQ.FT.

W083-PSS

W086-PSS

W087-PEM

W084-PEM

W085-PEM

W088-PUB

W089-PSS

W090-PSS

W159-PSS

X178-3 Line

500 504 501 505 502 506 CVP08 503 507 504 508 505 509 506

1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 980 990 970

S021 S023 S022

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-666 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,586 SQ.FT.

ACCESS FROM PROSPECT STREET

W170-PSS

Ammonoosuc River

806-134
Tax Map ID: 406-037-000-000
750 Acre Club, LLC
1539 Prospect Street

ACCESS FROM PROSPECT STREET TO STRUCTURE 502

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

W160-PFO

W164-PFO

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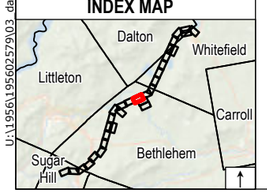
INDEX MAP



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Basemap: NAIP 2021

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EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH | MAP SHEET 16 of 31

Date: February 01, 2024

Stantec

W160-PFO

806-134
Tax Map ID: 406-037-000-000
750 Acre Club, LLC
1539 Prospect Street

806-132
Tax Map ID: 406-036-000-000
Stephen J Butler
Whitefield Road

ACCESS FROM PROSPECT STREET TO STRUCTURE 509

ACCESS FROM PROSPECT STREET TO STRUCTURE 507

ACCESS TO STRUCTURE 506

S027

Ammonoosuc River

116

WHITEFIELD ROAD

NEW HAMPSHIRE CENTRAL RAILROAD

POND VIEW DRIVE

Bethlehem

W164-PFO

W161-PFO

W165-PSS

WING ROAD

S038

W163-PFO

W162-PFO

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

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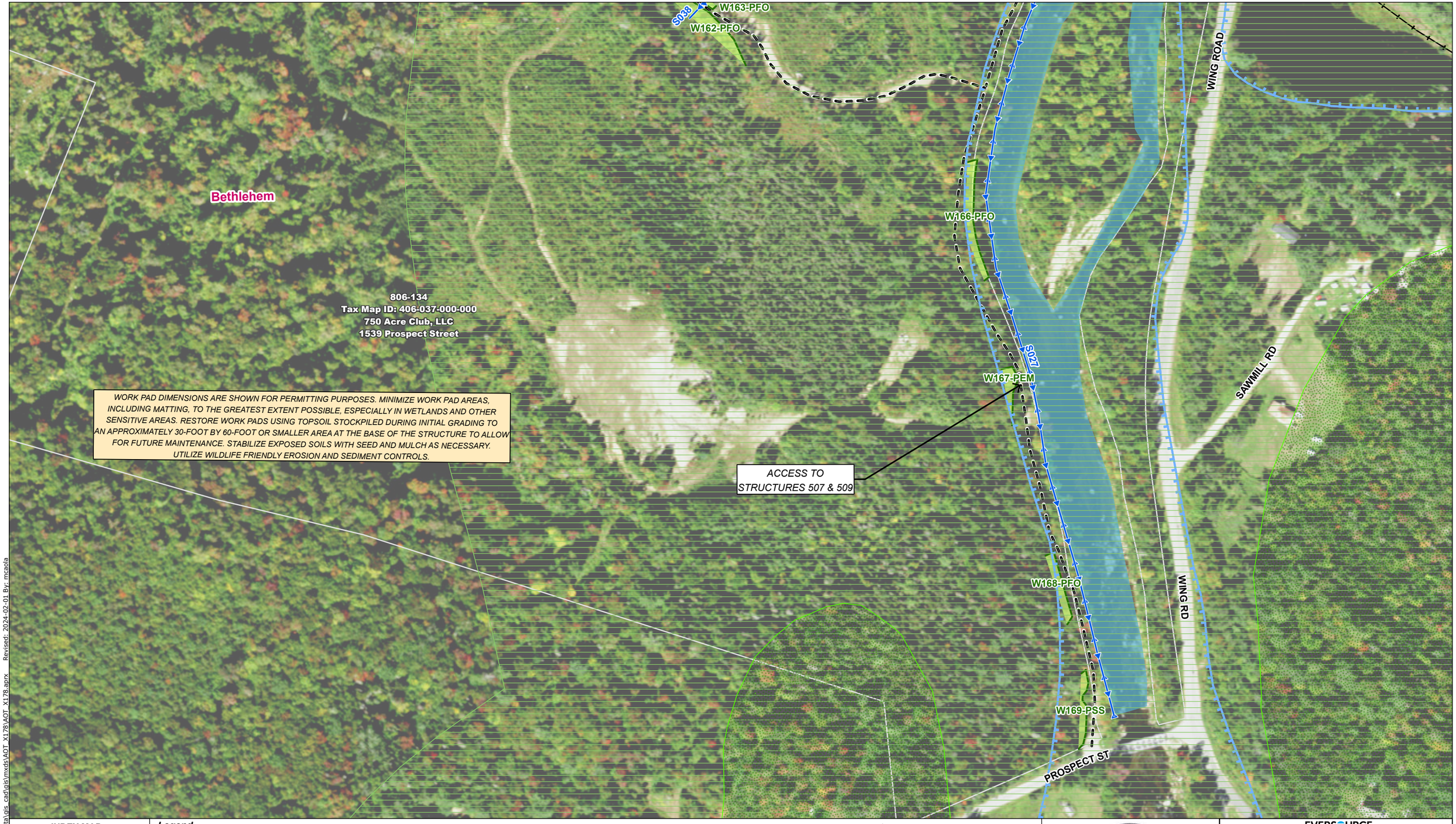
Bethlehem, NH	MAP SHEET 17 of 31
Date: February 01, 2024	Stantec



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EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Bethlehem, NH	MAP SHEET 18 of 31
Date: February 01, 2024	Stantec

TEMPORARY WETLAND IMPACT: +/-3,360 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-247 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-317 SQ.FT.

GUARD TRUCK PAD

806-130
Tax Map ID: 406-021-002-000
David Alan Taylor Trust
Whitefield Road

TEMPORARY WETLAND IMPACT: +/-217 SQ.FT.

806-129
Tax Map ID: 406-021-003-000
Town Of Bethlehem
Briar Hill Road

TEMPORARY WETLAND IMPACT: +/-7,826 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,835 SQ.FT.

806-126
Tax Map ID: 406-021-001-000
Dylan Whitcomb
Briar Hill Road

TEMPORARY WETLAND IMPACT: +/-4,457 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

Bethlehem

TEMPORARY WETLAND IMPACT: +/-4,854 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,863 SQ.FT.

116

S027

S028

W089-PSS

W090-PSS

W091-PSS

W092-PSS

W093-PSS

W094-PSS

W095-PSS

W096-PSS

W097-PSS

W098-PSS

506 507 508 509 510 511 512 513 514 515 516

X178-3 Line

CVP09

970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200

806-131
Tax Map ID: 406-021-004-000
Ralph D. Ross
Briar Hill Road

806-128
Tax Map ID: 406-021-005-000
Dylan Whitcomb
Briar Hill Road

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-921 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,679 SQ.FT.

PULL PAD

PULL PAD

W170-PSS

WHITEFIELD ROAD

TEMPORARY WETLAND IMPACT: +/-3,788 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,698 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-666 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-6,586 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-244 SQ.FT.

ACCESS FROM WING ROAD

Ammonoosuc River

806-132
Tax Map ID: 406-036-000-000
Stephen J. Butler
Whitefield Road

NEW HAMPSHIRE CENTRAL RAILROAD

116

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Surface Water & Groundwater Overlay Plans

Bethlehem, NH	MAP SHEET 19 of 31
Date: February 01, 2024	Stantec

806-125
Tax Map ID: 244-007
Servad Management LLC
Forest Lake Road

806-126
Tax Map ID: 406-021-001-000
Dylan Whitcomb
Briar Hill Road

Bethlehem

Whitefield

Shooting Range/Mitigation Site

W097-PSS

W098-PSS

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-244 SQ.FT.

X178-3 Line

513 516 518 514 515 518 519 516 520 517 521 518 519 522 523 520

1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310

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Bethlehem/Whitefield, NH	MAP SHEET 20 of 31
Date: February 01, 2024	Stantec

Whitefield

SPAN WETLAND
NO IMPACT

TEMPORARY
WETLAND IMPACT:
+/-214 SQ.FT.

W099-PSS

W100-PSS

W101-PSS

X178-3 Line

806-125
Tax Map ID: 244-007
Servad Management LLC
Forest Lake Road

ACCESS FROM
FOREST LAKE ROAD

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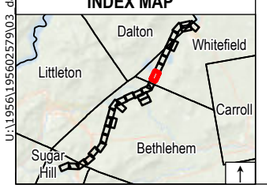

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- Gate
- Culvert

1 inch = 200 feet
0 50 100 200 Feet

Map Notes:
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Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Whitefield, NH	MAP SHEET 21 of 31
Date: February 01, 2024	Stantec

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806-124
Tax Map ID: 244-008
Elmer C Lupton
75 Newell Lane

Whitefield

TEMPORARY WETLAND IMPACT: +/-3,745 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-635 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-489 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,771 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-8,893 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,734 SQ.FT.

FOREST LAKE ROAD

806-122
Tax Map ID: 244-042
Peter J Myles
166 Forest Lake Road

RAMBLE ON ROAD

AVOID VERNAL POOL

GUARD TRUCK PAD

1090

1080

1070

1060

W101-PSS
W102-PSS
W103-PSS
W104-PSS
W105-PSS
W106-PSS
W107-PSS
W108-PSS
W109-PSS
W110-PSS
W111-PSS

CVP10
X178-3 Line
CVP11
CVP12

S029
S030

528 531 532 529 530 533 531 534 532 535 533 536 534 537 535 538

TEMPORARY WETLAND IMPACT: +/-673 SQ.FT.

ACCESS TO STRUCTURES 528 & 529

806-125
Tax Map ID: 244-007
Servad Management LLC
Forest Lake Road

AVOID EXISTING SNOWMOBILE BRIDGE

TEMPORARY WETLAND IMPACT: +/-255 SQ.FT.

SPAN STREAM NO IMPACT

PULL PAD

PULL PAD

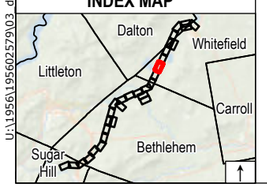
806-123
Tax Map ID: 244-043-001
Melhem Enterprises Retreats, LLC
152 Forest Lake Road

TEMPORARY WETLAND IMPACT: +/-3,479 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,489 SQ.FT.

806-121
Tax Map ID: 244-043
Melhem Enterprises Retreats, LLC
90 Melhem Estates Drive

INDEX MAP



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0 50 100 200 Feet

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Surface Water & Groundwater Overlay Plans

Whitefield, NH	MAP SHEET 22 of 31
Date: February 01, 2024	Stantec

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RAMBLE ON ROAD

806-116
Tax Map ID: 242-016-001
Bruce E Brekke
Ramble On Road

806-122
Tax Map ID: 244-042
Peter J Myles
166 Forest Lake Road

806-120
Tax Map ID: 242-018
Dale Macconnell
Ramble On Road

806-119
Tax Map ID: 242-018
David Gaipo
62 Ramble On Road

806-118
Tax Map ID: 242-017
George Olsen
74 Ramble On Road

Whitefield

TEMPORARY WETLAND IMPACT: +/-2,078 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-945 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,159 SQ.FT.

PROPOSED OSPREY NEST PLATFORM

AVOID VERNAL POOL

AVOID VERNAL POOL

W110-PSS
CVP12
CVP13
CVP14
W111-PSS
W112-PSS
W113-PSS
W114-PSS
W115-PSS
W116-PSS
W117-PEM
X178-3 Line
535 538 536 539 540 537 541 538 539 542 543 540 544 541 542 545

1090 1080 1070 1060 1050 1040 1030

TEMPORARY WETLAND IMPACT: +/-358 SQ.FT.

EXISTING OSPREY NEST

TEMPORARY WETLAND IMPACT: +/-1,359 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-377 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-4,174 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-254 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-3,387 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,129 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,438 SQ.FT.

806-115
Tax Map ID: 242-020
Georges A. Melhem
Pierce Road

806-117
Tax Map ID: 242-019
Georges A. Melhem
Forest Lake Road

806-121
Tax Map ID: 244-043
Melhem Enterprises Retreats, LLC
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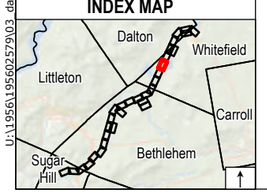
INDEX MAP



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0 50 100 200 Feet

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Whitefield, NH	MAP SHEET 23 of 31
Date: February 01, 2024	Stantec

806-116
Tax Map ID: 242-016-001
Bruce E Brekke
Ramble On Road

Dalton

806-107
Tax Map ID: 408-103
Mark Thomas Roberts
57 Evergreen Drive

Whitefield

TEMPORARY WETLAND IMPACT: +/-837 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-14,631 SQ.FT.

AVOID VERNAL POOL

AVOID VERNAL POOL

AVOID VERNAL POOL

W120-PSS

W121-PSS

W122-PSS

W119-PSS

W118-PSS

W117-PEM

CVP14

CVP15

CVP16

X178-3 Line

1040 1030 1080 1070 1050 1060 1090 1020

542 545 543 546 547 544 548 545 549 546 547 550 551 548 549 552 553 550

TEMPORARY WETLAND IMPACT: +/-1,438 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-341 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,254 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-610 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-9,330 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,816 SQ.FT.

806-115
Tax Map ID: 242-020
Georges A. Melhem
Pierce Road

806-114
Tax Map ID: 241-082
Diana Webster-Campbell
Pierce Road

WHITEFIELD WATER

806-113
Tax Map ID: 230-017
Karen H. Keller
56 Pierce Road

806-112
Tax Map ID: 230-019
Edward W Foley
Pierce Road

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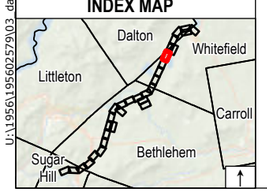
INDEX MAP



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1 inch = 200 feet

0 50 100 200 Feet

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Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Whitefield, NH | MAP SHEET 24 of 31

Date: February 01, 2024

Stantec

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Mark Thomas Roberts
57 Evergreen Drive

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Evergreen Drive

806-105
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Evergreen Drive

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Tax Map ID: 230-025
Jeffrey N. Wiseman
Parker Road

806-109
Tax Map ID: 408-106
Edwin Faria
Evergreen Drive

806-110
Tax Map ID: 230-030
Richard Lally
Evergreen Drive

Dalton

Whitefield

TEMPORARY WETLAND IMPACT: +/-9,982 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,286 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-315 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-475 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,357 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,614 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,478 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-918 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-513 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-643 SQ.FT.

AVOID VERNAL POOL

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-2,738 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,695 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-2,933 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-9,996 SQ.FT.

ACCESS FROM PARKER ROAD

PULL PAD

CVP16 550 553

W122-PSS

554 551

W123-PSS

CVP17

W124-PEM

552 555

553 556

W125-PSS

X178-3 Line

1070

557 554

W126-PSS

555 558

W127-PSS

1030

556 559

W128-PSS

557 560

1090

1060

WHITEFIELD WATER

EVERGREEN DRIVE

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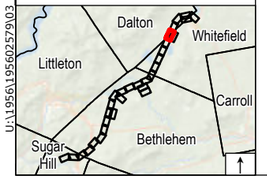

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Whitefield/Dalton, NH	MAP SHEET 25 of 31
Date: February 01, 2024	Stantec

ACCESS TO STRUCTURE 559

EVERGREEN DRIVE

WHITEFIELD WATER

PARKER ROAD

PIERCE ROAD

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Revised: 2024-02-01 By: mcaela

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Whitefield/Dalton, NH	MAP SHEET 26 of 31
Date: February 01, 2024	Stantec

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

806-105
Tax Map ID: 408-105
Edwin Faria
Evergreen Drive

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

Dalton

TEMPORARY WETLAND IMPACT: +/-3,532 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,438 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-5,500 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

Chase Brook

TEMPORARY WETLAND IMPACT: +/-5,532 SQ.FT.

SPAN STREAM NO IMPACT

AVOID EXISTING SNOWMOBILE BRIDGE

TEMPORARY WETLAND IMPACT: +/-7,788 SQ.FT.

W128-PSS
W129-PSS
W130-PSS
CVP18
CVP19
CVP20
CVP21
CVP22
X178-3 Line
S037
561
558
562
559
563
560
564
561
565
562
566
563
564
567
565
568
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-5,330 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-9,604 SQ.FT.

806-106
Tax Map ID: 414-2
Edwin Faria
Parker Road Extension

TEMPORARY WETLAND IMPACT: +/-3,348 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,184 SQ.FT.

AVOID VERNAL POOL

TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.

POTENTIAL TURTLE OVERWINTERING HABITAT. NO MATTING INSTALLATION DURING DORMANT SEASON, OCTOBER 15 TO MARCH 31

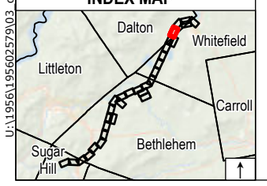
806-104
Tax Map ID: 408-1
Frank Porfido Jr
Faraway Road

TEMPORARY WETLAND IMPACT: +/-1,635 SQ.FT.

Whitefield

U:\119561\95602579\03_data\gis_cad\gis\mxds\AOT_X178\AOT_X178.aprx Revised: 2024-02-01 By: mcaola

INDEX MAP



Legend

- Local Potential Contamination Sources
- Remediation Sites
- Remediation Site Area
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- Class A Surface Waters RSA 485A9
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- Proposed Structure
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- Overhead Distribution Line
- Existing Access
- Off-ROW Access Pending Rights
- AoT Disturbance Area - Access
- AoT Disturbance Area - Pad
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- Upland Construction Matting
- Stone Work Pad
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- Parcel Boundary
- Municipal Boundary
- 2ft Contour
- 10ft Contour
- Field Delineated Ephemeral Watercourse
- Field Delineated Intermittent Watercourse
- Field Delineated Perennial Watercourse
- Field Delineated Wetland Boundary Outline
- Field Delineated Wetland
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- Confirmed Vernal Pool 50ft buffer
- Confirmed Vernal Pool Extent
- NHDES Protected Shorland
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
- Suggested Erosion and Sediment Control (TYP)
- Potential Turtle Overwintering Habitat
- Railroad
- Stone Wall
- Gate
- Culvert

N

1 inch = 200 feet

0 50 100 200 Feet

Map Notes:
Coordinate System: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet
Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
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No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Whitefield/Dalton, NH	MAP SHEET 27 of 31
Date: February 01, 2024	Stantec

805-079
Tax Map ID: 409-81
Thomas Schmidt
Faraway Road

805-081
Tax Map ID: 413-8.3
Jennifer J. Goodsell
53 Homestead Lane

805-082
Tax Map ID: 413-2
John Phillip Boswell
23 Parker Road Extension

805-083
Tax Map ID: 413-1
Town Of Dalton
Faraway Road

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

HOMESTEAD LANE
FARAWAY ROAD
HOMESTEAD JUNCTION
Dalton

020
019
018
017
016
015

TEMPORARY WETLAND IMPACT: +/-815 SQ.FT.
AVOID VERNAL POOL
AVOID VERNAL POOL
TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-1,799 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-220 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-6,777 SQ.FT.
SPAN WETLAND NO IMPACT
TEMPORARY WETLAND IMPACT: +/-490 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-4,718 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-1,992 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-1,572 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-304 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-10,000 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-5,959 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-472 SQ.FT.
TEMPORARY WETLAND IMPACT: +/-3,385 SQ.FT.

CVP23
CVP22
W131-PSS
W130-PSS
W132-PSS
W133-PSS

X178-3 Line
Q195 Line

565 566 567 568 569 570 571 572 573 574 575 576

1000 1010 1020 1030 1040 970 980 990 960 950 940 930

WORK PAD DIMENSIONS ARE SHOWN FOR PERMITTING PURPOSES. MINIMIZE WORK PAD AREAS, INCLUDING MATTING, TO THE GREATEST EXTENT POSSIBLE, ESPECIALLY IN WETLANDS AND OTHER SENSITIVE AREAS. RESTORE WORK PADS USING TOPSOIL STOCKPILED DURING INITIAL GRADING TO AN APPROXIMATELY 30-FOOT BY 60-FOOT OR SMALLER AREA AT THE BASE OF THE STRUCTURE TO ALLOW FOR FUTURE MAINTENANCE. STABILIZE EXPOSED SOILS WITH SEED AND MULCH AS NECESSARY. UTILIZE WILDLIFE FRIENDLY EROSION AND SEDIMENT CONTROLS.

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Dalton
Whitefield
Littleton
Carroll
Bethlehem
Sugar Hill

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1 inch = 200 feet
0 50 100 200 Feet

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Surface Water & Groundwater Overlay Plans

Dalton, NH	MAP SHEET 28 of 31
Date: February 01, 2024	Stantec

Revised: 2024-02-01 By: mcaola
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Dalton

STEVES PATH ROAD

PAGE ROAD

John's River

NEW HAMPSHIRE CENTRAL RAILROAD

MCINTYRE ROAD

142

WHITEFIELD ROAD

805-089
Tax Map ID: 413-62
Renewable Properties Incorporated (Eversource)
Faraway Road

805-088
Tax Map ID: 413-66
A.B. Aggregates, LLC
Faraway Road

805-092
Tax Map ID: 413-71
Misty Meadows Trailer Park, LLC
Meadow Mist Drive

805-095
Tax Map ID: 413-75
John Shaw Jr.
Whitefield Road

806-100
Tax Map ID: 413-076
John Shaw Jr
1044 Whitefield Road

805-100
Tax Map ID: 413-123
Ridgeview LLC
4 Riverview Terrace

805-086
Tax Map ID: 413-5.1
Boston & Maine Corporation
Faraway Road

805-097
Tax Map ID: 413-75.2
Dean A. Coulter Sr.
1056 Whitefield Road

805-099
Tax Map ID: 413-106
Chester C. Savage Jr
Whitefield Road

TEMPORARY WETLAND IMPACT: +/-3,385 SQ.FT.

PULL PAD

AVOID VERNAL POOL

S032

S033

S035

CVP24

Q195 Line

X178-3 Line

W132-PSS

W133-PSS

W134-PSS

W135-PSS

805-090
Tax Map ID: 413-67
Ronald J. Sheltry
70 Faraway Road

015 014 013 012 011 010 009 008 007

576 573 574 577 578 576 577 579 578 580 579 581 580 582 581 583 582 584

900 890 880 870 970 960 950 940 930 920 1000 1010 1020 1030 1040

MIRROR LAKE ROAD

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

PULL PAD

POTENTIAL TURTLE OVERWINTERING HABITAT.
NO MATTING INSTALLATION DURING DORMANT SEASON,
OCTOBER 15 TO MARCH 31

TEMPORARY WETLAND IMPACT: +/-4,449 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-3,610 SQ.FT.

MEADOWMIST DRIVE

805-094
Tax Map ID: 413-73
Boston & Maine Corporation
Whitefield Road

GUARD TRUCK AREA

805-098
Tax Map ID: 413-75.1
Kenneth E. Head
1068 Whitefield Road

805-100
Tax Map ID: 413-123
Ridgeview LLC
4 Riverview Terrace

RIDGEVIEW TERRACE

142

ACCESS TO STRUCTURE 587

ELM STREET

805-087
Tax Map ID: 413.5.21
Katharine A. Berrio
Faraway Road

FARAWAY ROAD

ACCESS FROM FARAWAY ROAD

MEADOW MIST MHP

Whitefield

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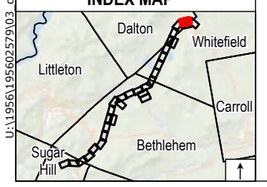
INDEX MAP



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- Gate
- Culvert

N

1 inch = 200 feet

0 50 100 200 Feet

Map Notes:
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Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
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CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Dalton, NH	MAP SHEET 29 of 31
Date: February 01, 2024	Stantec

805-084
Tax Map ID: 413-7
Douglas B. Tomb
Faraway Road

805-088
Tax Map ID: 413-66
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805-087
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Whitefield Road

805-095
Tax Map ID: 413-75
John Shaw Jr.
Whitefield Road

805-100
Tax Map ID: 413-123
Ridgeview LLC
4 Riverview Terrace

John's River

MERRITT ROAD

FARAWAY ROAD

MEADOWMIST DRIVE

MEADOW MIST MHP

WHITEFIELD ROAD

RIDGEVIEW TERRACE

142

Whitefield

NEW HAMPSHIRE CENTRAL RAILROAD

ELM STREET

ACCESS TO STRUCTURE 580

Dalton

PARKER ROAD EXT

PARKER ROAD

SPRUCE LANE

BROWN STREET

HUNT PROPERTY
HUNT PROPERTY

TOWN OF WHITEFIELD GARAGE

PINE STREET

BROWN STREET FURNITURE

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Dalton, NH	MAP SHEET 30 of 31
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805-101
Tax Map ID: 413-109
Lisa Nast
Mirror Lake Road

Dalton

MIRROR LAKE ROAD

WHISPERING PINES DRIVE

805-105
Tax Map ID: 219-062
No Information Per Assessors Office
Off Whispering Pines Drive

805-107
Tax Map ID: 219-018
Jerome E McGee
18 Whispering Pines Drive

805-099
Tax Map ID: 413-106
Chester C. Savage Jr
Whitefield Road

805-106
Tax Map ID: 219-063
No Information Per Assessors Office
Off Whispering Pines Drive

AVOID PRIVATE MEMORIAL

TEMPORARY WETLAND IMPACT: +/-1,086 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-232 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,917 SQ.FT.

805-114
Tax Map ID: 219-023-001
Andrew G Lowell
Lancaster Road

806-101
Tax Map ID: 219-023-002
Andrew G Lowell
Lancaster Road

LANCASTER ROAD

3

005 004 003 002 001 006 007

584 586 585 587 583 588 589 582 590 591 581

1050 1060 1040 1020 1030 1010 1000 990 980

X178-3 Line

Q795 Line

W136-PSS

W137-PSS

W138-PSS

W139-PSS

W140-PSS

W141-PSS

805-102
Tax Map ID: 413-122
Ridgeview LLC
Mirror Lake Road

TEMPORARY WETLAND IMPACT: +/-476 SQ.FT.

805-108
Tax Map ID: 219-017-001
Raymond G Belanger
Whispering Pines Drive

TEMPORARY WETLAND IMPACT: +/-1,490 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,407 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-5,000 SQ.FT.

Whitefield

805-110
Tax Map ID: 219-022
David Chase
110 Elm Street

PULL PAD

PULL PAD

TEMPORARY WETLAND IMPACT: +/-8,562 SQ.FT.

TEMPORARY WETLAND IMPACT: +/-1,619 SQ.FT.

806-102
Tax Map ID: 101-014
S&S Property, LLC
101 Lancaster Road

WHITEFIELD SUBSTATION

D142 Line

S136 Line

353

804-001
Tax Map ID: 101-13
Public Service Company Of New Hampshire (Eversource)
85 Lancaster Road

806-103
Tax Map ID: 101-045
O'Neil Family Trust
43 Holly Heights

HOLLY HEIGHTS

805-100
Tax Map ID: 413-123
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4 Riverview Terrace

142

RIDGEVIEW TERRACE

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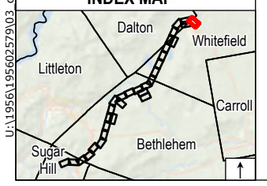
INDEX MAP



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- Open Water
- Confirmed Vernal Pool 50ft buffer
- Confirmed Vernal Pool Extent
- NHDES Protected Shorland
- FEMA 100-Year Flood Zone
- FEMA Floodway
- Priority Resource Area
- Wetland With Histosols
- Suggested Erosion and Sediment Control (TYP)
- Potential Turtle Overwintering Habitat
- Railroad
- Stone Wall
- Gate
- Culvert

N

1 inch = 200 feet

0 50 100 200 Feet

Map Notes:

Coordinate System: NAD 1983 StatePlane New Hampshire FIPS 2800 Feet
Data source: Existing ROW lines, structures, and transmission lines provided Eversource Energy. Wetlands, watercourses, and vernal pools delineated and verified by Stantec May 2023. Additional sources include: FEMA, NH Granit.
Basemap: NAIP 2021

STATE OF NEW HAMPSHIRE
MATTHEW ARSENAULT
No. 278
CERTIFIED WETLAND SCIENTIST

EVERSOURCE ENERGY

Eversource X178-3 - Transmission Line Rebuild Project (Northern Segment)
Surface Water & Groundwater Overlay Plans

Whitefield/Dalton, NH	MAP SHEET 31 of 31
Date: February 01, 2024	Stantec

Eversource X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

New Hampshire Fish and Game Department Recommended Permit Conditions

1. Wood turtle (state species of special concern) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information. See Notes Page 1.
2. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be posted on site at all times and communicated during morning tailgate meetings prior to work commencement.
3. Turtles and snakes may be attracted to disturbed ground during nesting season. Turtle nesting season occurs approximately May 15th – June 30th. Nesting areas may include work pads and access roads that are not hard pack gravel and other sandy/gravel work areas. All turtle species nests are protected by NH laws. Be aware of the potential to encounter nesting wildlife in these areas.
4. If a nest is observed or suspected, operators shall contact Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802) at NHFG immediately for further consultation. The nest or suspected nest shall be marked (surrounding roped off or cone buffer) and avoided; this shall be communicated to all personnel onsite. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.
5. Vernal pools and potential vernal pools (PVP) shall be flagged prior to work, and impacts shall be avoided.
6. No disturb vegetative buffers of 50' shall be maintained around vernal pools wherever possible. NHFG acknowledges impacts within 50' of the following vernal pools:
    a. CVP04, CVP07, CVP08, CVP09, CVP14, CVP16, CVP17, CVP19, CVP20, and CVP21.
7. All matting which will be placed in waterbodies deemed suitable for hibernating rare turtles will be placed prior to the start of the inactive season (October 16-March 31) so as to prevent accidental placement atop hibernating turtles. Areas identified as suitable hibernation habitat shall be identified on plan sheets and provided to NHFG at least two weeks prior to beginning work.
8. Immediately prior to the placement of matting in wetlands during the active season (April 1-October 15), the areas shall be cleared by a trained individual. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site. Contact NHFG if turtles in matting areas are observed or suspected.
9. For all work pads, staging areas, matting, and access roads, searches and sweeps shall be conducted by trained individuals immediately before the start of work and movement of equipment in order to minimize the chance of animals entering an area between the sweep and work. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site.

10. All work activities shall be restricted to the defined roads, construction areas, and staging areas, with no equipment or materials staged or stored outside of the defined areas as shown on plan sheets or equivalent document.
    a. Minor field changes to access roads and work pads including: shifting access from one side of the right of way to the other, shifting of work pads and staging areas forward or backwards, but not increasing the overall square footage of the work pads or staging areas, may be considered based on location. NHFG shall be notified of any proposed changes.
11. Work, pull pads, and access shall be minimized to the greatest extent possible.
12. Work pads shall be reduced post-construction to 30' x 60' and restored with a native vegetative seed mix.
13. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches; See Notes Pages 3 and 4.
14. All observations of threatened or endangered species on the project site shall be reported immediately to the NHFG nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at NHFGreview@wildlife.nh.gov, with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation;
15. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible;
16. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG.
    a. Site operators or Trained Individuals shall be allowed to relocate wildlife encountered if discovered within the active work zone and if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. NHFG shall be contacted immediately if this action occurs.
17. The NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

SEEKING REPORTS OF RARE TURTLES

The NH Fish & Game Department is collecting observations of four turtle species:

Wood turtle (*Glyptemys insculpta*) species of special concern

<u>May occur within the X178-3 Project Area</u>

- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land
- Turtles may be attracted to disturbed work areas for nesting.
- Operators shall notify the environmental contact immediately if nesting is observed or suspected. Environmental contact will notify NHFG immediately: Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802)

Report sightings to RAARP@wildlife.nh.gov or 603-271-2461 Please report promptly, noting specific location and date – Photographs strongly encouraged

Eversource X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

Notes Page 1

EVERSOURCE ENERGY

Stantec

December 4, 2023

RARE SPECIES ALERT

CANADA LYNX

Photos courtesy of USFWS

IDENTIFYING FEATURES:

- Medium to large cat, 15–30 lbs
- Grizzled gray fur
- Proportionately large paws and hind legs
- Ears with long, black tufts
- Tail short and black-tipped
- Most similar to bobcat

IF OBSERVED:

- Stop work and allow animal to pass
- Document date and time, and take photograph, if possible
- Maintain 5 mph on access roads
- Notify environmental contact immediately if observed.

CONSTRUCTION SEQUENCE:

1. WETLAND BOUNDARIES TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.

2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAIL PROVIDED, AS NECESSARY.

3. WETLAND IMPACTS ASSOCIATED WITH WETLAND CROSSINGS ARE REQUIRED FOR ACCESS BETWEEN STRUCTURES

4. ADEQUATE PRECAUTION SHALL BE EXERCISED TO AVOID SPILLAGE OF FUEL OILS, CHEMICALS, OR SIMILAR SUBSTANCES; NO FUELS, LUBRICANTS, CHEMICALS OR SIMILAR SUBSTANCES SHALL BE STORED BENEATH TREES OR IN THE VICINITY OF ANY WETLANDS, RIVER, STREAM OR OTHER BODY OF WATER; OR IN THE VICINITY OF NATURAL OR MAN-MADE CHANNELS LEADING THERETO. NO POWER EQUIPMENT SHALL BE STORED, MAINTAINED, OR FUELED IN ANY AREA ADJACENT TO A WETLAND, RIVER, STREAM OR OTHER BODY OF WATER.

5. REMOVE COMPLETELY ALL CONTAMINATION FROM ANY SPILLAGE OF CHEMICALS OR PETROLEUM PRODUCT WITH COMPLETE REHABILITATION OF THE AFFECTED AREA.

6. ACCESS ROUTES HAVE BEEN SELECTED TO PREVENT DEGRADATION OF THE RIGHT-OF-WAY AND MINIMIZE ENVIRONMENTAL IMPACT. OPERATIONS SHALL BE CONFINED TO THE SPECIFIED ACCESS ROUTES WITHIN THE PROPOSED WETLAND IMPACT AREA. MATTED ACCESS ROUTES SHALL NOT EXCEED A 16 FOOT-WIDTH, UPLAND ROUTES SHOULD BE APPROXIMATELY 12-FEET WIDE.

7. IMPACT TO VEGETATION WITHIN WETLANDS WILL BE LIMITED TO THE EXTENT NECESSARY TO PLACE THE SWAMP MATS WHERE REQUIRED. NO ADDITIONAL CLEARING IS PERMITTED.

8. LOW GROWING VARIETIES OF VEGETATION ADJACENT TO WETLANDS SHALL BE PRESERVED TO THE EXTENT POSSIBLE. STUMPS AND ROCKS SHALL NOT BE REMOVED, AND THERE SHALL BE NO EXCAVATIONS, FILLS OR GRADING DONE ADJACENT TO WETLANDS, UNLESS MINOR EXCAVATION IS NEEDED FOR ACCESS.

9. TIMBER MATS WILL BE USED ALONG ACCESS ROUTES WITHIN WETLAND AREAS. THESE MATS ARE CONSTRUCTED OF HEAVY TIMBERS OR COMPOSITE MATERIAL, BOLTED TOGETHER, AND ARE PLACED END-TO-END IN THE WETLAND TO SUPPORT HEAVY EQUIPMENT. ALL SWAMP MATS SHALL BE PLACED AND REMOVED SO AS NOT TO CAUSE ANY RUTS, CHANNELS OR DEPRESSIONS, OR OTHERWISE CAUSE ANY UNDUE DISTURBANCE TO WETLANDS.

10. IF TIMBER MAT BMP IS NOT SUFFICIENT DUE TO HIGH WATER, ADDITIONAL BMP'S MAY INCLUDE THE PLACEMENT OF GEOTEXTILE FABRIC UNDER MATS OR USING A LAYER OF RUNNER MATS TO ELEVATE MATS TO MAINTAIN HYDROLOGIC CONNECTIVITY. ALL MATERIAL WILL BE REMOVED FROM JURISDICTIONAL AREAS AFTER CONSTRUCTION COMPLETION.

11. NO MATERIAL SHALL BE PLACED IN ANY LOCATION OR IN ANY MANNER SO AS TO IMPAIR SURFACE WATER FLOW INTO, THROUGH OR OUT OF ANY WETLAND AREA. NO INSTALLATION SHALL CREATE AN IMPOUNDMENT THAT WILL IMPEDE THE FLOW OF WATER OR CAUSE FLOODING.

12. NO MATERIAL SHALL BE TAKEN FROM THE WETLANDS AREA EXCEPT THAT WHICH MUST NECESSARILY BE REMOVED FOR THE STRUCTURE INSTALLATION. ALL EXCESS MATERIAL TAKEN FROM THE WETLAND WILL BE REMOVED FROM THE SITE AND DISPOSED IN UPLAND.

13. ANY PROPOSED SUPPORT FILLS SHALL BE CLEAN GRAVEL AND STONE, FREE OF WASTE METAL PRODUCTS, ORGANIC MATERIALS AND SIMILAR DEBRIS AND SHALL NOT EXCEED THE AMOUNT PERMITTED. THIS ALLOWABLE FILL IS THE ONLY FILL THAT MAY REMAIN IN THE WETLAND AFTER CONSTRUCTION. ALL CUT AND FILLS SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE. IMPORTATION OF COMMERCIAL LOAM IS PROHIBITED.

14. INSTALL NEW POLES IN THE LOCATIONS DESIGNATED ON THE PERMITTING PLANS.

15. CABLE INSTALLATION WILL BE PERFORMED IN A MANNER SO AS TO AVOID, OR LIMIT TO THE MAXIMUM EXTENT POSSIBLE, TRAVERSING WETLANDS WITH HEAVY EQUIPMENT. IN SOME CASES, A HELICOPTER MAY BE USED DURING THE INSTALLATION TO MINIMIZE IMPACTS.

16. ALL SWAMP MATS, MATERIAL, AND DEBRIS WILL BE REMOVED FROM THE WORK AREA UPON THE COMPLETION OF CONSTRUCTION.

17. UPLAND DISTURBED AREAS SHALL BE RESTORED AND STABILIZED UPON COMPLETION OF CONSTRUCTION. WORK PAD RESTORATION SHOULD INCLUDE REDUCING THE WORK PAD TO A 30 BY 60 FOOT AREA, AND REDUCING SLOPES TO A MAXIMUM OF 25%. STOCKPILED MATERIAL SHOULD BE SPREAD TO REDUCE ANY UNNECESSARY SLOPES. GRAVEL WORK PADS AND SLOPES SHOULD BE SCARIFIED TO A MINIMUM OF 3" BEFORE SPREADING TOPSOIL/LOAM.

18. ALL TEMPORARY WETLAND IMPACTS WILL BE RE-GRADED TO ORIGINAL CONTOURS FOLLOWING CONSTRUCTION, IF NEEDED. NEW ENGLAND EROSION CONTROL/RESTORATION MIX, OR EQUIVALENT SEED MIX SHALL BE APPLIED IN WETLAND AREAS THAT ARE NOT INUNDATED, AS NECESSARY.

19. SEDIMENT AND EROSION CONTROL MEASURES WILL BE EVALUATED AND REMOVED IF NECESSARY UPON THE COMPLETION OF CONSTRUCTION.

20. COMMERCIAL LOAM WILL NOT BE USED AS PART OF RESTORATION. ONLY IN-SITU TOPSOIL WILL BE USED TO RESTORE DISTURBED AREAS.

21. WHERE PEATLANDS ARE MAPPED ADJACENT TO THE ROW, THE ASSOCIATED WETLANDS WITHIN THE ROW SHALL BE TREATED AS A PEATLAND AND PRIORITY RESOURCE AREA. ELEVATED MATTING SHALL BE USED AS NECESSARY TO PREVENT EXCESSIVE GROUND DISTURBANCE WITHIN THESE AREAS.

WINTER CONSTRUCTION NOTES

1. PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED. STABILIZATION METHODS SHALL INCLUDE SEEDING AND MULCH, AND INSTALLATION OF EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS

2. DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE TEMPORARILY STABILIZED WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.

3. AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL (NHDOT 304.3).

GENERAL NOTES:

OWNER: PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE d/b/a EVERSOURCE ENERGY
13 LEGENDS DRIVE
HOOKSETT, NH 03106

1. BASE PLAN PROVIDED BY EVERSOURCE ENERGY. STANTEC PROVIDED THE WETLAND DATA. EVERSOURCE ENERGY PROVIDED THE UTILITY DESIGN.

2. JURISDICTIONAL WETLANDS WERE DELINEATED BY STANTEC IN 2020. WETLANDS WERE DELINEATED IN ACCORDANCE WITH THE 1987 U.S. ARMY CORPS OF ENGINEERS' "WETLANDS DELINEATION MANUAL, TECHNICAL REPORT Y-87-1," AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION," JANUARY 2012.

3. SITE PLAN IS FOR PERMITTING PURPOSES ONLY AND DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY.

4. THE PROJECT WILL BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

5. IN ACCORANCE WITH ENV-WQ 1505.02, THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
   - A MINIMUM 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED
   - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL HAS BEEN INSTALLED
   - OR, EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

6. IN THE EVENT THAT A RARE OR THREATENED SPECIES IS OBSERVED, THE NEW HAMPSHIRE FISH AND GAME AND NEW HAMPSHIRE NATURAL HERITAGE BUREAU (NHB) WILL BE NOTIFIED.

EROSION CONTROL NOTES:

1. INSTALLATION OF EROSION CONTROL GRINDINGS AND/OR SILT FENCES SHALL BE COMPLETE PRIOR TO THE START OF WORK IN ANY GIVEN AREA. EROSION CONTROLS SHALL BE USED DURING CONSTRUCTION AND REMOVED WHEN ALL SLOPES HAVE A HEALTHY STAND OF VEGETATION COVER. EROSION CONTROL MEASURES SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER .25" OR GREATER RAINFALL EVENTS.

2. AS REQUIRED, CONSTRUCT TEMPORARY BERMS, SILTATION FENCES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION & SEDIMENTATION OF WETLANDS.

3. THE WORK AREA SHALL BE GRADED AND OTHERWISE SHAPED IN SUCH A MANNER AS TO MINIMIZE SOIL EROSION, SILTATION OF DRAINAGE CHANNELS, DAMAGE TO EXISTING VEGETATION, AND DAMAGE TO PROPERTY OUTSIDE LIMITS OF THE WORK AREA. EROSION CONTROL GRINDINGS WILL BE NECESSARY TO ACCOMPLISH THIS END.

4. ANY STRIPPED TOPSOIL SHALL BE STOCKPILED, WITHOUT COMPACTION, AND STABILIZED WITH BMPS.

5. PERMANENT OR TEMPORARY COVER MUST BE IN PLACE BEFORE THE GROWING SEASON ENDS. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 15 TO SEPTEMBER 15. NO DISTURBED AREA SHALL BE LEFT EXPOSED DURING WINTER MONTHS, PLANT ANNUAL RYEGRASS PRIOR TO OCTOBER 15TH.

6. EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.

7. EROSION CONTROL MATTING, IF REQUIRED, WILL CONSIST OF JUTE MATTING. MATTING WITH WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD WILL BE AVOIDED TO LIMIT UNINTENTIONAL MORTALITY TO SNAKES OR OTHER SMALL ANIMALS.

8. ALL MANUFACTURED EROSION AND SEDIMENT CONTROL PRODUCTS, WITH THE EXCEPTION OF TURF REINFORCEMENT MATS, UTILIZED FOR, BUT NOT LIMITED TO, SLOPE PROTECTION, RUNOFF DIVERSION, PERIMETER CONTROL, INLET PROTECTION, CHECK DAMS, AND SEDIMENT TRAPS SHALL NOT CONTAIN PLASTICE, OR MULTIFILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AND OPENING SIZE OF GREATER THAN 1/8 INCHES.

GROUNDWATER PROTECTION NOTES:

Eversource has reviewed the U199 and X178 Section 3 Line Rebuild Projects for overlap with the Groundwater Protection District (GPD) based on the November 27, 2023 Bethlehem Conservation Commission meeting. While there are no overlaps between the U199 Line Rebuild Project, Eversource acknowledges that portions of the X178-3 ROW traverse the Bethlehem GPD. The majority of activities associated with the proposed construction fall under Article XVI.XI Exemptions D. and F, however, the following measures and precautions are followed and will be provided to contractors to protect ground water resources:

1. During construction, the entire project area will have an approved Stormwater Pollution Prevention Plan (SWPPP) and erosion and sediment control Best Management Practices (BMPs) will be monitored for compliance and effectiveness. The monitoring will continue post-construction to ensure the stabilization of soils has occurred.
2. Project construction sites and equipment will be secured with fencing and locks, where feasible, during non-operational hours. In addition, the project will not permit, for any period of time, parking of construction vehicles of any type over wetlands.
3. All vehicles on-site for extended periods of time (more than 24 hours) will have placed beneath them secondary containments per DES Utility BMP manual.
4. On-site chemicals are limited to those associated with the operation of construction vehicles and equipment, including fuel (diesel and unleaded gasoline), hydraulic fluid, lubricants, and other engine or transmission-related fluids. Fueling and fuel storage will be conducted in accordance with the Utility BMP manual, which requires on-site fueling be conducted at least 100 feet away from wetlands and waterbodies and the use of secondary containment for all fuel pumps.
5. Contractors are required to provide and implement a spill prevention and control plan (SPCC), have spill kits on site, and inspect equipment daily for leaking fluids. No other chemical use or storage within the Project site is anticipated beyond those associated with the operation of motor vehicles, including construction equipment.

Eversource X178-3 Transmission Line Rebuild Project

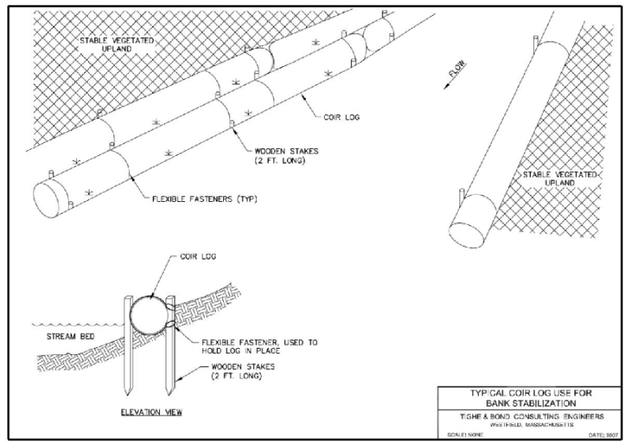
Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

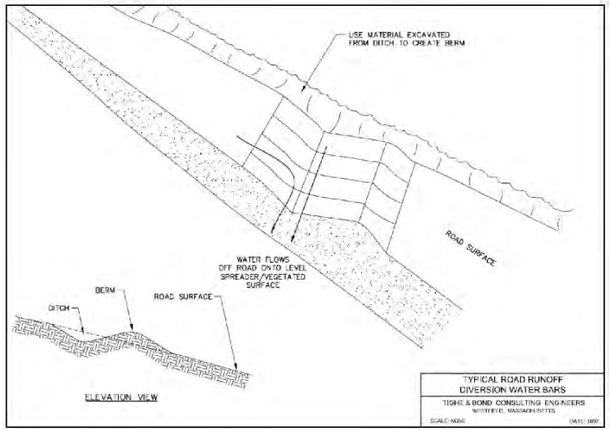
Notes Page 3

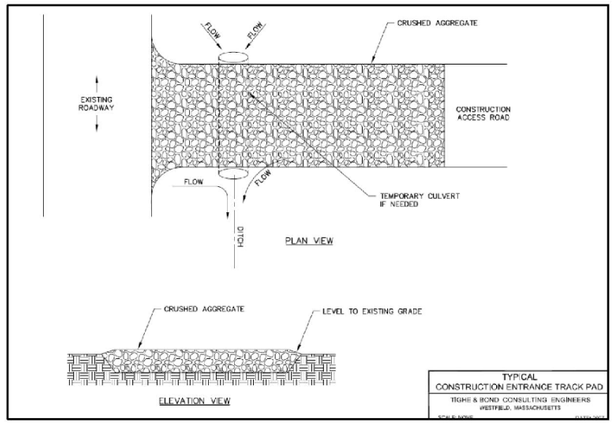
EVERSOURCE ENERGY

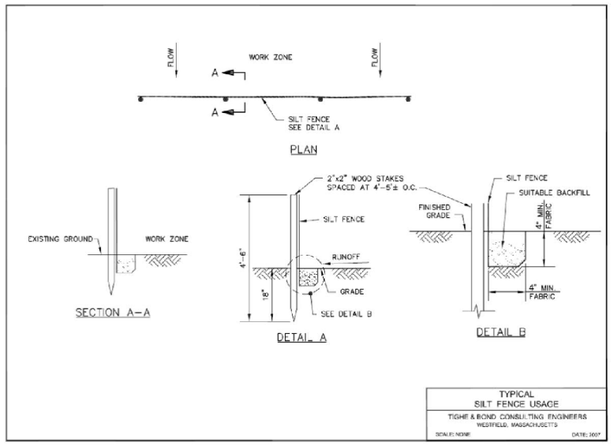
Stantec

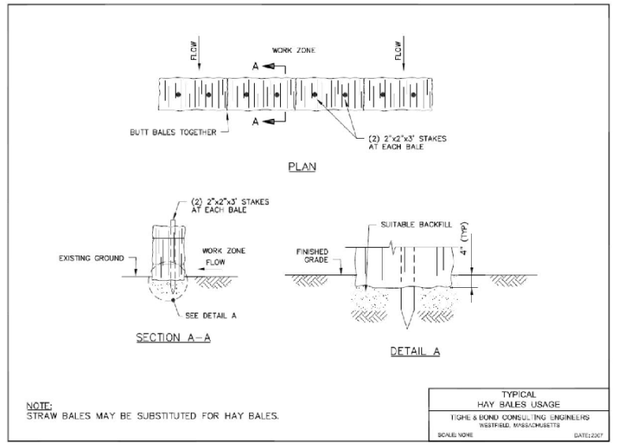
December 4, 2023

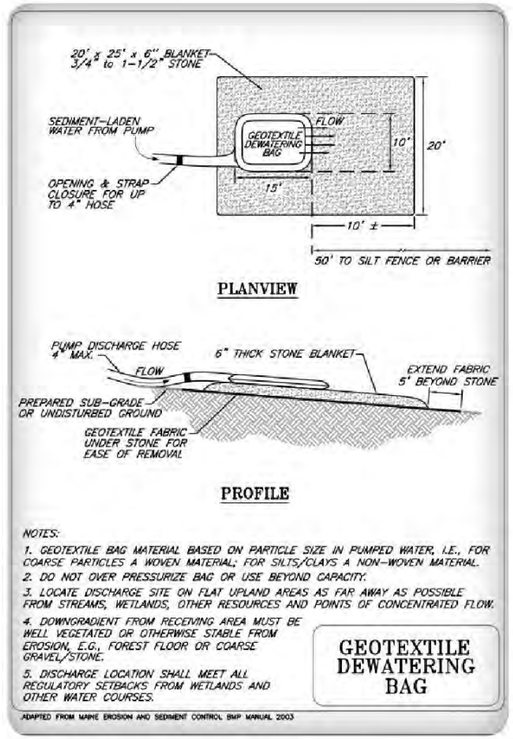


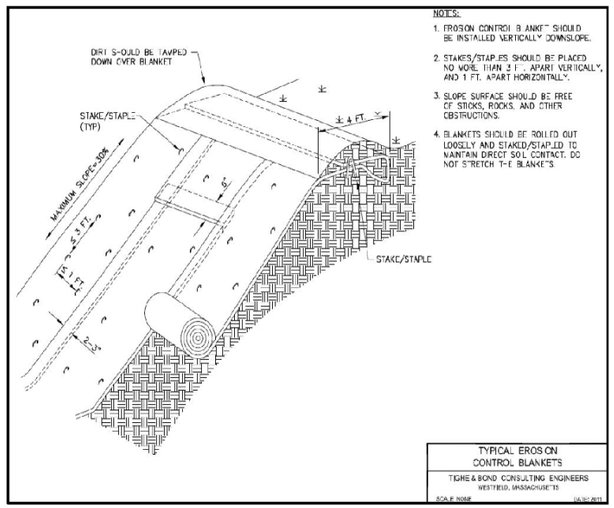


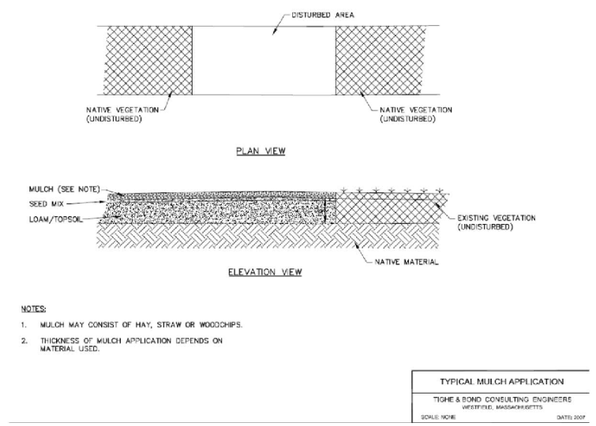












Eversource X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

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EVERSOURCE ENERGY

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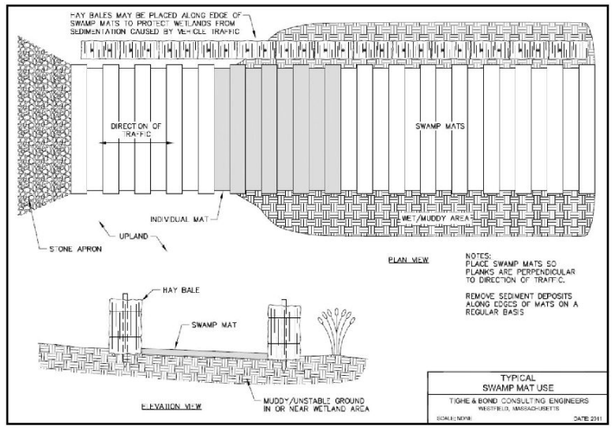
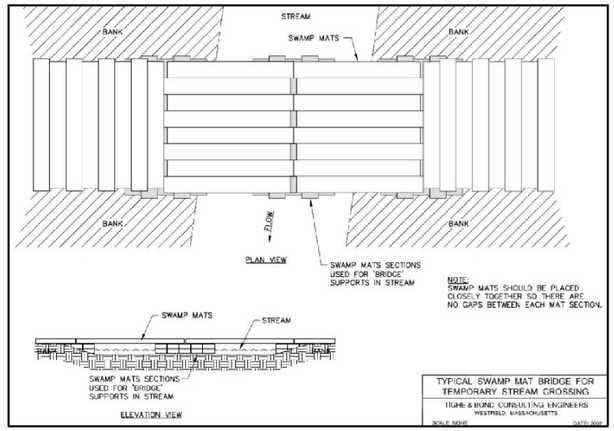
December 4, 2023





Eversource X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

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EVERSOURCE ENERGY

Stantec

December 4, 2023

APPENDIX A ALTERATION OF TERRAIN PERMIT APPLICATION FORM

ALTERATION OF TERRAIN PERMIT APPLICATION

Water Division / Land Resources Management

Check the status of your application

RSA / Rule: RSA 485-A:17, Env-Wq 1500

Administrative Use Only	Administrative Use Only	Administrative Use Only	File Number:
			Check No.
			Amount:
			Initials:

1. APPLICANT INFORMATION (INTENDED PERMIT HOLDER)			
Applicant Name: Public Service Company of NH d/b/a Eversource Energy		Contact Name: Ashley Friend	
Email: Ashley.Friend@eversource.com		Daytime Telephone: 603-634-2992	
Mailing Address: 13 Legends Drive			
Town/City: Hooksett		State: NH	ZIP Code: 03106
2. APPLICANT'S AGENT INFORMATION If none, check here: ☐			
Agent's Name: Stantec Consulting Services Inc.		Contact Name: Andrew Ackerman	
Email: andrew.ackerman@stantec.com		Daytime Telephone: 603-877-8198	
Address: 5 Dartmouth Drive			
Town/City: Auburn		State: NH	ZIP Code: 03032
3. PROPERTY OWNER INFORMATION (IF DIFFERENT FROM APPLICANT) Check here if more than one property owner, and attach additional sheets as necessary: ☐			
Owner's Name: Same as above.		Contact Name:	
Email:		Daytime Telephone:	
Mailing Address:			
Town/City:		State:	ZIP Code:
4. PROPERTY OWNER'S AGENT INFORMATION If none, check here: ☐			
Business Name: Same as above.		Contact Name:	
Email:		Daytime Telephone:	
Address:			
Town/City:		State:	ZIP Code:
5. CONSULTANT INFORMATION If none, check here: ☐			
Engineering Firm: Same as above.		Contact Name:	
Email:		Daytime Telephone:	
Address:			
Town/City:		State:	ZIP Code:

6. PROJECT TYPE

☒ Excavation Only ☐ Residential ☐ Commercial ☐ Golf Course ☐ School ☐ Municipal
☐ Agricultural ☐ Land Conversion ☐ Other:

7. PROJECT LOCATION INFORMATION

Project Name: X178-3 Transmission Line Rebuild Project

Street/Road Address: Multiple

Town/City: Sugar Hill, Bethlehem, Dalton, and Whitefield | County: Grafton and Coos

Tax Map: Multiple | Block: Multiple | Lot Number: Multiple | Unit:

Post-development, will the proposed project withdraw from or directly discharge to any of the following? If yes, identify the purpose.

1. Stream or Wetland Purpose: Access and work pads	☐ Yes ☐ Withdrawal ☐ Discharge ☒ No
2. Artificial pond created by impounding a stream or wetland Purpose:	☐ Yes ☐ Withdrawal ☐ Discharge ☒ No
3. Unlined pond dug into the water table Purpose:	☐ Yes ☐ Withdrawal ☐ Discharge ☒ No

Post-development, will the proposed project discharge to:

- Within one-quarter mile of a surface water impaired for phosphorus and/or nitrogen? ☒ No ☐ **Yes**
- Within one-quarter mile of a Class A surface water or within the watershed area of an Outstanding Resource Water?
  ☒ No ☐ **Yes**
- Within one-quarter mile of a lake or pond not covered previously? ☒ No ☐ **Yes**

Is the project a High Load area? ☐ Yes ☒ No
If yes, specify the type of high load land use or activity:

Is the project within a Water Supply Intake Protection Area (WSIPA)? ☐ Yes ☒ No
Is the project within a Groundwater Protection Area (GPA)? ☐ Yes ☒ No
Will the well setbacks identified in Env-Wq 1508.02 be met? ☒ Yes ☐ No
For more details on the restrictions in these areas, read Chapter 3.1 in Volume 2 of the NH Stormwater Manual.

Is any part of the property within the 100-year floodplain? ☒ Yes ☐ No
If yes: Cut volume: cubic feet within the 100-year floodplain.
Fill volume: cubic feet within the 100-year floodplain.

☒ Project *is* within **¼ mile of a designated river** Name of River: Ammonoosuc River
☐ Project *is not* within ¼ mile of a designated river.

☐ Project *is* within a Coastal/Great Bay Region community.
☒ Project *is not* within a Coastal/Great Bay Region community.

8. BRIEF PROJECT DESCRIPTION (PLEASE DO NOT REPLY "SEE ATTACHED")

Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource) owns and maintains the X178-3 electrical transmission line (X178-3 line; Project) in Sugar Hill, Bethlehem, Dalton, and Whitefield, New Hampshire (Figure 4). The X178-3 line runs within an existing right-of-way (ROW) between the Streeter Pond Switchyard in Sugar Hill and the Whitefield Substation in Whitefield. Eversource has identified existing wooden structures that will need to be replaced within the ROW due to age, cracking, leaning, and/or woodpecker damage. The existing wooden structures will be replaced with new, weathered steel structures to provide more reliable electrical infrastructure the overhead wires will also be replaced. Upland excavation and grading is necessary to access these replacement structures and create work areas to perform the replacements. Natural resource impacts have been minimized and avoided to the greatest extent practicable through careful siting of access roads and work pads.

9. IF APPLICABLE, DESCRIBE ANY WORK STARTED PRIOR TO RECEIVING PERMIT.

None.

10. ADDITIONAL REQUIRED INFORMATION

A. Date a copy of the application was sent to the municipality, as required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the governing body of each municipality in which the project is proposed):
(Attach proof of delivery) Delivery confirmation to be sent separately to NHDES

B. Date a copy of the application was sent to the local river advisory committee, if required by Env-Wq 1503.05(e) (Env-Wq 1503.05(c)(6), requires proof that a completed application form, checklist, plans and specifications, and all other supporting materials have been sent or delivered to the Local River Advisory Committee, if the project is within ¼ mile of a designated river):
(Attach proof of delivery) Delivery confirmation to be sent separately to NHDES

C. Type of plan required: ☐ Land Conversion ☐ Detailed Development ■ Excavation, Grading and Reclamation ☐ Steep Slope

D. Additional plans required: ☐ Stormwater Drainage and Hydrologic Soil Groups ☐ Source Control ☐ Chloride Management

E. Total area of disturbance, in square feet 2,403,608

F. Additional impervious cover as a result of the project, in square feet (use "-"to indicate a net reduction in impervious coverage).
Total final impervious cover, in square feet None

G. Total undisturbed cover, in square feet None

H. Number of lots proposed: Multiple--Entire X178-3 ROW

I. Total length of roadway, in linear feet: n/a

J. Name(s) of receiving water(s): see project description for resources within AoT Project Area

K. Identify all other NHDES permits required for the project. For each, indicate whether an application has been filed and is pending. If the required approval has been issued, provide the permit number, registration date, or approval letter number, as applicable.

Type of Approval	Application Filed?	Pending?	If Issued
1. Water Supply Approval	☐ Yes ☐ No ■ N/A	☐	Permit number:
2. Wetlands Permit	■ Yes ☐ No ☐ N/A	☒	Permit number:
3. Shoreland Permit	☐ Yes ■ No ☐ N/A	☒	Registration date:
4. UIC Registration	☐ Yes ☐ No ■ N/A	☐	Approval letter date:
5. Large/Small Community Well Approval	☐ Yes ☐ No ■ N/A	☐	Permit number:
6. Large Groundwater Withdrawal Permit	☐ Yes ☐ No ■ N/A	☐	Permit number:
7. Other:	☐ Yes ☐ No		

L. List all species identified by the Natural Heritage Bureau as threatened or endangered or of concern:
Wood Turtle

M. Using the NHDES OneStop Data Mapper with the Surface Water Impairment layer turned on, list the impairments identified for each receiving water. If no pollutants are listed, enter "N/A."

Bioassessments (Baker Brook), aluminum, copper, phosphorus (Johns River, Chase Brook)

N. Did the applicant or applicant's agent have a pre-application meeting with Alteration of Terrain Bureau staff?

☐ Yes ■ No If yes, name of staff member: Transmission line permitting discussions held with Ridgely Mauck

O. Will blasting of bedrock be required? ☐ Yes ■ No If yes, estimated quantity of blast rock in cubic yards:
If yes, standard blasting Best Management Practices notes must be placed on the plans.

NOTE: If greater than 5,000 cubic yards of blast rock will be generated, a groundwater monitoring program must be developed and submitted to NHDES. Contact Alteration of Terrain Bureau staff for additional detail.

11. CHECK ALL APPLICATION ATTACHMENTS THAT APPLY (SUBMIT WITH APPLICATION IN THE ORDER LISTED BELOW)

LOOSE:

- ■ Signed application form, with attached proof(s) of delivery.
- ■ Check for the application fee, calculated using the fee schedule available on the NHDES Land Development page.
- ■ Color copy of a USGS map with the property boundaries outlined (1" = 2,000' scale).
- ☐ If the applicant is not the property owner, proof that the applicant will have a legal right to undertake the project on the property if a permit is issued to the applicant.

BOUND, IN A REPORT, IN THE FOLLOWING ORDER:

- ■ Copy of the signed application form and application checklist.
- ■ Copy of the check.
- ■ Copy of the USGS map with the property boundaries outlined (1" = 2,000' scale).
- ■ Narrative of the project with a summary table of the peak discharge rate for the off-site discharge points.
- ■ Printout of NHDES OneStop Mapper with "Surface Water Impairments" layer turned on.
- ■ Printout of NHDES OneStop Mapper with Alteration of Terrain screening layers turned on.
- ■ Printout of Natural Heritage Bureau DataCheck Tool letter and any relevant correspondence with New Hampshire Fish and Game.
- ■ USDA Web Soil Survey Map with project's watershed outlined.
- ■ Aerial photograph (1" = 2,000' scale with the site boundaries outlined).
- ■ Photographs representative of the site.
- ☐ Groundwater recharge volume calculations (include one Best Management Practices worksheet per permit application).
- ☐ Drainage analysis, stamped by a professional engineer (see "Application Checklist" at the end of this document).
- ☐ Riprap apron or other energy dissipation or stability calculations.
- ☐ Site Specific Soil Survey report, stamped and with a certification note prepared by the soil scientist that the survey was done in accordance with the Site Specific Soil Mapping standards of the Society of Soil Scientists of Northern New England.
- ☐ Infiltration Feasibility Report (example online) [Env-Wq 1503.08(f)(3)].
- ☐ Registration and Notification Form for Stormwater Infiltration to Groundwater (UIC Registration-for underground systems only, including drywells and trenches).
- ☐ Inspection and maintenance manual with, if applicable, long term maintenance agreements [Env-Wq 1503.08(g)].
- ☐ Source control plan.

PLANS:

- ☐ One set of design plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).
- ☐ Pre- and post-development color-coded soil plans on 11" x 17" (see Application Checklist for details).
- ☐ Pre- and post-construction drainage area plans on 34 - 36" by 22 - 24" white paper (see Application Checklist for details).

100-YEAR FLOODPLAIN REPORT:

- ☐ All information required in Env-Wq 1503.09, submitted as a separate report.

ADDITIONAL INFORMATION RE: NUTRIENTS, CLIMATE

- ☐ See Application Checklist (Attachment A) for details.

- ■ **REVIEW APPLICATION FOR COMPLETENESS. CONFIRM INFORMATION LISTED ON THE APPLICATION IS INCLUDED WITH SUBMITTAL.**

12. REQUIRED SIGNATURES

By signing below, I certify that:

- The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief;
- I understand that the submission of false, incomplete, or misleading information constitutes grounds for the department to deny the application, revoke any permit that is granted based on the information, and/or refer the matter to the board of professional engineers established by RSA 310-A:3 if I am a professional engineer; and
- I understand that I am subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641:3

☒ **APPLICANT** ☐ **APPLICANT'S AGENT**:

Signature:  Date: 2/27/2024

Name (print or type): Ashley Friend Title: Permitting Specialist

☐ PROPERTY OWNER ☐ PROPERTY OWNER'S AGENT:

Signature: _____ Date:

Name (print or type): Title:

ALTERATION OF TERRAIN PERMIT ATTACHMENT A: APPLICATION CHECKLIST

Check each box to indicate the item has been provided, or indicate why it does not apply.

DESIGN PLANS

- ☐ Plans printed on 34 - 36" by 22 - 24" white paper.
- ☐ Professional Engineer stamp.
- ■ Wetland delineation.
- ■ Temporary erosion control measures.
- ☐ Treatment for all stormwater runoff from impervious surfaces such as roadways (including gravel roadways), parking areas, and nonresidential roof runoff. Guidance on treatment BMPs can be found in Volume 2, Chapter 4 of the New Hampshire Stormwater Management Manual.
- ■ Pre-existing 2-foot contours.
- ☐ Proposed 2-foot contours.
- ☐ Drainage easements protecting the drainage/treatment structures.
- ■ Compliance with state statute governing fill and dredge in wetlands, RSA 482- A. Note that artificial detention in wetlands is prohibited.
- ■ Compliance with the New Hampshire Shoreland Protection Act, RSA 483-B.
- ☐ Benching – needed if you have more than 20 feet change in elevation on a 2:1 slope, 30 feet change in elevation on a 3:1 slope, 40 feet change in elevation on a 4:1 slope.
- ☐ Check to see if any proposed ponds require state dam permits.

DETAILS

- ☐ Typical roadway cross-section.
- ☐ Detention basin with inverts noted on the outlet structure.
- ☐ Stone berm level spreader.
- ☐ Outlet protection – riprap aprons.
- ■ A general installation detail for an erosion control blanket.
- ■ Silt fences or mulch berm.
- ☐ Storm drain inlet protection. Note that since hay bales must be embedded 4 inches into the ground, they are not to be used on hard surfaces such as pavement.
- ☐ Hay bale barriers.
- ☐ Stone check dams.
- ☐ Gravel construction exit.
- ☐ Temporary sediment trap.
- ☐ The treatment BMPs proposed.
- ☐ Any innovative BMPs proposed.

CONSTRUCTION SEQUENCE / EROSION CONTROL

☒ Note that the project must be managed to meet the requirements and intent of RSA 430:53 and Agr 3800 relative to invasive species.

☒ Note that perimeter controls shall be installed prior to earth moving operations.

☐ Note that temporary water diversion (swales, basins, etc.) must be used as necessary until areas are stabilized.

☐ Note that ponds and swales shall be installed early on in the construction sequence (before rough grading the site).

☐ Note that all ditches and swales shall be stabilized prior to directing runoff to them.

☐ Note that all roadways and parking lots shall be stabilized within 72 hours of achieving finished grade.

☐ Note that all cut and fill slopes shall be seeded or loamed within 72 hours of achieving finished grade

☒ Note that all erosion controls shall be inspected weekly AND after every half-inch of rainfall.

☐ Note the limits on the open area allowed, see Env-Wq 1505.02 for detailed information.

Example note: The smallest practical area shall be disturbed during construction, but in no case shall exceed 5 acres at any one time before disturbed areas are stabilized.

☒ Note the definition of the word “stable.”

Example note: An area shall be considered stable if one of the following has occurred:

- Base course gravels have been installed in areas to be paved.
- A minimum of 85 percent vegetated growth has been established.
- A minimum of 3 inches of non-erosive material such stone or riprap has been installed.
- Or, erosion control blankets have been properly installed.

☒ Note the limit of time an area may be exposed.

Example note: All areas shall be stabilized within 45 days of initial disturbance.

☒ Provide temporary and permanent seeding specifications. Note that although reed canary grass is listed in the Green Book; it is a problematic species according to the Wetlands Bureau and therefore should not be specified.

☒ Provide winter construction notes that meet or exceed our standards.

Standard Winter Notes:

- All proposed vegetated areas that do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events.
- All ditches or swales which do not exhibit a minimum of 85 percent vegetative growth by October 15, or which are disturbed after October 15, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions.
- After October 15, incomplete road or parking surfaces where work has stopped for the winter season shall be protected with a minimum of 3 inches of crushed gravel per NHDOT item 304.3.

☐ Note at the end of the construction sequence that “Lot disturbance, other than that shown on the approved plans, shall not commence until after the roadway has the base course to design elevation and the associated drainage is complete and stable.” – This note is applicable to single/duplex family subdivisions, when lot development is not part of the permit.

DRAINAGE ANALYSES

Please provide double-side 8 ½" × 11" sheets where possible but, **do not** reduce the text such that more than one page fits on one side.

☐ Professional Engineer stamp.

☐ Rainfall amount obtained from the Northeast Regional Climate Center. Include extreme precipitation table as obtained from this source.

☐ Drainage analyses, in the following order:

- Pre-development analysis: Drainage diagram.
- Pre-development analysis: Area Listing and Soil Listing.
- Pre-development analysis: Node listing 1-year (if applicable), 2-year, 10-year and 50-year.
- Pre-development analysis: Full summary of the 10-year storm.
- Post-development analysis: Drainage diagram.
- Post-development analysis: Area Listing and Soil Listing.
- Post-development analysis: Node listing for the 2-year, 10-year and 50-year.
- Post-development analysis: Full summary of the 10-year storm.

☐ Review the Area Listing and Soil Listing reports

- Hydrologic Soil Groups (HSG) match the HSGs on the soil maps provided.
- There is the same or less HSG A soil area after development (check for each HSG).
- There is the same or less "woods" cover in the post-development.
- Undeveloped land was assumed to be in "good" condition.
- The amount of impervious cover in the analyses is correct.

Note: A good check is to subtract the total impervious area used in the pre-analysis from the total impervious area used in the post-analysis. For residential projects without demolition occurring, a good check is to take this change in impervious area, subtract out the roadway and divide the remaining by the number of houses or units proposed. Do these numbers make sense?

☐ Check the storage input used to model the ponds.

☐ Check to see if the artificial berms pass the 50-year storm, i.e., make sure the constructed berms on ponds are not overtopped.

☐ Check the outlet structure proposed and make sure it matches that modeled.

☐ Check to see if the total areas in the pre and post analyses are same.

☐ Confirm the correct NRCS storm type was modeled (Coos, Carroll and Grafton counties are Type II, all others Type III).

PRE- AND POST-CONSTRUCTION DRAINAGE AREA PLANS

☐ Plans printed on 34 - 36" by 22 - 24" on white paper.

☐ Submit these plans separate from the soil plans.

☐ A north arrow.

☐ A scale.

☐ Labeled subcatchments, reaches and ponds.

☐ Tc lines.

☐ A clear delineation of the subcatchment boundaries.

☐ Roadway station numbers.

☐ Culverts and other conveyance structures.

PRE- AND POST-CONSTRUCTION COLOR-CODED SOIL PLANS

☐ 11" × 17" sheets suitable, as long as it is readable.

☐ Submit these plans separate from the drainage area plans.

☐ A north arrow.

☐ A scale.

☐ Name of the soil scientist who performed the survey and date the soil survey took place.

☐ 2-foot contours (5-foot contours if application is for a gravel pit) as well as other surveyed features.

☐ Delineation of the soil boundaries and wetland boundaries.

☐ Delineation of the subcatchment boundaries.

☐ Soil series symbols (e.g., 26).

☐ A key or legend identifying each soil series symbol and its associated soil series name (for example: 26 = Windsor).

☐ The hydrologic soil group color coding (A = Green, B = yellow, C= orange, D=red, Water=blue, and Impervious = gray).

Please note that excavation projects (including gravel pits) have similar requirements to those above, with the following common exceptions or additions:

■ Drainage report is not needed if site does not have off-site flow.

☐ 5-foot contours are allowed rather than 2-foot.

■ No Professional Engineer stamp is needed on the plans.

☐ Add a note to the plans that the applicant must provide NHDES a written update of the project and revised plans documenting the project status every five years from the date of the Alteration of Terrain permit.

☐ Add reclamation notes.

☐ A description of the subsurface conditions to the planned depth of excavation, including the elevation of the location of the Seasonal High Water Table (SHWT), as observed and described by a certified soil scientist, or an individual holding a valid permit as a permitted designer as issued by the department's Subsurface Systems Bureau.

For more resources, refer to the Natural Resources Conservation Service's Vegetating New Hampshire Sand and Gravel Pits publication.

APPENDIX B ABUTTERS LIST

Appendix B: Abutters List

X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

Parcel ID	Site Address	Owner Name	Owner Address
Sugar Hill			
000204 000011 000000	592 STREETER POND ROAD	MATTHEW C & SHEILA A BOND	227 ARGILLA ROAD IPSWICH, MA 01938
000205 000014 000000	750 ROUTE 18	THOMAS H. HEATH	750 ROUTE 18 SUGAR HILL, NH 03586
Bethlehem			
402-012-000-000	1156 PROFILE RD	BRUCE CAPLAIN & AYLA QUEIROGA	PO BOX 370 BETHLEHEM, NH 03574
402-013-000-000	1120 PROFILE RD	JAMES & CANDACE C MURPHY	1120 PROFILE RD BETHLEHEM, NH 03574
402-017-000-000	1057 PROFILE RD	ASHLEY THOMPSON	PO BOX 87 FRANCONIA, NH 03580
410-001-000-000	897 PROFILE RD	MATTHEW EDWARD STEVENS & CARLA ANN WOMBLE	897 PROFILE RD BETHLEHEM, NH 03574
402-030-000-000	887 PROFILE RD	CAROL JANE HERBERT	887 PROFILE RD BETHLEHEM, NH 03574
402-029-000-000	851 PROFILE RD	KATHLEEN KEENE & SHELLEY A. MURPHY	2254 SEVERANCE HILL RD LYNDONVILLE, VT 05851
402-028-000-000	845 PROFILE RD	ELIZABETH BURPEE	845 PROFILE RD BETHLEHEM, NH 03574
402-027-000-000	835 PROFILE RD	NEW BEGINNINGS APOSTOLIC CHURCH	835 PROFILE RD BETHLEHEM, NH 03574
402-025-000-000	691 PROFILE RD	PROFILE HIGH SCHOOL	691 PROFILE RD FRANCONIA, NH 03580
201-036-000-000	164 ROCKS EDGE RD	RICHARD M & MARY SIMMONS	164 ROCKS EDGE RD BETHLEHEM, NH 03574
201-037-000-000	156 ROCKS EDGE RD	MICHAEL J. & RENEE M. PARKIN	263 HAWTHORNE ST NEW BEDFORD, MA 02740
201-040-000-000	144 ROCKS EDGE RD	TIMOTHY P. & MELISSA B. WALSH	37 MORELAND TERRACE NEW BEDFORD, MA
201-041-000-000	132 ROCKS EDGE RD	CHRISTOPHER & CATHERINE DALEY	PO BOX 334 BETHLEHEM, NH 03574
201-042-000-000	ROCKS EDGE RD	THE ALICIA J. BRAWN TRUST	17 HAWK HILL LN IPSWICH, MA 01938
201-043-000-000	ROCKS EDGE RD	THE ALICIA J. BRAWN TRUST	17 HAWK HILL LN IPSWICH, MA 01938
201-044-000-000	ROCKS EDGE RD	THE ALICIA J. BRAWN TRUST	17 HAWK HILL LN IPSWICH, MA 01938
201-045-000-000	90 MILLERS RUN	THE ALICIA J. BRAWN TRUST	17 HAWK HILL LN IPSWICH, MA 01938
201-035-000-000	90 ROCKS EDGE RD	THE ALICIA J. BRAWN TRUST	17 HAWK HILL LN IPSWICH, MA 01938
201-034-000-000	70 ROCKS EDGE RD	CARLA & RICHARD A AVARD	20 PRATT ST NASHUA, NH 03060
201-031-000-000	ROCKS EDGE RD	TOWN OF BETHLEHEM	PO BOX 189 BETHLEHEM, NH 03574
201-030-000-000	1000 MAIN ST	ROULA GARITTA REVOCABLE TRUST	1000 MAIN ST BETHLEHEM, NH 03574

Appendix B: Abutters List

X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

201-026-000-000	1071 MAIN ST	PMR RESIDENCE, LLC	1071 MAIN ST BETHLEHEM, NH 03574
404-035-011-000	96 STONY ACRES DR	GINGUE FAMILY TRUST	96 STONY ACRES DRIVE BETHLEHEM, NH 03574
406-022-018-000	1341 WHITEFIELD RD	IRON HORSE REALTY, LLC	676 2ND ST MANCHESTER, NH 03102
406-020-004-000	WHITEFIELD RD	MICHAEL JR. CARBONNEAU	528 HILLTOP RD LITTLETON, NH 03561
Whitefield			
244-043.1	FOREST LAKE ROAD	MELHEM ENTERPRISES RETREATS, LLC	93 STILES RD SALEM, NH 03079
244-042	166 FOREST LAKE ROAD	PETER J & VICTORIA L MYLES	166 FOREST LAKE ROAD WHITEFIELD, NH 03598
242-018	RAMBLE ON ROAD	DALE MACCONNELL	26 WARREN STREET WESTBOROUGH, MA 01581
242-018.1	62 RAMBLE ON ROAD	DAVID GAIPO	559 BELLEVILLE AVE NEW BEDFORD, MA 02745
242-017	74 RAMBLE ON ROAD	GEORGE OLSEN	74 RAMBLE ON ROAD WHITEFIELD, NH 03598
102-087	41 HOLLY HEIGHTS	NATHAN & ANGIE LAVOIE	107 VALLEY ST LACONIA, NH 03246
102-102.1	43 HOLLY HEIGHTS	TIMOTHY M. & HOLLY N O'NEIL - TRUSTEES	30 PROSPECT STREET WHITEFIELD, NH 03598
101-012	69 LANCASTER ROAD	HANNAH L. & FRANK J. ANGELINE	69 LANCASTER RD WHITEFIELD, NH 03598
101-024	72 LANCASTER ROAD	TIMOTHY G & BRIGITTE WHITE	72 LANCASTER ROAD WHITEFIELD, NH 03598
101-018	100 LANCASTER ROAD	ROBERT STILES ENTERPRISES, LLC	74 JEFFERSON ROAD WHITEFIELD, NH 03598
101-014	101 LANCASTER ROAD	MICHAEL KILBY	3 UNION ST LITTLETON, NH 03561
Dalton			
000414 000004 000000	PARKER RD EXT	GRACE TILTON CUTTINO	ADDRESS NOT LISTED
000414 000003 000000	PARKER RD EXT	GRACE TILTON CUTTINO	ADDRESS NOT LISTED
000413 000006 000002	MERRITT RD	KATHARINE A. BERRIO	ADDRESS NOT LISTED
000413 000006 000001	40 MERRITT RD	KATHARINE A. BERRIO	ADDRESS NOT LISTED
000413 000005 000021	40 MERRITT RD	KATHARINE A. BERRIO	ADDRESS NOT LISTED
000413 000062 000000	FARAWAY RD	DEAD WATER LLC C/O WAGNER FOREST MANAGEMENT, LTD	ADDRESS NOT LISTED
000413 000067 000000	70 FARAWAY RD	RONALD J. & CAROL P. SHELTRY	ADDRESS NOT LISTED

Appendix B: Abutters List

X178-3 Transmission Line Rebuild Project

Sugar Hill, Bethlehem, Dalton, Whitefield, New Hampshire

000413 000072 000000	MEADOWMIST TRAILER P	MISTY MEADOWS TRAILER PARK LLC	ADDRESS NOT LISTED
000413 000078 000000	1036 WHITEFIELD RD	PATRICIA NEAL	ADDRESS NOT LISTED
000413 000108 000000	1049 WHITEFIELD RD	JAMES & JUDY RAMSDELL	ADDRESS NOT LISTED

APPENDIX C NATURAL HERITAGE BUREAU DATACHECK RESULTS LETTERS AND AGENCY CORRESPONDENCE

Memorandum

To:	NH Fish and Game Department NHFGreview@wildlife.nh.gov	From:	Ashley Friend, Specialist - Licensing & Permitting Eversource Energy
CC:	Andrew Ackerman, Stantec	Date:	October 2, 2023

Reference: NHFG Consultation Request for AoT, SPN, Shoreland PBN
NHB DataCheck Letters: NHB23-1105, NHB23-1106, NHB23-1107 and NHB23-1108
X178-3 Transmission Line Structure Replacement Project

The following information is being provided on behalf of Public Service Company of New Hampshire d/b/a Eversource Energy (herein Eversource) in accordance with "Part Fis 1004.03(c) Information Required for Consultation":

(1) A copy of the department of natural and cultural resources NHB DataCheck tool results letter, dated within one year of the date of the consultation request, and which includes the DataCheck tool results letter number;

See Attachment A for a copy of NHB23-1105, NHB23-1106, NHB23-1107 and NHB23-1108.

(2)–(4) The applicant's full name, applicant's mailing address, and the applicant's telephone number and email address to be used for the purpose of contact;

Eversource Energy
Ashley Friend, Specialist - Licensing & Permitting
13 Legends Drive
Hooksett, NH 03106
603-634-2992
Ashley.Friend@Eversource.com

(5) –(6) The person who will respond to requests for information on behalf of the applicant;

Stantec
Andrew Ackerman, Sr. Environmental Scientist
5 Dartmouth Drive, Suite 200
Auburn, NH 03032-3984
603-877-8198
andrew.ackerman@stantec.com

(7) Description of the proposed action;

The Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource) owns and maintains the X178 electrical transmission line (X178 line). The X178-3 line segment runs northeasterly from the Sugar Hill Junction in an existing cleared right-of-way (ROW) for approximately 1 mile before turning north in Bethlehem for approximately 7 miles, then continuing north through Whitefield for 2.5 miles, and then joins the Q195 transmission line at Homestead Junction in Dalton and runs east for 1.5 miles, crosses the Whitefield Road/Route 142, before turning southeast and terminating at the Whitefield Substation on Lancaster Road in Whitefield, New Hampshire. Eversource is proposing to replace 185 existing wooden structures on an approximately 14-mile line segment from Sugar Hill to Whitefield. The information below is being provided as part of our request for consultation with the New Hampshire Fish and Game Department (NHFG) for the Project. A map depicting the Project location is provided in Attachment B.

Eversource has identified that all of the wooden structures on the X178-3 line need to be replaced within the ROW due to age, cracking, leaning, and/or woodpecker damage. The existing wooden structures will be replaced with new steel structures to provide more reliable electrical infrastructure. Work is anticipated to begin in Spring 2024 and continue until Fall 2025. In most instances, the new structures will be placed within approximately 10 feet of the existing wood structure, which will be subsequently removed. Eversource will need to improve existing access roads, create new permanent and temporary access roads, and create permanent work pads. Project Plans (Attachment D) show the placement of permanent and temporary work areas.

Where access and work pads are proposed within wetlands, Eversource will utilize timber matting to minimize and prevent rutting and compaction in wetlands. Once work is complete, timber mats will be removed, and temporarily disturbed areas will be mulched with seedless straw to promote restoration.

Sediment and erosion control measures will follow the New Hampshire Department of Environmental Services (NHDES) *Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire* (March 2019; Utility BMP Manual).

Based on the results of the Natural Heritage Bureau (NHB) DataCheck results letter **NHB23-1105** (NHB23-1106, 1107, and 1108 did not find any wildlife records); provided in Attachment A), the following species have been documented in the vicinity of the Project:

- Wood turtle (*Glyptemys insculpta*)

As such, Eversource is proposing to implement conservation measures to avoid, minimize and/or mitigate potential harm to state-listed species and habitat determined to be critical.

- Wood turtle:
    1. During Active Period (April 1 – October 15):
        a. If work must occur during the active season, all contractors working within known or potential state-listed turtle habitat will be trained by a qualified biologist on the identification and response protocols for wood turtles.
        b. Immediately prior to the placement of matting in wetlands within wood turtle habitat, the areas shall be cleared by a trained individual.
        c. Matting will be placed in layers, so work and travel surfaces are at least two mats high to prevent wood turtles from climbing into active work areas.
    2. During Inactive Period (October 16 – March 31):
        a. All contractors working within known habitat will be trained by a qualified biologist on the identification and response protocols for wood turtles.
        b. During this inactive period, matting will not be installed in areas that have been identified as potential overwintering habitat for turtles, as shown on the project plans.

    3. Avoid permanent impacts or degradation of wetland habitats including any wet meadows and potential or confirmed vernal pools.
    4. Searches and sweeps shall be conducted immediately before the start of construction and movement of equipment in order to minimize the chance of animals entering an area between the sweep and work.
    5. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHFG and implementation of corrective actions recommended by NHFG. Site operators shall be allowed to relocate wildlife

encountered if discovered within the active work zone and if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. The observing contractor will then contact the project Environmental Licensing & Permitting specialist from Eversource who will contact NHFG immediately if this action occurs:

a. Brendan Clifford 603-944-0885; or
b. Melissa Winters 603-479-1129.
c. If NHFG staff are unable to be reached, contact the Wildlife Administrator at 603-271-2461.

Representative photographs of the Project area are provided in Attachment C.

(8) Description of the project parcel by reference to street address and town, and, if available, a geographical information system defined project boundary;

The Project will occur within a managed ROW in the towns of Sugar Hill, Bethlehem, Dalton, and Whitefield. Project plans depicting the ROW and work areas are provided in Attachment D.

(9) A listing of any state or federal permits which have been applied for, have been granted, or which will be necessary for the proposed action to proceed;

The Project is subject to the following permits:

- NHDES Alteration of Terrain Permit (yet to be filed)
- NHDES Statutory Permit-by-Notification (SPN) (yet to be filed)
- NHDES Standard Dredge and Fill (SDF) (yet to be filed)
- NHDES Shoreland Permit-by-Notification (PBN) (yet to be filed)
- USACE Self-Verification approval (yet to be filed)
- EPA Construction General Permit (eNOI yet to be filed)

(10) The current condition of the action area prior to any proposed modifications, including a description of known or discernible actions within the preceding 24 months that have altered the site, including but not limited to, timber harvests, significant impact from storms, removal of gravel or stone, or addition or removal of structures;

The Project area is a maintained electrical transmission line corridor that has been in its approximate current condition for more than 50 years. The corridor is maintained in an early successional state with shrub and herbaceous vegetation layers that include both upland and wetland communities. The ROW traverses a variety of landscapes, including large forest blocks, highways, and low-density residential neighborhoods.

(11) Any habitat features supporting or that could support threatened and endangered species that have been identified; and

Wood turtle

This species is found in slow-moving streams and channels with sandy bottoms. They use terrestrial habitats extensively during summer, including floodplains, meadows, woodlands, fields, as well as wetlands. Wood turtles lay 4–12 eggs in shallow depressions in sandy, well-drained soils. Nest sites are usually near streams but may also be in clearings, agricultural fields, or other

disturbed areas. Wood turtles hibernate in slow-moving streams and rivers under riverbanks, root masses, or woody debris.

Based on the NHB DataCheck, a wood turtle observation has been recorded west of the Project in Bethlehem. An overall lack of lower elevation, slow moving riverine habitat in the ROW potentially limits the habitat suitability of the ROW for wood turtles. Although wood turtles have not been documented in the ROW, potentially suitable habitat may be present. As such, dense riparian and early successional shrub thicket portions of the ROW near Chase Brook (structure 568), Johns River (structures 580-582), the Indian Brook area (structures 436-441), the Baker Brook/Miller Pond area (structure 460) and Black Brook area (structures 478-481, 486-487) may be used by wood turtle for nesting or seasonal foraging or estivation. (See wildlife.state.nh.us/wildlife/profiles/wap/reptile-woodturtle.pdf)

(12) A description of any conservation measures proposed by the applicant to avoid, minimize, or mitigate potential harm to threatened and endangered species and habitat determined to be critical, including but not limited to:

As stated in Item 7) *Description of the Proposed Action* above, a number of protection measures will be established to avoid impacts to state-listed species.

In addition, the Project will:

- Avoid impacts to confirmed vernal pools between April 1 and October 15 (see Table 1 below),
- Prohibit the use of nylon, welded plastic, or photodegradable erosion and sedimentation controls (with the exception of silt fencing), and
- Install signage in environmentally sensitive areas to alert work crews of the potential presence of state-listed species in the work areas.

Table 1. Description of 50-foot vernal pool buffer impacts.

Vernal Pool ID	Nearest Structure (proposed #)	Impacts to Vernal Pool depression	Impacts to 50-foot Vernal Pool buffer	BMPs and Notes
CVP01	417	None	None	Access road avoids vernal pool and buffer. Flag and avoid vernal pool depression and buffer.
CVP02	451	None	None	Vernal pool and buffer on edge of ROW away from access road. Flag and avoid vernal pool depression and buffer.
CVP03	469	None	Wetland matting for access road through buffer	Shift the access road west/downhill and out of the buffer if possible. Flag and avoid vernal pool depression. Restore or timber mat work pad

Vernal Pool ID	Nearest Structure (proposed #)	Impacts to Vernal Pool depression	Impacts to 50-foot Vernal Pool buffer	BMPs and Notes
				areas within 50-foot (ft) vernal pool buffer.
CVP04	474	None	Wetland matting through most of buffer	Move structure behind 30' to avoid pool. Flag and avoid vernal pool depression. Restore or timber mat work pad areas within 50' vernal pool buffer.
CVP05	475	None	None	Flag and avoid vernal pool depression and buffer.
CVP06	475	None	None	Flag and avoid vernal pool depression and buffer.
CVP07	486	None	Wetland matting for pad in buffer	Flag and avoid vernal pool depression and buffer. Keeping pole north and out of wetland.
CVP08	508	None	Access road bisects buffer but stays upland of wet areas	Flag and avoid vernal pool depression and buffer. Utilize existing trails and minimize impacts to wetlands.
CVP09	515	None	West 1/3 of buffer overlaps pad and pad and pole upland construction	Flag and avoid vernal pool depression and buffer. Restore or timber mat work pad areas within 50-ft vernal pool buffer.
CVP10	534	None	None	Keep access road east of buffer. Flag and avoid vernal pool depression and buffer.
CVP11	535	None	None	Access road stays west of buffer. Flag and avoid vernal pool depression and buffer.
CVP12	539	None	None	Access road stays west of buffer. Flag and avoid vernal pool depression and buffer.
CVP13	540	None	None	Flag and avoid vernal pool depression and buffer.

Vernal Pool ID	Nearest Structure (proposed #)	Impacts to Vernal Pool depression	Impacts to 50-foot Vernal Pool buffer	BMPs and Notes
CVP14	546	None	Northwest corner of pad intersects buffer and is matted	Flag and avoid vernal pool depression and buffer. Restore or timber mat work pad areas within 50-ft vernal pool buffer.
CVP15	553	None	None	Flag and avoid vernal pool depression and buffer.
CVP16	554	None	Minimal wetland matting	Move structure behind 30’ to avoid pool. Flag and avoid vernal pool depression. Restore or timber mat work pad areas within 50-ft vernal pool buffer.
CVP17	556	None	West corner of pad intersects buffer and is matted	Flag and avoid vernal pool depression and buffer. Restore or timber mat work pad areas within 50-ft vernal pool buffer.
CVP18	564	None	None	Flag and avoid vernal pool depression and buffer.
CVP19	565	None	Wetland matting for pad overlaps buffer	Move structure ahead 30’ to avoid pool. Flag and avoid vernal pool depression and buffer.
CVP20	565	None	Wetland matting for road overlaps center of buffer	No matting replacement or removal during VP season – 4/1 to 10/15. Minimize wetland impacts. Flag and avoid vernal pool depression and buffer.
CVP21	568	None	Half of buffer overlaps pad and upland construction	Move structure behind 30’ to avoid pool. Flag and avoid vernal pool depression. Restore or timber mat work pad areas within 50-ft vernal pool buffer.
CVP22	569	None	None	Flag and avoid vernal pool depression and buffer.
CVP23	572	None	None	Flag and avoid vernal pool depression and buffer.
CVP24	580	None	None	Flag and avoid vernal pool depression and buffer.

Signatures and Certifications

(1) The information contained in or otherwise submitted with the document is true, complete, and not misleading to the best of the signer's knowledge and belief; and

(2) The signer understands that the submission of false, incomplete, or misleading information shall constitute grounds, pursuant to Fis 1004.13, for the department to:

a. Suspend consultation pending submission of true, complete, and not misleading information;

b. Terminate consultation;

c. Withdraw any recommendations made to the referring state agency under this part; or

d. Report the suspension, termination, or withdrawal of recommendations, and the full circumstances of the submission, to the referring state agency for action in the pending or completed request for a permit or other action.

Applicant:  Date: 10/2/2023

Ashley Friend, Eversource

Attachments:

Attachment A: NHB23-1105, -1106, -1107 and -1108
Attachment B: USGS Location Maps
Attachment C: Representative Photographs
Attachment D: Project Plans

ATTACHMENT A: NHB23-1105, 1106, 1107, and 1108

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

To: Tom Tetreau, Stantec
30 Park Drive
Topsham, ME 04086

From: NHB Review, NH Natural Heritage Bureau
Date: 5/9/2023 (valid until 05/09/2024)
Re: Review by NH Natural Heritage Bureau
Permits: MUNICIPAL POR - Bethlehem, NHDES - Alteration of Terrain Permit, NHDES - Shoreland Standard Permit, NHDES - Utility Statutory Permit by Notification (SPN), NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit, USEPA - Stormwater Pollution Prevention

NHB ID: **NHB23-1105** Town: Bethlehem Location: existing ROW from Sugar Hill town line, near I-93, north to Whitefield town line, north of Whitefield Road

Description: Eversource is preparing to perform field surveys and maintenance on the existing X178-3 transmission line (northernmost segment of the X178 line). The existing X178-3 line and ROW is approximately 14 miles long and 250 feet wide and runs between Sugar Hill and Whitefield. Temporary wetland impacts (matting) are anticipated to access work areas in the existing ROW. Wetland delineations, vernal pool surveys, and identification of impacts are scheduled to occur in spring 2023.

cc: NHFG Review

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB: The northern white cedar - balsam fir swamp exemplary natural community is included for informational purposes and is not expected to be impacted. Please avoid expanding the ROW or constructing access roads in the vicinity of this community.**
F&G: Please refer to NHFG consultation requirements below. Please indicate proposed project timing.

Natural Community	State[1]	Federal	Notes
Northern white cedar - balsam fir swamp*	--	--	The primary threats to this natural community are changes to the hydrology of the wetland and increased nutrient and pollutant input from stormwater runoff. Construction activity in and repeated traffic through the wetland could also deleteriously affect its sensitive vegetation.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

Vertebrate species	State[1]	Federal	Notes
Wood Turtle (*Glyptemys insculpta*)	SC	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

For all animal reviews, refer to 'IMPORTANT: NHFG Consultation' section below.

Disclaimer: A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

IMPORTANT: NHFG Consultation

If this NHB Datacheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB Datacheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://wildlife.state.nh.us/wildlife/environmental-review.html. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and **must include the NHB DataCheck results letter number and "Fis 1004 consultation request" in the subject line.**

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule)*, coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email NHFGreview@wildlife.nh.gov, and include the NHB DataCheck results letter number and "review request" in the email subject line.

Contact NH Fish & Game at (603) 271-0467 with questions.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

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New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

To: Tom Tetreau
30 Park Drive
Topsham, ME 04086

From: NH Natural Heritage Bureau

Date: 4/11/2023 (This letter is valid through 4/11/2024)

Re: Review by NH Natural Heritage Bureau of request dated 4/11/2023

Permit Types: Utility Statutory Permit by Notification (SPN)
Stormwater Pollution Prevention
Alteration of Terrain Permit
Shoreland Standard Permit
General Permit
Dalton
Wetland Standard Dredge & Fill - Major

NHB ID: NHB23-1106

Applicant: Tom Tetreau

Location: Dalton
Tax Map: multiple, Tax Lot: multiple
Address: existing ROW from Whitefield town line, near Evergreen Drive, north and back to Whitefield town line, near MirrorLake Rd

Proj. Description: Eversource is preparing to perform field surveys and maintenance on the existing X178-3 transmission line (northernmost segment of the X178 line). The existing X178-3 line and ROW is approximately 14 miles long and 250 feet wide and runs between Sugar Hill and Whitefield. Temporary wetland impacts (matting) are anticipated to access work areas in the existing ROW. Wetland delineations, vernal pool surveys, and identification of impacts are scheduled to occur in spring 2023.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

MAP OF PROJECT BOUNDARIES FOR: NHB23-1106

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord NH 03301

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

To: Tom Tetreau
30 Park Drive
Topsham, ME 04086

From: NH Natural Heritage Bureau

Date: 4/11/2023 (This letter is valid through 4/11/2024)

Re: Review by NH Natural Heritage Bureau of request dated 4/11/2023

Permit Types: Utility Statutory Permit by Notification (SPN)
Stormwater Pollution Prevention
Alteration of Terrain Permit
Shoreland Standard Permit
General Permit
Sugar Hill
Wetland Standard Dredge & Fill - Major

NHB ID: NHB23-1107

Applicant: Tom Tetreau

Location: Sugar Hill
Tax Map: multiple, Tax Lot: multiple
Address: existing ROW from Streeter Pond Road, northeast to Bethlehem town line, near I-93.

Proj. Description: Eversource is preparing to perform field surveys and maintenance on the existing X178-3 transmission line (northernmost segment of the X178 line). The existing X178-3 line and ROW is approximately 14 miles long and 250 feet wide and runs between Sugar Hill and Whitefield. Temporary wetland impacts (matting) are anticipated to access work areas in the existing ROW. Wetland delineations, vernal pool surveys, and identification of impacts are scheduled to occur in spring 2023.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

MAP OF PROJECT BOUNDARIES FOR: NHB23-1107

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord NH 03301

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

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To: Tom Tetreau, Stantec
30 Park Drive
Topsham, ME 04086

From: NHB Review, NH Natural Heritage Bureau
Date: 5/9/2023 (valid until 05/09/2024)
Re: Review by NH Natural Heritage Bureau
Permits: MUNICIPAL POR - Whitefield, NHDES - Alteration of Terrain Permit, NHDES - Shoreland Standard Permit, NHDES - Utility Statutory Permit by Notification (SPN), NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit, USEPA - Stormwater Pollution Prevention

NHB ID: **NHB23-1108** Town: Whitefield Location: existing ROW from Bethlehem town line, north of Whitefield Road, north to Whitefield substation off Route 3

Description: Eversource is preparing to perform field surveys and maintenance on the existing X178-3 transmission line (northernmost segment of the X178 line). The existing X178-3 line and ROW is approximately 14 miles long and 250 feet wide and runs between Sugar Hill and Whitefield. Temporary wetland impacts (matting) are anticipated to access work areas in the existing ROW. Wetland delineations, vernal pool surveys, and identification of impacts are scheduled to occur in spring 2023.

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB: The northern white cedar - balsam fir swamp exemplary natural community is included for informational purposes and is not expected to be impacted. Please avoid expanding the ROW or constructing access roads in the vicinity of this community.**
F&G: No comments at this time.

Natural Community	State[1]	Federal	Notes
Northern white cedar - balsam fir swamp*	--	--	The primary threats to this natural community are changes to the hydrology of the wetland and increased nutrient and pollutant input from stormwater runoff. Construction activity in and repeated traffic through the wetland could also deleteriously affect its sensitive vegetation.

[1]Codes: "E" = Endangered, "T" = Threatened, “SC” = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
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Disclaimer: A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

IMPORTANT: NHFG Consultation

If this NHB Datacheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

If this NHB Datacheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://wildlife.state.nh.us/wildlife/environmental-review.html. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and **must include the NHB DataCheck results letter number and "Fis 1004 consultation request" in the subject line.**

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Contact NH Fish & Game at (603) 271-0467 with questions.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

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ATTACHMENT B: USGS LOCATION MAP

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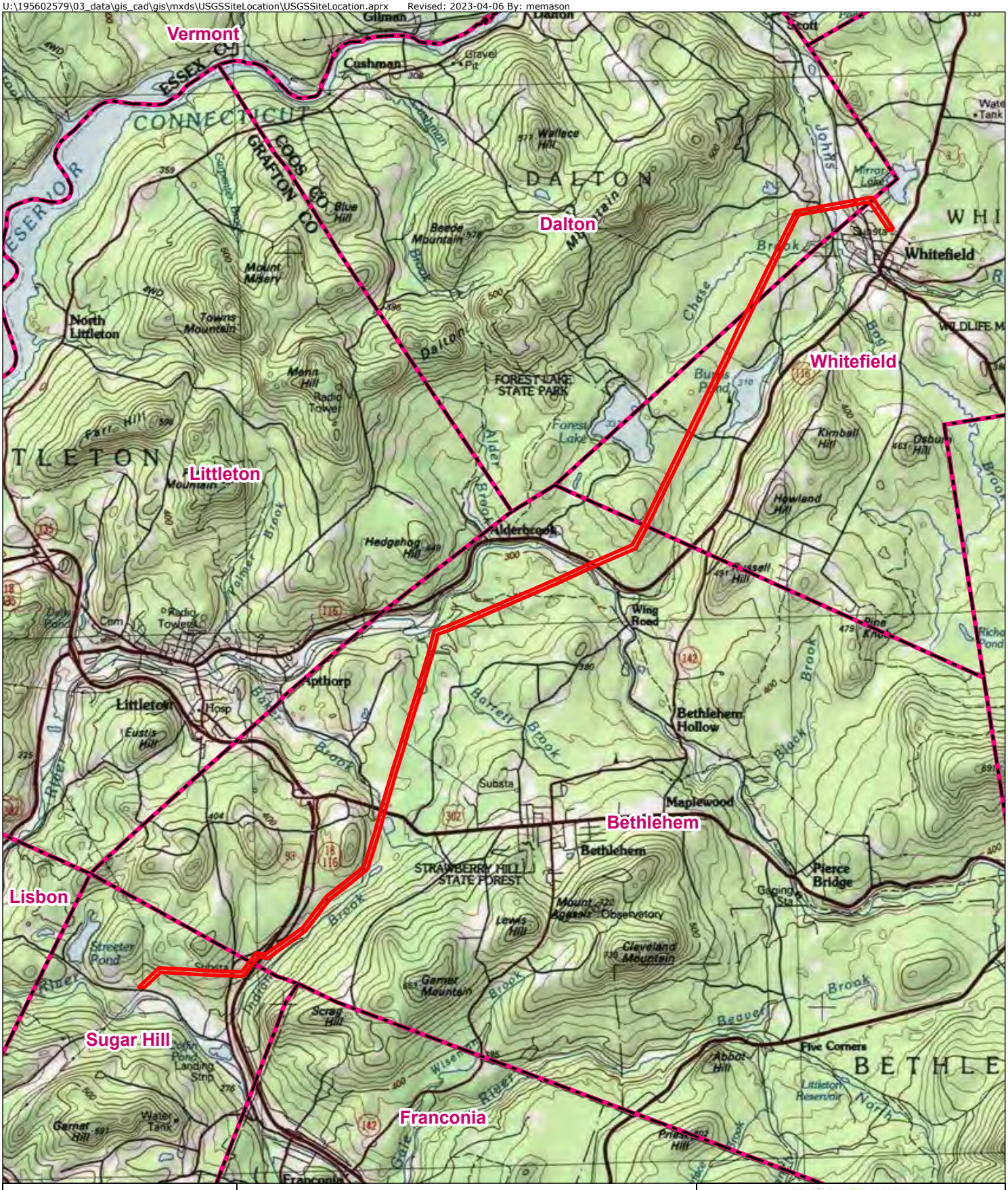
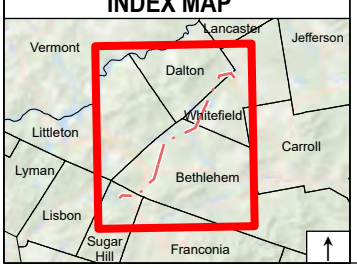


INDEX MAP



Legend

- Approximate Project Limits
- Municipal Boundary

N

1 inch = 2 Miles

0 1 2 Miles

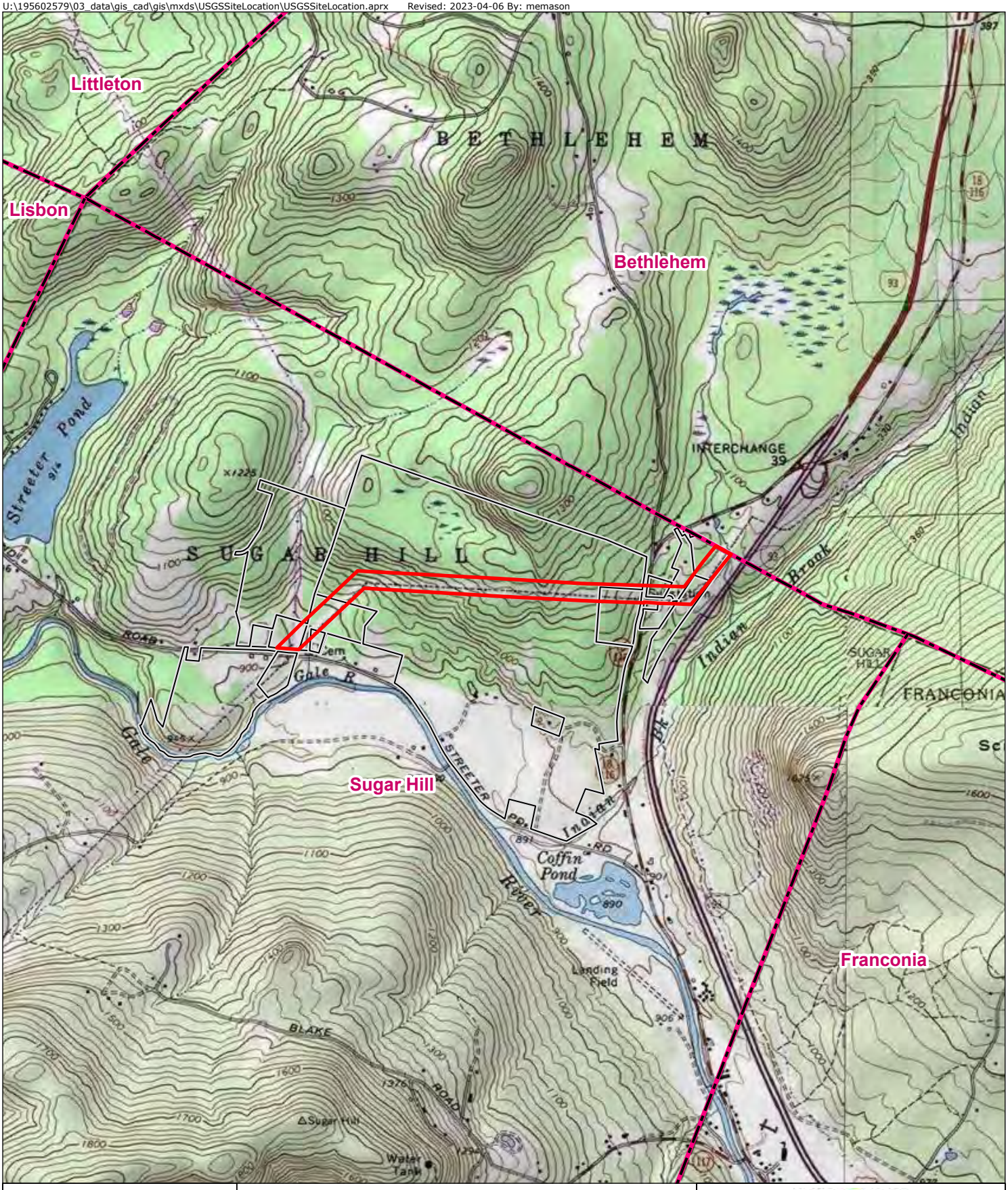
EVERSOURCE ENERGY

X178-3 Line
Structure Replacement Project

Date: April 06, 2023

Figure 1
USGS Location Map

U:\195602579\03_data\gis_cad\gis\mxds\USGSSiteLocation\USGSSiteLocation.aprx Revised: 2023-04-06 By: memason



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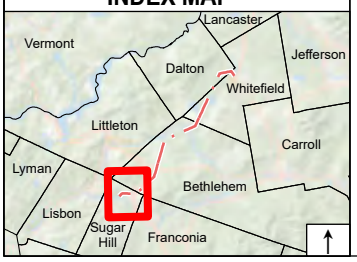


Legend

- Approximate Project Limits
- Municipal Boundary
- Abutting Parcel Boundary

N

1 inch = 2,000 feet

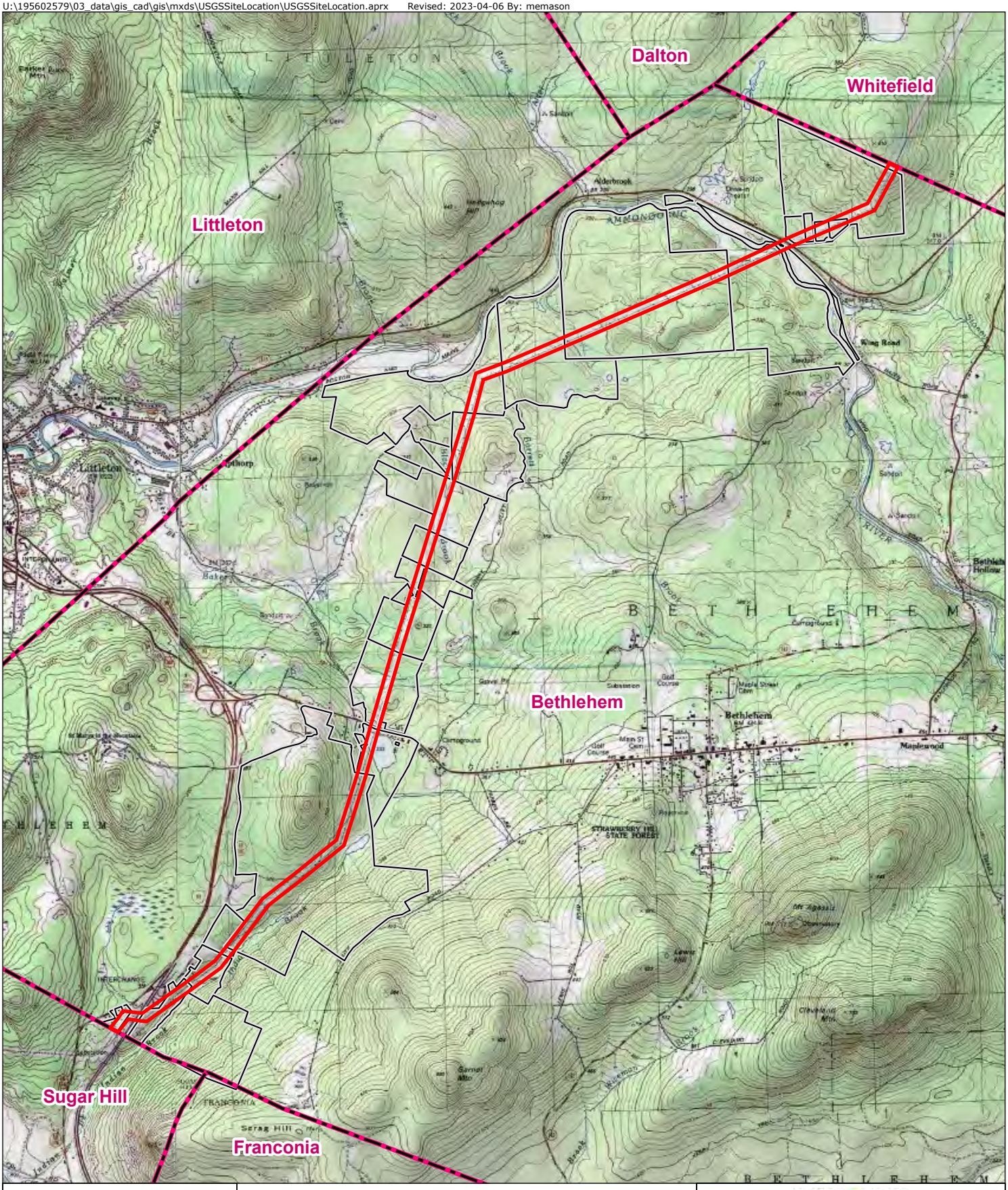
0 1,000 2,000 Feet

EVERSOURCE ENERGY

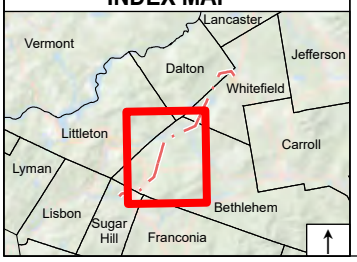
X178-3 Line
Structure Replacement Project
Sugar Hill, NH

Date: April 06, 2023

Figure 1
USGS Location Map



INDEX MAP



Legend

- Approximate Project Limits
- Municipal Boundary
- Abutting Parcel Boundary

N

1 inch = 4,000 feet

0 2,000 4,000 Feet

EVERSOURCE ENERGY

X178-3 Line
Structure Replacement Project
Bethlehem, NH

Date: April 06, 2023

Figure 1
USGS Location Map

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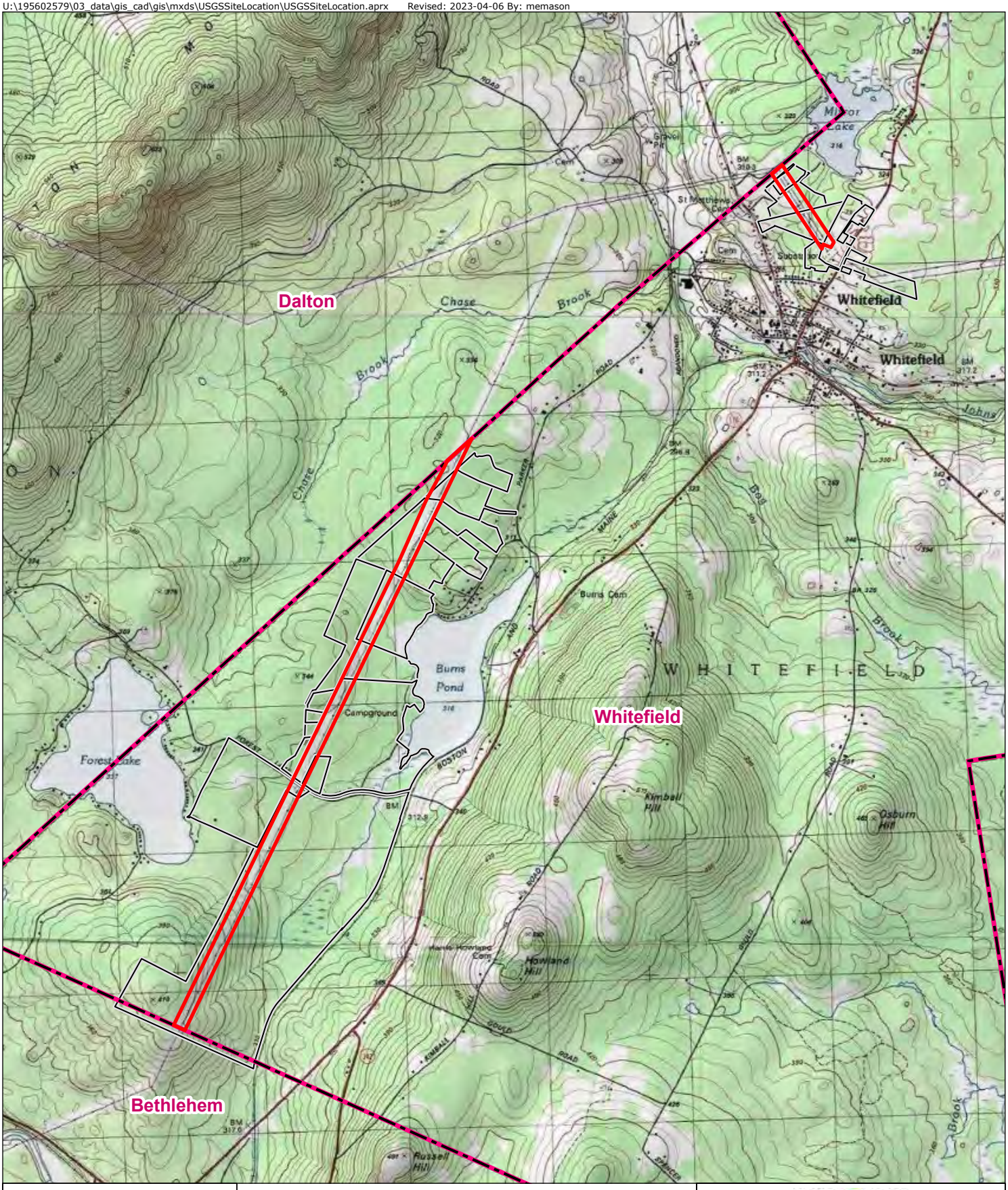

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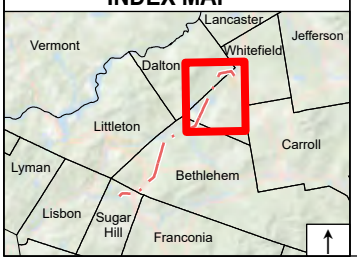


Legend

- Approximate Project Limits
- Municipal Boundary
- Abutting Parcel Boundary

N

1 inch = 3,000 feet

0 1,500 3,000 Feet

EVERSOURCE ENERGY

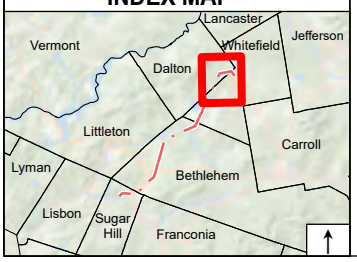
X178-3 Line
Structure Replacement Project
Whitefield, NH

Date: April 06, 2023

Figure 1
USGS Location Map

U:\195602579\03_data\gis_cad\gis\mxds\USGSSiteLocation\USGSSiteLocation.aprx Revised: 2023-04-06 By: memason

INDEX MAP



Legend

- Approximate Project Limits
- Municipal Boundary
- Abutting Parcel Boundary

N

1 inch = 2,000 feet

0 1,000 2,000 Feet

EVERSOURCE ENERGY

X178-3 Line
Structure Replacement Project
Dalton, NH

Date: April 06, 2023

Figure 1
USGS Location Map

ATTACHMENT C: REPRESENTATIVE PHOTOGRAPHS

Photo 1. Shrub-dominated ROW uplands looking northeast to structure 405. May 8, 2023.

Photo 2. Perennial stream crosses ROW between structure 408 and structure 409. May 8, 2023.

Photo 3. Perennial stream west of structure 414. Span stream. May 8, 2023.

Photo 4. Vernal pool 1 near structure 417. Flag and avoid pool. May 8, 2023.

Photo 5. Scrub-shrub wetland and silt fencing just east of Rte 18. May 8, 2023.

Photo 6. Scrub-shrub wetland south of structure 421. May 8, 2023.

Photo 7. Looking north into large scrub-shrub wetland near structure 422. May 8, 2023.

Photo 8. Steep bank shrub-dominated ROW below Hwy 93 and structure 430. May 8, 2023.

Photo 9. Ephemeral stream across ROW near structure 426. Span stream. May 8, 2023.

Photo 10. Scrub-shrub wetland near structure 431. May 9, 2023.

Photo 11. Scrub-shrub wetland above Indian Brook near structure 433. May 9, 2023.

Photo 12. Birch-alder wetland and stream between structure 436 and 437. Avoid. May 9, 2023.

Photo 13. Perennial brook (Indian Brook) structure 440-441. Avoid brook, span tributary. May 9, 2023.

Photo 14. Emergent and scrub-shrub wetland near structure 446. May 9, 2023.

Photo 15. View south to structure 447. Early successional shrub-dominated uplands and scrub-shrub wetland near Indian Brook. May 9, 2023.

Photo 16. Vernal pool 2 on edge of ROW above structure 451. Flag and avoid pool. May 8, 2023

Photo 17. Scrub-shrub wetland in ROW near structure 453. May 9, 2023.

Photo 18. Early successional shrub-dominated, palustrine wetlands on north side of Miller Pond near structure 461, looking south to structure 460. Avoid impacts on north side; temporary matting outside turtle dormant season on southside. May 9, 2023.

Photo 19. Vernal pool 3 near structure 469. Flag and avoid pool. May 9, 2023.

Photo 20. Vernal pool 4 near structure 474. Move structure back 30’ to avoid pool depression. May 9, 2023.

Photo 21. Vernal pool 5 near structure 475. Flag and avoid pool. May 9, 2023.

Photo 22. Vernal pool 6 near structure 475. Flag and avoid pool depression. May 9, 2023.

Photo 23. Black Brook and scrub-shrub wetlands near structure 474. May 9, 2023.

Photo 24. Emergent scrub-shrub wetland and early succession uplands near structure 480. May 9, 2023.

Photo 25. Scrub-shrub wetland looking northwest to Ammonoosuc River near structure 484. May 9, 2023.

Photo 26. Vernal pool 7 near structure 475. Flag and avoid pool depression. May 10, 2023.

Photo 27. Upland ROW looking north to structure 489-490. May 10, 2023.

Photo 28. Scrub-shrub wetland near structure 499. May 10, 2023.

Photo 29. Large pool with ephemeral drainage on north bank of Ammonoosuc River near structure 506. May 10, 2023.

Photo 30. Vernal pool 8 near structure 508. Flag and avoid pool depression. May 10, 2023.

Photo 31. Vernal pool 9 near structure 515. Flag and avoid pool depression. May 10, 2023.

Photo 32. Stream wetland complex south of Forest Lake Road and structure 533. May 10, 2023.

Photo 33. Vernal pool 10 near structure 533-534. Flag and avoid pool depression. May 10, 2023.

Photo 34. Vernal pool 11 near structure 535. Flag and avoid pool depression. May 10, 2023.

Photo 35. Vernal pool 12 near structure 539. Flag and avoid pool depression. May 10, 2023.

Photo 36. Vernal pool 13 near structure 540. Flag and avoid pool depression. May 10, 2023.

Photo 37. Vernal pool 14 near structure 546. Flag and avoid pool depression. May 10, 2023.

Photo 38. Vernal pool 15 near structure 553. Flag and avoid pool depression. May 10, 2023.

Photo 39. Vernal pool 16 near structure 554. Flag and avoid pool depression. May 10, 2023.

Photo 40. Vernal pool 17 near structure 556. Flag and avoid pool depression. May 10, 2023.

Photo 41. Vernal pool 18 near structure 564. Flag and avoid pool depression. May 10, 2023.

Photo 42. Vernal pool 19 near structure 565. Move structure ahead 30’. Flag and avoid pool depression. May 10, 2023.

Photo 43. Vernal pool 20 near structure 565. No matting replacement or removal during VP season. Flag and avoid pool depression. May 10, 2023.

Photo 44. Vernal pool 21 near structure 568. Move structure behind 30’ to avoid pool. Flag and avoid pool depression. May 10, 2023.

Photo 45. Vernal pool 22 near structure 569. Flag and avoid pool depression. May 10, 2023.

Photo 46. Vernal pool 23 near structure 572. Flag and avoid pool depression. May 10, 2023.

Photo 47. Vernal pool 24 near structure 580. Flag and avoid pool depression. May 10, 2023.

Ackerman, Andrew

To: nhbreview@dncr.nh.gov
Cc: Friend, Ashley C; Hunt, Jessica; Tetreau, Thomas; Arsenault, Matt
Subject: NHB23-1105, NHB23-1106, NHB23-1107, NHB23-1108: X178-3 NHB Consultation

Maddie and Ashley,

Thank you for providing the NHB DataCheck letters for Eversource's Sugar Hill to Whitefield (X178-3) Line Rebuild Project. The current scope of work proposes to replace the remaining wooden structures with new steel structures due to age, cracking, rot, leaning, and woodpecker damage. The overhead wires will also be replaced to meet new electrical standards. It is assumed that all structures will need to be accessed during the pole and line replacement work across the entire length of segment 3 of the approximately 14-mile ROW. Existing access roads will be utilized wherever possible, and new access roads and work pads will be created to reach the structure replacement and wire work locations. Temporary wetland matting will be required where wetland crossings are unavoidable and/or where existing structures are located in wetlands. Minor tree trimming may be required in some areas where vegetation is encroaching on the overhead wires, but no significant tree clearing is proposed.

Please see responses below to address the results of the DataCheck letters. Here is a link to the latest map set (good for three days), let me know if you have issues downloading:
PERMIT_X178-3_MapSet_20230929.pdf

Please let us know if you have any additional recommendations or information about the project and/or project area. Eversource is consulting with NHFG regarding the wildlife species identified in the NHB DataCheck letters.

Thanks.

Bethlehem, NHB23-1105: A northern white cedar – balsam fir swamp exemplary community is located approximately 1 mile north of the existing ROW northern segment in Bethlehem. Vegetation is maintained within the ROW and typically cut every 4-5 years to prevent shrubs and saplings from interfering with the conductors and therefore the habitat within the ROW does not match that of the forested areas outside the ROW (see attached photos). No tree clearing or ROW widening is proposed and no work will be performed outside the existing ROW in the vicinity of the northern white cedar – balsam fir swamp in Whitefield.

Dalton, NHB23-1106: No comments currently.

Sugar Hill, NHB23-1107: No comments currently.

Whitefield, NHB23-1108: A northern white cedar – balsam fir swamp exemplary community is located approximately 0.5 mile east of the existing ROW in the southern portion of Whitefield. Vegetation is maintained within the ROW and typically cut every 4-5 years to prevent shrubs and saplings from interfering with the conductors and therefore the habitat within the ROW does not match that of the forested areas outside the ROW (see attached photos). No tree clearing or ROW widening is proposed and no work will be performed outside the existing ROW in the vicinity of the northern white cedar – balsam fir swamp in Whitefield.

Andrew Ackerman AICP, CESCL
Sr. Environmental Scientist

Direct: 603-413-7731
Cell: 603-877-8198
Fax: 207 729-2715
andrew.ackerman@stantec.com

Stantec
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984

From:	Ackerman, Andrew
To:	kevin.m.newton@wildlife.nh.gov; Melissa.J.Winters@wildlife.nh.gov
Cc:	Tetreau, Thomas; Hunt, Jessica; Friend, Ashley C; Harris, Samuel D; Kurt.nelson@eversource.com
Subject:	Eversource - Sugar Hill, NH to Whitefield, NH: X178-3 NHFG Pre-application Consultation
Date:	Tuesday, October 3, 2023 4:32:00 PM
Attachments:	image001.png 20231003_X178_NHFG_DataPackage.zip image002.png

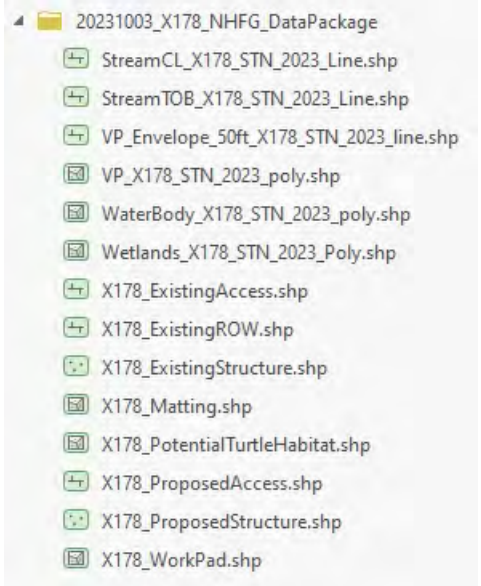
Hello Kevin and Melissa,
Please see the links below for a consultation request under FIS 1004 for the Sugar Hill to Whitefield (X178-3) segment project. Eversource Energy is preparing for transmission line structure replacement work on their existing X178-3 transmission line which runs from the Sugar Hill Junction and switchyard to the Whitefield Substation in Whitefield, NH (14 miles). Eversource is proposing to replace 185 structures as well as the overhead lines. Construction is expected to begin in April 2024 and continue through Fall 2025.

The DataCheck Results Letters for activities within this ROW identified the presence of one listed wildlife species within the vicinity of the ROW. Eversource has proposed conservation measures and best management practices to avoid and minimize impacts to state-listed species potentially utilizing portions of this ROW.

Based on an initial evaluation of impacts, we anticipate filing a variety of federal, state, and local permits, including a Standard Dredge and Fill (SDF), and an Alteration of Terrain Application (AOT). Given the length of the project and the avoidance and mitigation of construction work resulting in primarily temporary impacts to wetlands, wetland soils, and the total avoidance of all vernal pools, we will be submitting the SDF wetlands and AOT applications and will be requesting a pre-application meeting with NHDES soon. These files and other pre-application required materials will be sent separately to NHDES. If it works out, perhaps we can have all agencies/reviewers present at that meeting.

Shapefiles of project features and delineated resources are attached (below is also a snapshot of all features included in the zip file). The consultation request memo contains the project map set, but I've included a separate links below for just the mapping if that is helpful for your review. Please reach out anytime if you have questions or need any other materials. The links below expire in two days.

X178-3_USGSSiteLocation_MapSet.pdf
PERMIT_X178-3_MapSet_20230929.pdf
mem_X178-3_FGD_consultation_request_20231002Final.pdf



Andrew Ackerman AICP, CESCL
Sr. Environmental Scientist

Direct: 603-413-7731
Cell: 603-877-8198
Fax: 207 729-2715
andrew.ackerman@stantec.com

Stantec
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984

From: Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Sent: Friday, December 1, 2023 10:23 AM
To: Tom Tetreau <tom.tetreau@stantec.com>
Cc: FGC: NHFG review <NHFGreview@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Friend, Ashley C <ashley.friend@eversource.com>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Mauck, Ridgely <Addison.R.Mauck@des.nh.gov> **Subject:** NHB23-1106, NHB23-1107 and NHB23-1108 X178-03 Sugar Hill, Bethlehem, Whitefield, Dalton

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Good morning,

New Hampshire Fish and Game (NHFG) has reviewed the materials submitted by Stantec and Eversource on October 3, 2023 for consultation on NHB23-1106, NHB23-1107 and NHB23-1108. The proposed project is for structure replacement work within the existing X178-03 transmission line in

Sugar Hill, Bethlehem, Whitefield, and Dalton.

Permit applications associated with this review:

- NHDES Standard Dredge and Fill Wetlands Permit
- NHDES Alteration of Terrain Permit

Please provide permit numbers if obtained.

Notify NHFG if/when phases on this project begin and finish. Please use subject line "NHBxx-xxxx X178 Structure Replacement Work Start/End Notification." Notify NHFG if there are any breaks in the schedule for active work zones.

Please note that "active season" dates for rare species are variable based on weather and other environmental factors. NHFG may recommend dates that vary from initial reviews based on available information of animal activity.

Based on the NHB datacheck results letter and the information provided in the submission, we request the following recommended permit conditions. These recommended permit conditions area applicable to all state permits listed above. Please include recommended permit conditions in final plan sheets or environmental resources map as written below (updated highlighted text as applicable) and provide to NHDES for final review, with a copy to NHFG. Permit reviewers will adopt/include NHFG permit conditions in the permit if approved.

New Hampshire Fish and Game Permit Conditions: NHB23-1106, NHB23-1107 and NHB23-1108

1. Wood turtle (state species of special concern) occur within the vicinity of the project area. All operators and personnel working on or entering the site shall be made aware of the potential presence of these species and shall be provided flyers that help to identify these species, along with NHFG contact information. See Plan Sheet xxxxxx. *Include attached flyers to plan sheet set.*
2. Rare species information (e.g. identification, observation and reporting of observations, when to contact NHFG immediately and NHFG contact information) shall be posted on site at all times and communicated during morning tailgate meetings prior to work commencement.
3. Turtles and snakes may be attracted to disturbed ground during nesting season. Turtle nesting season occurs approximately May 15th – June 30th. Nesting areas may include work pads and access roads that are not hard pack gravel and other sandy/gravel work areas. All turtle species nests are protected by NH laws. Be aware of the potential to encounter nesting wildlife in these areas.

4. If a nest is observed or suspected, operators shall contact Melissa Winters (603-479-1129) or Josh Megyesy (978-578-0802) at NHFG immediately for further consultation. The nest or suspected nest shall be marked (surrounding roped off or cone buffer) and avoided; this shall be communicated to all personnel onsite. Site activities shall not occur in the area surrounding the nest or suspected nest until further guidance is provided by NHFG.
5. Vernal pools and potential vernal pools (PVP) shall be flagged prior to work, and impacts shall be avoided.

6. No disturb vegetative buffers of 50' shall be maintained around vernal pools wherever possible. NHFG acknowledges impacts within 50' of the following vernal pools:
    a. CVP14, CVP16, CVP17, CVP19, CVP20, and CVP21.
7. All matting which will be placed in waterbodies deemed suitable for hibernating rare turtles will be placed prior to the start of the inactive season (October 16-March 31) so as to prevent accidental placement atop hibernating turtles. Areas identified as suitable hibernation habitat shall be identified on plan sheets and provided to NHFG at least two weeks prior to beginning work.
8. Immediately prior to the placement of matting in wetlands during the active season (April 1-October 15), the areas shall be cleared by a trained individual. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site. Contact NHFG if turtles in matting areas are observed or suspected.
9. For all work pads, staging areas, matting, and access roads, searches and sweeps shall be conducted by trained individuals immediately before the start of work and movement of equipment in order to minimize the chance of animals entering an area between the sweep and work. A trained individual shall be defined as any contractor who has gone through project-species protection education conducted by the qualified biologist on rare wildlife species at the site.
10. All work activities shall be restricted to the defined roads, construction areas, and staging areas, with no equipment or materials staged or stored outside of the defined areas as shown on plan sheets or equivalent document.
    a. Minor field changes to access roads and work pads including: shifting access from one side of the right of way to the other, shifting of work pads and staging areas forward or backwards, but not increasing the overall square footage of the work pads or staging areas, may be considered based on location. NHFG shall be notified of any proposed changes.
11. Work, pull pads, and access shall be minimized to the greatest extent possible.
12. Work pads shall be reduced post-construction to 30' x 60' and restored with a native vegetative seed mix.
13. All manufactured erosion and sediment control products, with the exception of turf reinforcement mats, utilized for, but not limited to, slope protection, runoff diversion, slope interruption, perimeter control, inlet protection, check dams, and sediment traps shall not contain plastic, or multifilament or monofilament polypropylene netting or mesh with an opening size of greater than 1/8 inches; See Plan Sheet xxxxxx.
14. All observations of threatened or endangered species on the project site shall be reported immediately to the NHFG nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at NHFGreview@wildlife.nh.gov, with the email subject line containing the NHB DataCheck tool results letter assigned number, the project name, and the term Wildlife Species Observation;
15. Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHFG in digital format at the above email address for verification, as feasible;
16. In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to

consultation with NHFG and implementation of corrective actions recommended by NHFG.

a. Site operators or Trained Individuals shall be allowed to relocate wildlife encountered if discovered within the active work zone and if in direct harm from project activities. Wildlife shall be relocated in close proximity to the capture location but outside of the work zone and in the direction the individual was heading. NHFG shall be contacted immediately if this action occurs.

17. The NHFG, including its employees and authorized agents, shall have access to the property during the term of the permit.

-

NHFG has completed our review of materials submitted for consultation under FIS 1004. No further coordination with NHFG is requested, and the final recommendations have been transmitted to the applicable permitting agency. Questions or concerns on NHFG recommendations must follow FIS 1004.12. Note that NHFG recommendations may be withdrawn pursuant to FIS 1004.13.

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Sincerely,

Kevin Newton
Wildlife Biologist
NH Fish and Game Department
Wildlife Division
11 Hazen Drive, Concord NH 03301
Phone: 603-271- 5860

New Hampshire Fish and Game requirements for environmental review consultation can be found at: https://gencourt.state.nh.us/rules/state_agencies/fis1000.html. ALL requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent hardcopy by mail. **The NHB datacheck results letter number needs to be included in the email subject line to read as "NHB*xx-xxxx_Project Name*_FIS 1004 Consultation Submittal".**

The requirements for consultation (Fis 1004) shall not apply to the following: statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule. Review requests for these projects or other project types should be submitted to NHFGreview@wildlife.nh.gov or can be sent hardcopy by mail – email or mail subject line for these review requests should read **"NHBxx-xxxx_Project Name_ Env. Review Request".**

Please provide shapefiles/KMZ/KMLs of the project site (and relevant features if applicable) with your submittal. Review statements provided in the NHB Datacheck Results letter for additional guidance.

-

-

Tetreau, Thomas

From: Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Sent: Wednesday, January 17, 2024 11:19 AM
To: Friend, Ashley C
Cc: Ackerman, Andrew; Tetreau, Thomas; Hunt, Jessica; FGC: NHFG review
Subject: RE: NHB23-1106, NHB23-1107 and NHB23-1108 X178-03 Sugar Hill, Bethlehem, Whitefield, Dalton

Hi Ashley,

I apologize for the oversight. I re-reviewed the consultation materials and note that the impacts to the 50 foot buffers of CVP04, CVP07, CVP08, and CVP09 were included in the submission, along with a description of the impacts.

As such, NHFG acknowledges the impacts to the 50 foot buffers to CVP04, CVP07, CVP08, and CVP09 associated with NHB23-1106, NHB23-1107, NHB23-1108 X178-3 structure replacement project and does not have further comment.

Thank you,

Kevin Newton
Wildlife Biologist
NH Fish and Game Department
Wildlife Division
11 Hazen Drive, Concord NH 03301
Phone: 603-271- 5860

New Hampshire Fish and Game requirements for environmental review consultation can be found at: https://gencourt.state.nh.us/rules/state_agencies/fis1000.html. ALL requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent hardcopy by mail. **The NHB datacheck results letter number needs to be included in the email subject line to read as "NHB*xx-xxxx_Project Name*_FIS 1004 Consultation Submittal".**

The requirements for consultation (Fis 1004) shall not apply to the following: statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule. Review requests for these projects or other project types should be submitted to NHFGreview@wildlife.nh.gov or can be sent hardcopy by mail – email or mail subject line for these review requests should read **"NHBxx-xxxx_Project Name_ Env. Review Request".**

Please provide shapefiles/KMZ/KMLs of the project site (and relevant features if applicable) with your submittal. Review statements provided in the NHB Datacheck Results letter for additional guidance.

From: Friend, Ashley C <ashley.friend@eversource.com>
Sent: Wednesday, January 17, 2024 9:36 AM
To: Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Cc: Ackerman, Andrew <Andrew.Ackerman@stantec.com>; Tom Tetreau <Tom.Tetreau@stantec.com>; Hunt, Jessica <jessica.hunt@stantec.com>
Subject: RE: NHB23-1106, NHB23-1107 and NHB23-1108 X178-03 Sugar Hill, Bethlehem, Whitefield, Dalton

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Hi Kevin,

We are preparing to submit NHDES permit applications for the X178-3 Line Rebuild and noticed a discrepancy between the NHFG permit conditions below and the consultation materials that were provided. Vernal pools CVP04, CVP07, CVP08, and CVP09 also have proposed work within the 50-foot buffers that cannot be avoided. The vernal pool depressions will be completely avoided and temporary impacts to the 50' buffer will be restored upon completion of work.

The map sheets that were included in the original consultation containing these vernal pools are attached.

Can you please acknowledge the impacts to the 50-foot buffers of these vernal pool buffers, as you have below for CVP14, CVP16, CVP17, CVP19, CVP 20, and CVP21?

Please let us know if you need more information about these locations.

Thanks for your help!

Ashley

ASHLEY FRIEND
Specialist - Licensing & Permitting
EVERSOURCE
13 Legends Drive, Hooksett, NH 03106
603-634-2992
Ashley.Friend@Eversource.com

From: Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Sent: Friday, December 1, 2023 10:23 AM
To: Tom Tetreau <tom.tetreau@stantec.com>
Cc: FGC: NHFG review <NHFGreview@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Friend, Ashley C <ashley.friend@eversource.com>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Mauck, Ridgely <Addison.R.Mauck@des.nh.gov>
Subject: NHB23-1106, NHB23-1107 and NHB23-1108 X178-03 Sugar Hill, Bethlehem, Whitefield, Dalton

---

Good morning,

New Hampshire Fish and Game (NHFG) has reviewed the materials submitted by Stantec and Eversource on October 3, 2023 for consultation on NHB23-1106, NHB23-1107 and NHB23-1108. The proposed project is for structure replacement work within the existing X178-03 transmission line in Sugar Hill, Bethlehem, Whitefield, and Dalton.

Permit applications associated with this review:

- NHDES Standard Dredge and Fill Wetlands Permit
- NHDES Alteration of Terrain Permit

Please provide permit numbers if obtained.

From: DNCR: NHB Review
To: Ackerman, Andrew
Cc: Friend, Ashley C; Hunt, Jessica; Tetreau, Thomas; Arsenault, Matt
Subject: RE: NHB23-1105, NHB23-1106, NHB23-1107, NHB23-1108: X178-3 NHB Consultation
Date: Thursday, October 19, 2023 8:50:55 AM
Attachments: image001.png

Hi Andrew,

Thank you for following up regarding **X178-3 Line Rebuild Project** (NHB23-1105, NHB23-1106, NHB23-1107, NHB23-1108). I have reviewed your detailed description of work activities below, and the latest map set for this proposed project.

NHB has no additional recommendations or concerns regarding proposed work activities potentially impacting the **Northern white cedar – balsam fir swamp exemplary natural community** (ENC).

Please contact NHB if scope of work changes and impact may occur outside of the ROW, particularly near the ENC in Whitefield.

I appreciate your time, and hope you have a great rest of your day!

Ashley Litwinenko
Environmental Reviewer
Natural Heritage Bureau (NHB)
Division of Forests & Lands - DNCR
172 Pembroke Rd., Concord, NH 03301
Phone: 603-271-2834
Datacheck Tool
NHB Botany Information

IMPORTANT INFORMATION BELOW

Ashley Litwinenko - Natural Heritage Bureau's Environmental Reviewer, will be on an **extended absence beginning in early November until February 2024.**
During that time, follow-up on Environmental Review related emails **may be delayed up to 2 weeks.** NHB DataCheck Letters will continue to be distributed, and NHB DataCheck Tool assistance will continue to be available.
For time sensitive recommendations from NHB, please email NHBReview@dncr.nh.gov prior to early November.

Thank you for your understanding.

From: Ackerman, Andrew <Andrew.Ackerman@stantec.com>
Sent: Thursday, October 19, 2023 12:40 PM
To: DNCR: NHB Review <nhbreview@dncr.nh.gov>
Subject: RE: NHB23-1105, NHB23-1106, NHB23-1107, NHB23-1108: X178-3 NHB Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project Code: 2023-0068028
Project Name: X178-3 Transmission Line

April 12, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 3/8/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (Updated 3/8/2023) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule will go into effect on **March 31, 2023**. After that date, the current 4(d) rule for NLEB will be invalid, and the 4(d) determination key will no longer be available. New compliance tools will be available in March 2023, and information will be posted in this section on our website and on the northern long-eared bat species page, so please check this site often for updates.

Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project may result in incidental take of NLEB after the new listing goes into effect, this will need to be addressed in an updated consultation that includes an Incidental Take Statement. Many of these situations will be addressed through the new compliance tools. If your project may require re-initiation of consultation, please wait for information on the new tools to appear on this site or contact our office for additional guidance.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2023-0068028
Project Name: X178-3 Transmission Line
Project Type: Transmission Line - Maintenance/Modification - Above Ground
Project Description: Rebuild of existing transmission line in existing cleared ROW. Work limited to existing ROW and existing access roads. Scheduled to occur between Summer 2024 and Fall 2025.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.38353415,-71.6208952699221,14z

Counties: Coos and Grafton counties, New Hampshire

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPAC USER CONTACT INFORMATION

Agency: Stantec
Name: Tom Tetreau
Address: 30 Park Drive
City: Topsham
State: ME
Zip: 04086
Email tom.tetreau@stantec.com
Phone: 2075047231

APPENDIX D NATURAL RESOURCES CONSERVATION SERVICE SOIL REPORT

United States Department of Agriculture

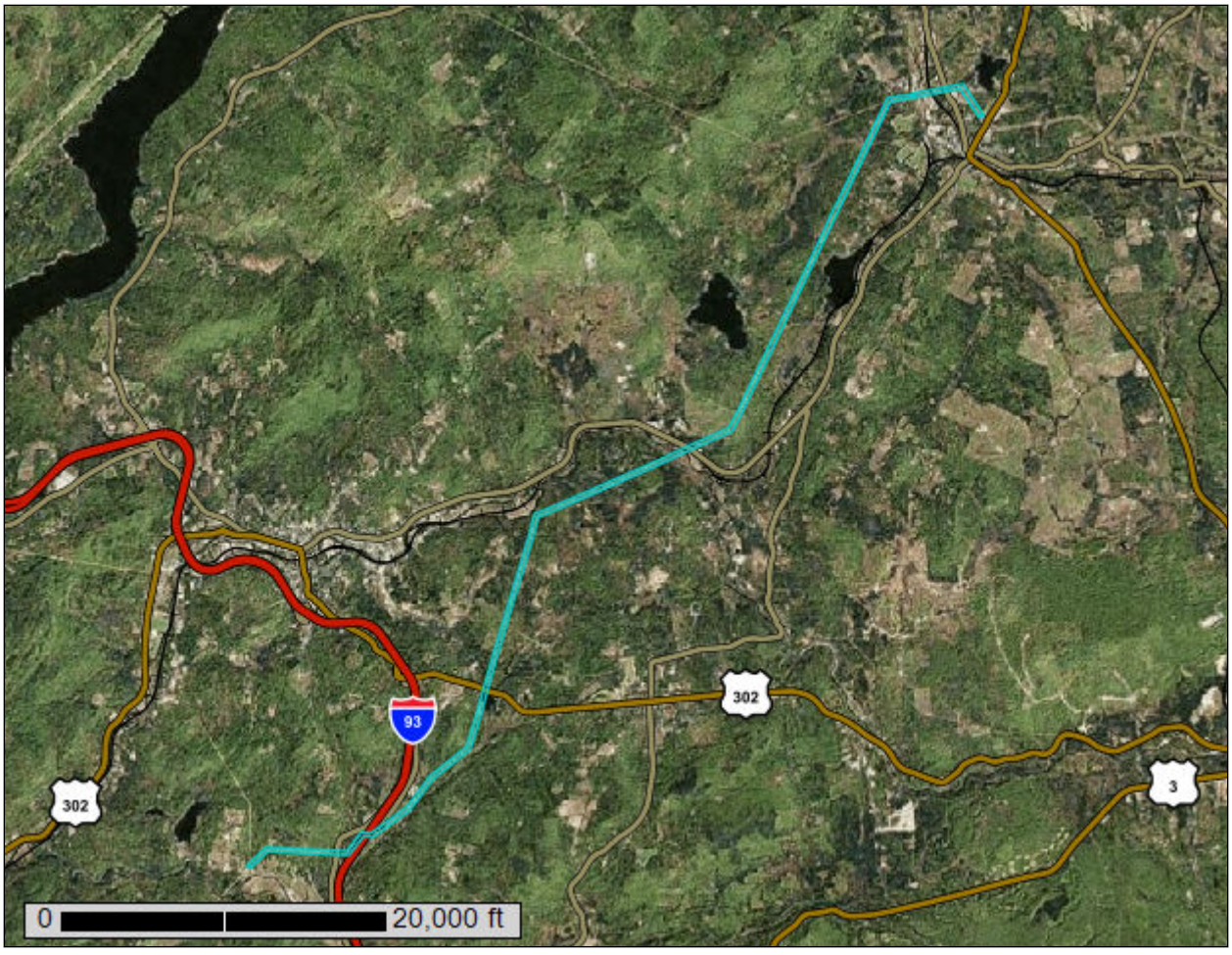
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Coos County Area, New Hampshire, and Grafton County, New Hampshire

Eversource Sugar Hill to Whitefield (X178-3) Project



January 29, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

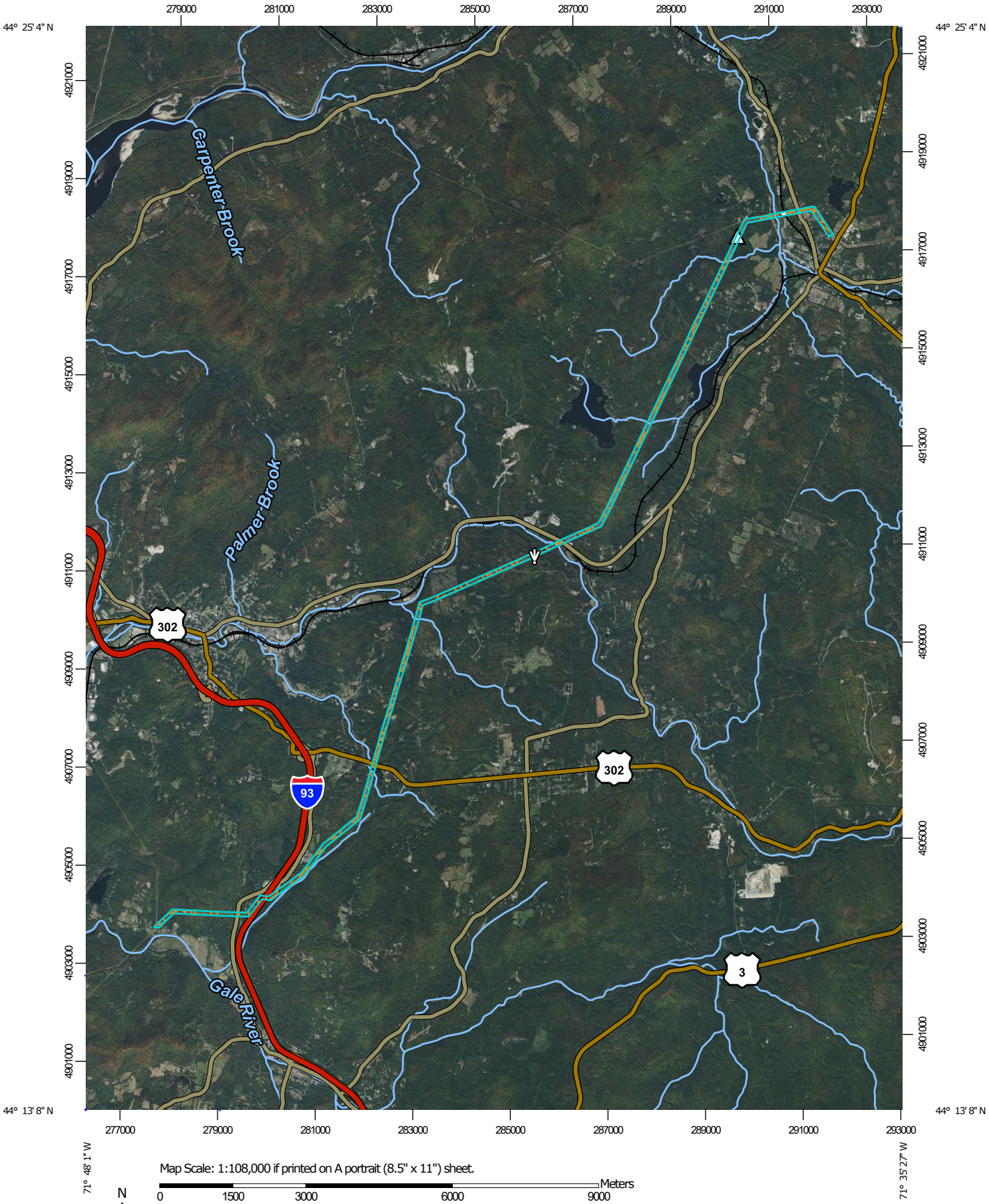
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:108,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 1500 3000 6000 9000

Feet
0 5000 10000 20000 30000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Coos County Area, New Hampshire
Survey Area Data: Version 29, Aug 22, 2023

Soil Survey Area: Grafton County, New Hampshire
Survey Area Data: Version 27, Aug 22, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 21, 2020—Nov 10, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
14B	Sheepscot cobbly very fine sandy loam, 1 to 8 percent slopes	0.4	0.1%
22C	Colton gravelly sandy loam, 8 to 15 percent slopes	2.1	0.5%
27B	Groveton fine sandy loam, 3 to 8 percent slopes	0.5	0.1%
27C	Groveton fine sandy loam, 8 to 15 percent slopes	3.6	0.8%
61E	Tunbridge-Lyman-Rock outcrop complex, 25 to 60 percent slopes	2.0	0.4%
72B	Berkshire fine sandy loam, 3 to 8 percent slopes	3.3	0.7%
72C	Berkshire fine sandy loam, 8 to 15 percent slopes	3.8	0.8%
76B	Marlow fine sandy loam, 3 to 8 percent slopes	0.3	0.1%
79B	Peru fine sandy loam, 0 to 8 percent slopes, very stony	29.9	6.4%
79C	Peru fine sandy loam, 8 to 15 percent slopes, very stony	2.1	0.4%
105A	Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded	2.4	0.5%
143B	Monadnock fine sandy loam, 0 to 8 percent slopes, very stony	5.5	1.2%
143E	Monadnock fine sandy loam, 25 to 50 percent slopes, very stony	1.6	0.4%
169B	Sunapee fine sandy loam, 0 to 8 percent slopes, very stony	0.0	0.0%
169C	Sunapee fine sandy loam, 8 to 15 percent slopes, very stony	6.5	1.4%
214B	Naumburg fine sandy loam, 3 to 8 percent slopes	0.6	0.1%
247B	Lyme fine sandy loam, 0 to 8 percent slopes, very stony	24.6	5.3%
273E	Berkshire, Monadnock, and Hermon soils, 15 to 35 percent slopes, extremely bouldery	9.9	2.1%
355C	Hermon sandy loam, 8 to 15 percent slopes, extremely bouldery	8.7	1.9%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
406A	Medomak mucky silt loam, 0 to 2 percent slopes, frequently flooded	0.6	0.1%
415B	Moosilauke loam, 3 to 8 percent slopes, very stony	14.2	3.0%
470B	Tunbridge-Peru complex, 3 to 8 percent slopes, rocky	12.6	2.7%
549A	Peacham mucky peat, 0 to 8 percent slopes, very stony	9.3	2.0%
579B	Dixmont very fine sandy loam, 3 to 8 percent slopes, very stony	7.3	1.6%
579C	Dixmont very fine sandy loam, 8 to 15 percent slopes, very stony	8.3	1.8%
613B	Croghan loamy fine sand, 0 to 8 percent slopes	1.9	0.4%
647B	Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony	5.8	1.2%
647C	Pillsbury fine sandy loam, 8 to 15 percent slopes, very stony	2.4	0.5%
670C	Tunbridge-Berkshire-Lyman complex, 8 to 15 percent slopes	6.4	1.4%
895A	Bucksport muck, 0 to 2 percent slopes	1.3	0.3%
897A	Peacham, Bucksport, and Rumney soils, 0 to 2 percent slopes, ponded	0.7	0.1%
992A	Wonsqueak and Pondicherry mucks, 0 to 2 percent slopes	2.2	0.5%
Subtotals for Soil Survey Area		**180.9**	**38.8%**
Totals for Area of Interest		**466.8**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
22A	Colton gravelly sandy loam, 0 to 3 percent slopes	0.7	0.2%
22B	Colton gravelly sandy loam, 3 to 8 percent slopes	1.5	0.3%
22E	Colton gravelly sandy loam, 15 to 60 percent slopes	0.6	0.1%
57D	Becket fine sandy loam, 15 to 25 percent slopes, very stony	2.7	0.6%
59B	Waumbek loamy sand, 3 to 8 percent slopes, very stony	32.2	6.9%
59C	Waumbek loamy sand, 8 to 15 percent slopes, very stony	8.0	1.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
61D	Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes	0.5	0.1%
61E	Tunbridge-Lyman-Rock outcrop complex, 25 to 60 percent slopes	0.0	0.0%
73D	Berkshire fine sandy loam, 15 to 25 percent slopes, very stony	5.7	1.2%
77C	Marlow fine sandy loam, 8 to 15 percent slopes, very stony	2.4	0.5%
77E	Marlow fine sandy loam, 25 to 50 percent slopes, very stony	2.5	0.5%
79B	Peru fine sandy loam, 0 to 8 percent slopes, very stony	3.5	0.8%
79C	Peru fine sandy loam, 8 to 15 percent slopes, very stony	20.4	4.4%
79D	Peru fine sandy loam, 15 to 25 percent slopes, very stony	1.8	0.4%
90D	Tunbridge-Lyman complex, 15 to 25 percent slopes, rocky	2.6	0.5%
101	Ondawa fine sandy loam, 0 to 3 percent slopes, frequently flooded	0.0	0.0%
105	Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded	0.8	0.2%
173C	Berkshire fine sandy loam, 3 to 15 percent slopes, extremely stony	6.5	1.4%
254C	Hermon and Monadnock soils, 8 to 15 percent slopes	0.2	0.0%
255B	Hermon and Monadnock soils, 0 to 8 percent slopes, very stony	9.1	2.0%
255C	Hermon and Monadnock soils, 8 to 15 percent slopes, very stony	61.5	13.2%
255D	Monadnock and Hermon soils, 15 to 25 percent slopes, very stony	24.5	5.3%
255E	Monadnock and Hermon soils, 25 to 35 percent slopes, very stony	31.3	6.7%
295	Greenwood mucky peat	3.6	0.8%
347A	Lyme and Moosilauke soils, 0 to 3 percent slopes, very stony	1.9	0.4%
347B	Lyme and Moosilauke soils, 3 to 8 percent slopes, very stony	12.5	2.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
355C	Hermon sandy loam, 8 to 15 percent slopes, extremely bouldery	12.3	2.6%
355E	Hermon sandy loam, 15 to 35 percent slopes, extremely bouldery	11.1	2.4%
395	Chocorua mucky peat	1.9	0.4%
406	Medomak silt loam	0.9	0.2%
559B	Skerry fine sandy loam, 0 to 8 percent slopes, very stony	0.0	0.0%
613	Croghan loamy fine sand, 0 to 3 percent slopes	4.5	1.0%
647B	Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony	7.1	1.5%
731	Peacham and ossipee soils, very stony	5.7	1.2%
W	Water	5.0	1.1%
Subtotals for Soil Survey Area		**285.7**	**61.2%**
Totals for Area of Interest		**466.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor

components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Coos County Area, New Hampshire

14B—Sheepscot cobbly very fine sandy loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9f22
Elevation: 820 to 2,490 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Sheepscot and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sheepscot

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Outwash

Typical profile

Oi - 0 to 3 inches: slightly decomposed plant material
H1 - 3 to 12 inches: cobbly very fine sandy loam
H2 - 12 to 21 inches: very stony fine sandy loam
H3 - 21 to 65 inches: extremely gravelly sand

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 5.95 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F143XY602ME - Sandy Flat
Hydric soil rating: No

Minor Components

Naumburg

Percent of map unit: 3 percent

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Colton

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Croghan

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Grange

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Madawaska

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Waumbek

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Adams

Percent of map unit: 1 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

22C—Colton gravelly sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2yjfn
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Colton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: gravelly sandy loam
Bs - 7 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A

Ecological site: F146XY071ME - Sandy
Hydric soil rating: No

Minor Components

Adams
Percent of map unit: 10 percent
Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sheepscot
Percent of map unit: 3 percent
Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Croghan
Percent of map unit: 2 percent
Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

27B—Groveton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9dsm
Elevation: 790 to 2,300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Groveton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Groveton

Setting
Landform: Terraces

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy outwash over sandy and/or gravelly outwash derived from granite and gneiss or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
Oa - 1 to 2 inches: highly decomposed plant material
H1 - 2 to 14 inches: fine sandy loam
H2 - 14 to 29 inches: loamy fine sand
H3 - 29 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy, F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Madawaska

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Adams

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Salmon

Percent of map unit: 3 percent
Landform: Lake terraces

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Colton

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Stetson

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

27C—Groveton fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9dsn
Elevation: 790 to 2,490 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Groveton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Groveton

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy outwash over sandy and/or gravelly outwash derived from granite and gneiss or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
Oa - 1 to 2 inches: highly decomposed plant material
H1 - 2 to 14 inches: fine sandy loam
H2 - 14 to 29 inches: loamy fine sand
H3 - 29 to 65 inches: sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F143XY501ME - Loamy Slope
Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Colton

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Madawaska

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Salmon

Percent of map unit: 2 percent

Landform: Lake terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Berkshire

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Monadnock

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

61E—Tunbridge-Lyman-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2trph
Elevation: 430 to 2,490 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, very stony, and similar soils: 42 percent
Lyman, very stony, and similar soils: 31 percent
Rock outcrop: 17 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Lyman, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock

Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, free face, side slope, free face
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY801ME - Rockland (reserved)
Hydric soil rating: Unranked

Minor Components

Peru, very stony

Percent of map unit: 6 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Moosilauke, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, side slope

Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

72B—Berkshire fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2trsg
Elevation: 160 to 1,540 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Berkshire and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berkshire

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bs1 - 7 to 13 inches: fine sandy loam
Bs2 - 13 to 21 inches: fine sandy loam
BC1 - 21 to 28 inches: fine sandy loam
BC2 - 28 to 33 inches: fine sandy loam
C - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Lyman

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cabot

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Marlow

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope

Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

72C—Berkshire fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2trsh
Elevation: 390 to 1,770 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Berkshire and similar soils: 84 percent
Minor components: 16 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berkshire

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bs1 - 7 to 13 inches: fine sandy loam
Bs2 - 13 to 21 inches: fine sandy loam
BC1 - 21 to 28 inches: fine sandy loam
BC2 - 28 to 33 inches: fine sandy loam
C - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F143XY501ME - Loamy Slope
Hydric soil rating: No

Minor Components

Peru

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, open depressions, closed depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Marlow

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyman

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cabot

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, open depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

76B—Marlow fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2ty5f
Elevation: 590 to 1,710 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Marlow and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marlow

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Ap - 0 to 4 inches: fine sandy loam
E - 4 to 6 inches: fine sandy loam
Bs1 - 6 to 10 inches: fine sandy loam
Bs2 - 10 to 15 inches: fine sandy loam
Bs3 - 15 to 20 inches: fine sandy loam
BC - 20 to 24 inches: fine sandy loam
Cd - 24 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru

Percent of map unit: 7 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Pillsbury

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

79B—Peru fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty63
Elevation: 160 to 1,840 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Peru, very stony, and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peru, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: fine sandy loam
E - 5 to 6 inches: fine sandy loam
Bs1 - 6 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 18 inches: fine sandy loam
BC - 18 to 21 inches: fine sandy loam
Cd1 - 21 to 37 inches: fine sandy loam
Cd2 - 37 to 65 inches: fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 17 to 34 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Marlow, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Pillsbury, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lyman, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Colonel, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

79C—Peru fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty65
Elevation: 360 to 2,160 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Peru, very stony, and similar soils: 84 percent
Minor components: 16 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peru, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: fine sandy loam
E - 5 to 6 inches: fine sandy loam
Bs1 - 6 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 18 inches: fine sandy loam
BC - 18 to 21 inches: fine sandy loam
Cd1 - 21 to 37 inches: fine sandy loam
Cd2 - 37 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 17 to 34 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Marlow, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cabot, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Colonel, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

Lyman, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

105A—Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2qgvs
Elevation: 0 to 2,440 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 54 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Rumney and similar soils: 84 percent
Minor components: 16 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rumney

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy alluvium derived from schist and/or coarse-loamy alluvium derived from quartzite and/or coarse-loamy alluvium derived from granite and gneiss

Typical profile

Ap - 0 to 9 inches: fine sandy loam
Bg1 - 9 to 20 inches: fine sandy loam
Bg2 - 20 to 30 inches: sandy loam
Cg - 30 to 65 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F144BY110ME - Broad Floodplain Riparian Complex, F144BY120ME - Small Floodplain Riparian Complex (reserved)

Hydric soil rating: Yes

Minor Components

Medomak

Percent of map unit: 6 percent
Landform: Flood plains
Microfeatures of landform position: Closed depressions
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Podunk

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Rises
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Charles

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Ondawa

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Rises
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

143B—Monadnock fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wlm6
Elevation: 430 to 1,540 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 90 to 150 days
Farmland classification: Farmland of local importance

Map Unit Composition

Monadnock, very stony, and similar soils: 84 percent
Minor components: 16 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monadnock, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist over sandy and gravelly supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 8 inches: fine sandy loam
Bs1 - 8 to 10 inches: fine sandy loam
Bs2 - 10 to 12 inches: fine sandy loam
Bs3 - 12 to 22 inches: gravelly fine sandy loam
BC - 22 to 25 inches: gravelly fine sandy loam
2C1 - 25 to 45 inches: gravelly loamy sand
2C2 - 45 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Minor Components

Becket, very stony

Percent of map unit: 7 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Tunbridge, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

143E—Monadnock fine sandy loam, 25 to 50 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wlmb
Elevation: 560 to 1,940 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Monadnock, very stony, and similar soils: 78 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monadnock, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist over sandy and gravelly supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 8 inches: fine sandy loam
Bs1 - 8 to 10 inches: fine sandy loam
Bs2 - 10 to 12 inches: fine sandy loam
Bs3 - 12 to 22 inches: gravelly fine sandy loam
BC - 22 to 25 inches: gravelly fine sandy loam
2C1 - 25 to 45 inches: gravelly loamy sand
2C2 - 45 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 25 to 50 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Minor Components

Berkshire, very stony

Percent of map unit: 12 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Colton, very stony

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cabot, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

169B—Sunapee fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2trs7
Elevation: 620 to 1,800 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 54 degrees F
Frost-free period: 70 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Sunapee, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sunapee, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 3 inches: fine sandy loam
E - 3 to 5 inches: gravelly fine sandy loam

Bhs - 5 to 6 inches: gravelly fine sandy loam
Bs1 - 6 to 8 inches: gravelly fine sandy loam
Bs2 - 8 to 17 inches: gravelly fine sandy loam
Bs3 - 17 to 26 inches: gravelly fine sandy loam
C1 - 26 to 38 inches: gravelly sandy loam
C2 - 38 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Berkshire, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex

Hydric soil rating: No

Moosilauke, very stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

169C—Sunapee fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2trs8
Elevation: 690 to 2,200 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Sunapee, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sunapee, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 3 inches: fine sandy loam
E - 3 to 5 inches: gravelly fine sandy loam
Bhs - 5 to 6 inches: gravelly fine sandy loam
Bs1 - 6 to 8 inches: gravelly fine sandy loam
Bs2 - 8 to 17 inches: gravelly fine sandy loam
Bs3 - 17 to 26 inches: gravelly fine sandy loam
C1 - 26 to 38 inches: gravelly sandy loam
C2 - 38 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F143XY501ME - Loamy Slope
Hydric soil rating: No

Minor Components

Lyme, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, open depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Berkshire, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Monadnock, very stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

214B—Naumburg fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9drz
Elevation: 790 to 2,300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of local importance

Map Unit Composition

Naumburg and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Naumburg

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy outwash derived mainly from granite, gneiss and schist

Typical profile

H1 - 0 to 14 inches: fine sandy loam
H2 - 14 to 29 inches: fine sand
H3 - 29 to 65 inches: fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None

Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Croghan

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Madawaska

Percent of map unit: 4 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Searsport

Percent of map unit: 2 percent
Landform: Outwash terraces, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Grange

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pemi

Percent of map unit: 1 percent
Landform: Lake terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pondicherry

Percent of map unit: 1 percent
Landform: Swamps, bogs, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

247B—Lyme fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2trsd
Elevation: 360 to 1,940 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyme, very stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyme, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: fine sandy loam
Bg1 - 8 to 13 inches: cobbly sandy loam
Bg2 - 13 to 26 inches: cobbly sandy loam
BC - 26 to 31 inches: cobbly sandy loam
Cg - 31 to 42 inches: gravelly sandy loam
C - 42 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B/D
Ecological site: F144BY305ME - Wet Loamy Flat, F144BY304ME - Wet Clay Flat
Hydric soil rating: Yes

Minor Components

Pillsbury, very stony

Percent of map unit: 10 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Searsport, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Naumburg, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Linear, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

Sunapee, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

273E—Berkshire, Monadnock, and Hermon soils, 15 to 35 percent slopes, extremely bouldery

Map Unit Setting

National map unit symbol: 2x9q8
Elevation: 750 to 1,940 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Berkshire, extremely bouldery, and similar soils: 31 percent
Monadnock, extremely bouldery, and similar soils: 29 percent
Hermon, extremely bouldery, and similar soils: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berkshire, Extremely Bouldery

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: fine sandy loam
E - 4 to 5 inches: fine sandy loam
Bs1 - 5 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 21 inches: fine sandy loam
BC1 - 21 to 28 inches: fine sandy loam
BC2 - 28 to 33 inches: fine sandy loam
C - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Monadnock, Extremely Bouldery

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 8 inches: fine sandy loam
Bs1 - 8 to 10 inches: fine sandy loam
Bs2 - 10 to 12 inches: fine sandy loam
Bs3 - 12 to 22 inches: gravelly fine sandy loam
BC - 22 to 25 inches: gravelly fine sandy loam
2C1 - 25 to 45 inches: gravelly loamy sand
2C2 - 45 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Description of Hermon, Extremely Bouldery

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Sunapee, extremely bouldery

Percent of map unit: 6 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Becket, extremely bouldery

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope

Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, extremely bouldery

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, extremely bouldery

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

355C—Hermon sandy loam, 8 to 15 percent slopes, extremely bouldery

Map Unit Setting

National map unit symbol: 2x9ns
Elevation: 160 to 1,670 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Hermon, extremely bouldery, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon, Extremely Bouldery

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Monadnock, extremely bouldery

Percent of map unit: 8 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, extremely bouldery

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Tunbridge, extremely bouldery

Percent of map unit: 3 percent

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton, extremely bouldery
Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

406A—Medomak mucky silt loam, 0 to 2 percent slopes, frequently flooded

Map Unit Setting
National map unit symbol: 9dt9
Elevation: 790 to 2,300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition
Medomak and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Medomak

Setting
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Sandy and/or coarse-loamy alluvium derived from granite, gneiss or schist

Typical profile
Oe - 0 to 3 inches: mucky peat
H1 - 3 to 11 inches: mucky silt loam

H2 - 11 to 45 inches: silt loam
H3 - 45 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 15.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B/D
Ecological site: F143XY110ME - Broad Floodplain Riparian Complex, F143XY120ME - Small Floodplain Riparian Complex, F144BY110ME - Broad Floodplain Riparian Complex, F144BY120ME - Small Floodplain Riparian Complex (reserved)
Hydric soil rating: Yes

Minor Components

Pondicherry

Percent of map unit: 5 percent
Landform: Swamps, bogs, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Bucksport

Percent of map unit: 2 percent
Landform: Swamps, bogs, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Cohas

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Charles

Percent of map unit: 2 percent
Landform: Flood plains

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Grange

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Rumney

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

415B—Moosilauke loam, 3 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9dth
Elevation: 820 to 2,490 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Moosilauke and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Moosilauke

Setting

Landform: Ground moraines, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Drift derived from granite and gneiss and/or outwash

Typical profile

H1 - 0 to 7 inches: loam

H2 - 7 to 18 inches: gravelly sandy loam
H3 - 18 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Peacham

Percent of map unit: 5 percent
Landform: Hillslopes, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lyme

Percent of map unit: 5 percent
Landform: Hillslopes, depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sunapee

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Waumbek

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope

Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

470B—Tunbridge-Peru complex, 3 to 8 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2w9pv
Elevation: 660 to 1,840 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Peru, rocky, and similar soils: 41 percent
Tunbridge, rocky, and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peru, Rocky

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and/or mica schist and/or phyllite

Typical profile

Ap - 0 to 6 inches: fine sandy loam
Bhs - 6 to 8 inches: fine sandy loam
Bs1 - 8 to 12 inches: fine sandy loam
Bs2 - 12 to 18 inches: fine sandy loam
Bs3 - 18 to 21 inches: fine sandy loam
BC - 21 to 24 inches: fine sandy loam
Cd - 24 to 65 inches: sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 16 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Description of Tunbridge, Rocky

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bhs - 7 to 8 inches: fine sandy loam
Bs - 8 to 23 inches: fine sandy loam
BC - 23 to 25 inches: fine sandy loam
R - 25 to 35 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till, F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Berkshire, rocky

Percent of map unit: 12 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyman, rocky

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, side slope, crest
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Colonel, rocky

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, side slope, crest
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

Cabot, rocky

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, side slope, crest
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

549A—Peacham mucky peat, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty6t
Elevation: 430 to 1,970 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 70 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Peacham, very stony, and similar soils: 78 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peacham, Very Stony

Setting

Landform: Hills, mountains

Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Organic material over loamy lodgment till derived from schist and/or loamy lodgment till derived from granite and gneiss and/or loamy lodgment till derived from phyllite

Typical profile

Oe - 0 to 2 inches: mucky peat
Oa - 2 to 10 inches: muck
Bg - 10 to 15 inches: fine sandy loam
Cdg1 - 15 to 31 inches: fine sandy loam
Cdg2 - 31 to 65 inches: sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 12 to 35 inches to densic material
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY301ME - Loamy Till Swamp
Hydric soil rating: Yes

Minor Components

Cabot, very stony

Percent of map unit: 11 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 8 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Bucksport

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Searsport

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

579B—Dixmont very fine sandy loam, 3 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9dx2
Elevation: 820 to 2,490 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of local importance

Map Unit Composition

Dixmont and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dixmont

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Ablation till derived from schist and phyllite

Typical profile

H1 - 0 to 3 inches: very fine sandy loam
H2 - 3 to 19 inches: very fine sandy loam
H3 - 19 to 65 inches: silt loam

Properties and qualities

Slope: 3 to 8 percent

Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.58 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B/D
Ecological site: F143XY501ME - Loamy Slope
Hydric soil rating: No

Minor Components

Bangor

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sunapee

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Cabot

Percent of map unit: 3 percent
Landform: Hillslopes, depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Berkshire

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

579C—Dixmont very fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9dx3
Elevation: 820 to 2,490 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Dixmont and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dixmont

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Ablation till derived from schist and phyllite

Typical profile

H1 - 0 to 3 inches: very fine sandy loam
H2 - 3 to 19 inches: very fine sandy loam
H3 - 19 to 65 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.58 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B/D
Ecological site: F143XY501ME - Loamy Slope
Hydric soil rating: No

Minor Components

Bangor

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sunapee

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Cabot

Percent of map unit: 3 percent
Landform: Hillslopes, depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Berkshire

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

613B—Croghan loamy fine sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wqp1
Elevation: 150 to 2,300 feet
Mean annual precipitation: 40 to 55 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of local importance

Map Unit Composition

Croghan and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Croghan

Setting

Landform: Outwash deltas
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: loamy fine sand
Bs - 7 to 17 inches: loamy fine sand
BC - 17 to 30 inches: fine sand
C - 30 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F144BY602ME - Sandy Toeslope
Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 5 percent
Landform: Outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Naumburg

Percent of map unit: 5 percent
Landform: Outwash deltas
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Colton

Percent of map unit: 3 percent
Landform: Outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sheepscot

Percent of map unit: 2 percent
Landform: Outwash deltas
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

647B—Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty6x
Elevation: 360 to 2,070 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Not prime farmland

Map Unit Composition

Pillsbury, very stony, and similar soils: 79 percent
Minor components: 21 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pillsbury, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy lodgment till derived from gneiss and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from granite

Typical profile

Oe - 0 to 1 inches: mucky peat
A - 1 to 6 inches: fine sandy loam
Bg1 - 6 to 13 inches: cobbly fine sandy loam
Bg2 - 13 to 23 inches: cobbly fine sandy loam
Cd - 23 to 65 inches: cobbly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

Minor Components

Peru, very stony

Percent of map unit: 9 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Peacham, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lyman, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

647C—Pillsbury fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2trrf
Elevation: 850 to 1,900 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Not prime farmland

Map Unit Composition

Pillsbury, very stony, and similar soils: 79 percent
Minor components: 21 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pillsbury, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy lodgment till derived from gneiss and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from granite

Typical profile

Oe - 0 to 1 inches: mucky peat
A - 1 to 6 inches: fine sandy loam
Bg1 - 6 to 13 inches: cobbly fine sandy loam
Bg2 - 13 to 23 inches: cobbly fine sandy loam
Cd - 23 to 65 inches: cobbly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

Minor Components

Peru, very stony

Percent of map unit: 9 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Peacham, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lyman, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

670C—Tunbridge-Berkshire-Lyman complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9dy5
Elevation: 820 to 2,490 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge and similar soils: 45 percent
Berkshire and similar soils: 20 percent
Lyman and similar soils: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex

Typical profile

H1 - 0 to 2 inches: silt loam
H2 - 2 to 25 inches: silt loam
H3 - 25 to 34 inches: cobbly fine sandy loam
R - 34 to 38 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: About 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F143XY702ME - Shallow And Moderately Deep Till
Hydric soil rating: No

Description of Berkshire

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Ablation till derived from granite and gneiss

Typical profile

Oe - 0 to 4 inches: moderately decomposed plant material
H1 - 4 to 10 inches: fine sandy loam
H2 - 10 to 24 inches: very fine sandy loam
H3 - 24 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F143XY702ME - Shallow And Moderately Deep Till, F143XY501ME - Loamy Slope
Hydric soil rating: No

Description of Lyman

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Ablation till derived from mica schist and/or ablation till derived from granite and gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
H1 - 1 to 4 inches: fine sandy loam
H2 - 4 to 13 inches: fine sandy loam
H3 - 13 to 16 inches: gravelly fine sandy loam
R - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: About 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F143XY702ME - Shallow And Moderately Deep Till
Hydric soil rating: No

Minor Components

Peru

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Sunapee

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Monadnock

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Marlow

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry

Percent of map unit: 2 percent
Landform: Hillslopes

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

895A—Bucksport muck, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ty6y
Elevation: 390 to 1,970 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Bucksport and similar soils: 78 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bucksport

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material and/or woody organic material

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 25 inches: muck
Oa3 - 25 to 45 inches: muck
Oa4 - 45 to 65 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 21.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144BY220ME - Semi-acidic Peat Wetland Complex, F144BY210ME - Marsh Wetland Complex
Hydric soil rating: Yes

Minor Components

Wonsqueak

Percent of map unit: 10 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Rumney

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Peacham, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Searsport

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

897A—Peacham, Bucksport, and Rumney soils, 0 to 2 percent slopes, ponded

Map Unit Setting

National map unit symbol: 9f41
Elevation: 790 to 2,490 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Bucksport and similar soils: 31 percent
Peacham and similar soils: 29 percent
Rumney and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bucksport

Setting

Landform: Swamps, bogs, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Organics

Typical profile

Oi - 0 to 2 inches: mucky peat
Oa1 - 2 to 14 inches: mucky peat
Oa2 - 14 to 54 inches: mucky peat
Oa3 - 54 to 72 inches: mucky peat

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 20.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D

Ecological site: F143XY230ME - Acidic Peat Wetland Complex, F143XY210ME - Marsh Wetland Complex
Hydric soil rating: Yes

Description of Peacham

Setting

Landform: Hillslopes, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Basal lodgement till derived from granite and gneiss and/or basal lodgement till derived from schist

Typical profile

Oa - 0 to 11 inches: muck
H1 - 11 to 23 inches: silt loam
H2 - 23 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 11 to 27 inches to densic material
Drainage class: Very poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Ecological site: F143XY301ME - Loamy Till Swamp (Northern White Cedar), F143XY220ME - Semi-Acidic Peat Wetland Complex
Hydric soil rating: Yes

Description of Rumney

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Sandy and/or coarse-loamy alluvium derived from granite, gneiss or schist

Typical profile

H1 - 0 to 3 inches: fine sandy loam
H2 - 3 to 8 inches: loamy fine sand
H3 - 8 to 65 inches: stratified loamy sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F143XY110ME - Broad Floodplain Riparian Complex, F143XY120ME - Small Floodplain Riparian Complex
Hydric soil rating: Yes

Minor Components

Searsport

Percent of map unit: 5 percent
Landform: Outwash terraces, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pondicherry

Percent of map unit: 5 percent
Landform: Swamps, bogs, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 3 percent
Landform: Swamps, bogs, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Naumburg

Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

992A—Wonsqueak and Pondicherry mucks, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w9r3
Elevation: 560 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Wonsqueak and similar soils: 45 percent
Pondicherry and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wonsqueak

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over loamy till

Typical profile

Oa1 - 0 to 8 inches: muck
Oa2 - 8 to 32 inches: muck
2Cg - 32 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 18.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D

Ecological site: F144BY302ME - Mucky Swamp
Hydric soil rating: Yes

Description of Pondicherry

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 4 inches: muck
Oa2 - 4 to 20 inches: muck
2Cg1 - 20 to 24 inches: mucky loamy sand
2Cg2 - 24 to 34 inches: sand
2Cg3 - 34 to 65 inches: gravelly sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144BY302ME - Mucky Swamp
Hydric soil rating: Yes

Minor Components

Medomak

Percent of map unit: 7 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Peacham, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

Cabot, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: Yes

Grafton County, New Hampshire

22A—Colton gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2ym4j
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Colton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: gravelly sandy loam
Bs - 7 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 10 percent

Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sheepscot

Percent of map unit: 3 percent
Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Croghan

Percent of map unit: 2 percent
Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

22B—Colton gravelly sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjfp
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Colton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash deltas
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: gravelly sandy loam
Bs - 7 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F146XY071ME - Sandy
Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 10 percent
Landform: Outwash deltas
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Sheepscot

Percent of map unit: 3 percent
Landform: Outwash deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Croghan

Percent of map unit: 2 percent
Landform: Outwash deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

22E—Colton gravelly sandy loam, 15 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2yjft
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Colton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Kames, eskers
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: gravelly sandy loam
Bs - 7 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 15 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 10 percent
Landform: Kames, eskers
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sheepscot

Percent of map unit: 3 percent
Landform: Kames, eskers
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Croghan

Percent of map unit: 2 percent
Landform: Kames, eskers
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

57D—Becket fine sandy loam, 15 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w9pq
Elevation: 330 to 1,710 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Becket, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Becket, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgment till derived from granite and gneiss and/or schist over sandy lodgment till derived from granite and gneiss and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
E - 2 to 4 inches: fine sandy loam
Bhs - 4 to 5 inches: fine sandy loam
Bs1 - 5 to 7 inches: fine sandy loam
Bs2 - 7 to 14 inches: fine sandy loam
Bs3 - 14 to 24 inches: gravelly sandy loam
BC - 24 to 33 inches: gravelly sandy loam
Cd - 33 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Lyman, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Pillsbury, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

59B—Waumbek loamy sand, 3 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9fjz
Elevation: 10 to 2,800 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Waumbek and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waumbek

Typical profile

O - 0 to 4 inches: slightly decomposed plant material
H1 - 4 to 9 inches: loamy sand
H2 - 9 to 25 inches: very cobbly loamy sand
H3 - 25 to 65 inches: very cobbly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)

Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY602ME - Sandy Toeslope
Hydric soil rating: No

Minor Components

Hermon

Percent of map unit: 5 percent
Hydric soil rating: No

Lyme

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Moosilauke

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

59C—Waumbek loamy sand, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9fk0
Elevation: 10 to 2,800 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Waumbek and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waumbek

Typical profile

O - 0 to 4 inches: slightly decomposed plant material
H1 - 4 to 9 inches: loamy sand
H2 - 9 to 25 inches: very cobbly loamy sand
H3 - 25 to 65 inches: very cobbly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY602ME - Sandy Toeslope
Hydric soil rating: No

Minor Components

Lyme

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Moosilauke

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Hermon

Percent of map unit: 5 percent
Hydric soil rating: No

61D—Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2trpk
Elevation: 520 to 1,970 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, very stony, and similar soils: 40 percent
Lyman, very stony, and similar soils: 29 percent
Rock outcrop: 18 percent

Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Lyman, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY801ME - Rockland (reserved)
Hydric soil rating: Unranked

Minor Components

Peru, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Moosilauke, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

61E—Tunbridge-Lyman-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2trph
Elevation: 430 to 2,490 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, very stony, and similar soils: 42 percent
Lyman, very stony, and similar soils: 31 percent

Rock outcrop: 17 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Lyman, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, free face, side slope, free face
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY801ME - Rockland (reserved)
Hydric soil rating: Unranked

Minor Components

Peru, very stony

Percent of map unit: 6 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Moosilauke, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

73D—Berkshire fine sandy loam, 15 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wllx
Elevation: 460 to 1,840 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Berkshire, very stony, and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berkshire, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: fine sandy loam
E - 4 to 5 inches: fine sandy loam
Bs1 - 5 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 21 inches: fine sandy loam
BC1 - 21 to 28 inches: fine sandy loam
BC2 - 28 to 33 inches: fine sandy loam
C - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Lyman, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Closed depressions, open depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Marlow, very stony

Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

77C—Marlow fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty5p
Elevation: 520 to 1,900 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Marlow, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marlow, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
E - 5 to 8 inches: fine sandy loam
Bs1 - 8 to 15 inches: fine sandy loam
Bs2 - 15 to 19 inches: fine sandy loam
BC - 19 to 33 inches: gravelly fine sandy loam
Cd - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 20 to 41 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Berkshire, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex

Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Pillsbury, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

77E—Marlow fine sandy loam, 25 to 50 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty5t
Elevation: 360 to 2,360 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Marlow, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marlow, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
E - 5 to 8 inches: fine sandy loam
Bs1 - 8 to 15 inches: fine sandy loam
Bs2 - 15 to 19 inches: fine sandy loam
BC - 19 to 33 inches: gravelly fine sandy loam
Cd - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 25 to 50 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 20 to 41 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Berkshire, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex

Across-slope shape: Convex
Hydric soil rating: No

Pillsbury, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

79B—Peru fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty63
Elevation: 160 to 1,840 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Peru, very stony, and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peru, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: fine sandy loam
E - 5 to 6 inches: fine sandy loam
Bs1 - 6 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 18 inches: fine sandy loam
BC - 18 to 21 inches: fine sandy loam
Cd1 - 21 to 37 inches: fine sandy loam
Cd2 - 37 to 65 inches: fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 17 to 34 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Marlow, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Pillsbury, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lyman, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Colonel, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, interfluve

Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

79C—Peru fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty65
Elevation: 360 to 2,160 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Peru, very stony, and similar soils: 84 percent
Minor components: 16 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peru, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: fine sandy loam
E - 5 to 6 inches: fine sandy loam
Bs1 - 6 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 18 inches: fine sandy loam
BC - 18 to 21 inches: fine sandy loam
Cd1 - 21 to 37 inches: fine sandy loam
Cd2 - 37 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)

Depth to water table: About 17 to 34 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Marlow, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cabot, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Colonel, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

Lyman, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises

Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

79D—Peru fine sandy loam, 15 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty66
Elevation: 490 to 2,360 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Peru, very stony, and similar soils: 83 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peru, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: fine sandy loam
E - 5 to 6 inches: fine sandy loam
Bs1 - 6 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 18 inches: fine sandy loam
BC - 18 to 21 inches: fine sandy loam
Cd1 - 21 to 37 inches: fine sandy loam
Cd2 - 37 to 65 inches: fine sandy loam

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 17 to 34 inches
Frequency of flooding: None

Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F142XA020NY - Rich Moist Till Frigid
Hydric soil rating: No

Minor Components

Colonel, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

Marlow, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cabot, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Tunbridge, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

90D—Tunbridge-Lyman complex, 15 to 25 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2trpm
Elevation: 520 to 1,770 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, rocky, and similar soils: 50 percent
Lyman, rocky, and similar soils: 33 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Rocky

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Lyman, Rocky

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Minor Components

Peru, rocky

Percent of map unit: 10 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Open depressions, open depressions

Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Cabot, rocky

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Berkshire, rocky

Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: Unranked

101—Ondawa fine sandy loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2qgw0
Elevation: 240 to 1,480 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 54 degrees F
Frost-free period: 80 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Ondawa and similar soils: 88 percent
Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ondawa

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy alluvium derived from schist and/or coarse-loamy alluvium derived from quartzite and/or coarse-loamy alluvium derived from granite and gneiss

Typical profile

Ap - 0 to 9 inches: fine sandy loam
Bw - 9 to 30 inches: fine sandy loam
C - 30 to 65 inches: loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F144BY120ME - Small Floodplain Riparian Complex (reserved), F144BY110ME - Broad Floodplain Riparian Complex
Hydric soil rating: No

Minor Components

Podunk

Percent of map unit: 6 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Closed depressions
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Sunday

Percent of map unit: 4 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Rumney

Percent of map unit: 2 percent

Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Closed depressions
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

105—Rumney fine sandy loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2qgvs
Elevation: 0 to 2,440 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 54 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Rumney and similar soils: 84 percent
Minor components: 16 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rumney

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy alluvium derived from schist and/or coarse-loamy alluvium derived from quartzite and/or coarse-loamy alluvium derived from granite and gneiss

Typical profile

Ap - 0 to 9 inches: fine sandy loam
Bg1 - 9 to 20 inches: fine sandy loam
Bg2 - 20 to 30 inches: sandy loam
Cg - 30 to 65 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F144BY120ME - Small Floodplain Riparian Complex (reserved), F144BY110ME - Broad Floodplain Riparian Complex
Hydric soil rating: Yes

Minor Components

Medomak

Percent of map unit: 6 percent
Landform: Flood plains
Microfeatures of landform position: Closed depressions
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Podunk

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Rises
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Charles

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Ondawa

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Rises
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

173C—Berkshire fine sandy loam, 3 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2wlm1
Elevation: 720 to 1,610 feet

Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Berkshire, extremely stony, and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berkshire, Extremely Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: fine sandy loam
E - 4 to 5 inches: fine sandy loam
Bs1 - 5 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 21 inches: fine sandy loam
BC1 - 21 to 28 inches: fine sandy loam
BC2 - 28 to 33 inches: fine sandy loam
C - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru, extremely stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope, base slope
Microfeatures of landform position: Closed depressions, open depressions, closed depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Marlow, extremely stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, extremely stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyme, extremely stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope, base slope
Microfeatures of landform position: Closed depressions, open depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

254C—Hermon and Monadnock soils, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2x9pd

Elevation: 0 to 1,540 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 54 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hermon and similar soils: 45 percent
Monadnock and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Ap - 0 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Description of Monadnock

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex

Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bs1 - 7 to 9 inches: fine sandy loam
Bs2 - 9 to 19 inches: gravelly fine sandy loam
BC - 19 to 22 inches: gravelly fine sandy loam
2C1 - 22 to 42 inches: gravelly loamy sand
2C2 - 42 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 15 to 30 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Minor Components

Colton

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Waumbek

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Lyme

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Peru

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

255B—Hermon and Monadnock soils, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2x9pg
Elevation: 0 to 1,380 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 54 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Hermon, very stony, and similar soils: 45 percent
Monadnock, very stony, and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Description of Monadnock, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 8 inches: fine sandy loam
Bs1 - 8 to 10 inches: fine sandy loam
Bs2 - 10 to 12 inches: fine sandy loam
Bs3 - 12 to 22 inches: gravelly fine sandy loam
BC - 22 to 25 inches: gravelly fine sandy loam
2C1 - 25 to 45 inches: gravelly loamy sand
2C2 - 45 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent

Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Minor Components

Colton, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Waumbek, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Peru, very stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Convex, concave

Across-slope shape: Linear, concave
Hydric soil rating: No

255C—Hermon and Monadnock soils, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2x9ph
Elevation: 0 to 1,610 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 54 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Hermon, very stony, and similar soils: 45 percent
Monadnock, very stony, and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Description of Monadnock, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 8 inches: fine sandy loam
Bs1 - 8 to 10 inches: fine sandy loam
Bs2 - 10 to 12 inches: fine sandy loam
Bs3 - 12 to 22 inches: gravelly fine sandy loam
BC - 22 to 25 inches: gravelly fine sandy loam
2C1 - 25 to 45 inches: gravelly loamy sand
2C2 - 45 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Minor Components

Waumbek, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Closed depressions, open depressions, open depressions, closed depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Colton, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, very stony

Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

255D—Monadnock and Hermon soils, 15 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2x9pj
Elevation: 430 to 1,540 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 54 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Monadnock, very stony, and similar soils: 45 percent
Hermon, very stony, and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monadnock, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 8 inches: fine sandy loam
Bs1 - 8 to 10 inches: fine sandy loam
Bs2 - 10 to 12 inches: fine sandy loam
Bs3 - 12 to 22 inches: gravelly fine sandy loam
BC - 22 to 25 inches: gravelly fine sandy loam
2C1 - 25 to 45 inches: gravelly loamy sand
2C2 - 45 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Description of Hermon, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Waumbek, very stony

Percent of map unit: 8 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 7 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

255E—Monadnock and Hermon soils, 25 to 35 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2x9pl
Elevation: 490 to 1,710 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 54 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Monadnock, very stony, and similar soils: 45 percent
Hermon, very stony, and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monadnock, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite over sandy and gravelly supraglacial meltout till derived from granite and gneiss and/or mica schist and/or phyllite

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 8 inches: fine sandy loam
Bs1 - 8 to 10 inches: fine sandy loam

Bs2 - 10 to 12 inches: fine sandy loam
Bs3 - 12 to 22 inches: gravelly fine sandy loam
BC - 22 to 25 inches: gravelly fine sandy loam
2C1 - 25 to 45 inches: gravelly loamy sand
2C2 - 45 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 25 to 35 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144BY505ME - Loamy over Sandy
Hydric soil rating: No

Description of Hermon, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 25 to 35 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Waumbek, very stony

Percent of map unit: 8 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 7 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

295—Greenwood mucky peat

Map Unit Setting

National map unit symbol: 9fh4
Elevation: 500 to 2,000 feet
Mean annual precipitation: 28 to 95 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Greenwood and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Greenwood

Setting

Landform: Bogs

Parent material: Herbaceous organic material and/or woody organic material

Typical profile

O1 - 0 to 10 inches: mucky peat
O2 - 10 to 65 inches: mucky peat

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 31.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Ecological site: F143XY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Chocorua

Percent of map unit: 3 percent
Landform: Bogs
Hydric soil rating: Yes

Peacham

Percent of map unit: 3 percent
Landform: Swamps
Hydric soil rating: Yes

Water

Percent of map unit: 2 percent
Hydric soil rating: Unranked

Ossipee

Percent of map unit: 2 percent
Landform: Bogs
Hydric soil rating: Yes

347A—Lyme and Moosilauke soils, 0 to 3 percent slopes, very stony

Map Unit Setting

National map unit symbol: 9fhw
Elevation: 480 to 1,790 feet
Mean annual precipitation: 31 to 95 inches

Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyme and similar soils: 55 percent
Moosilauke and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyme

Setting

Landform: Ground moraines
Parent material: Till

Typical profile

Oe - 0 to 6 inches: mucky peat
H1 - 6 to 11 inches: cobbly fine sandy loam
H2 - 11 to 22 inches: cobbly fine sandy loam
H3 - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

Description of Moosilauke

Setting

Landform: Ground moraines
Parent material: Glacial drift

Typical profile

H1 - 0 to 5 inches: fine sandy loam
H2 - 5 to 22 inches: fine sandy loam
H3 - 22 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Not named
Percent of map unit: 8 percent
Hydric soil rating: No

Not named wet
Percent of map unit: 7 percent
Landform: Depressions
Hydric soil rating: Yes

347B—Lyme and Moosilauke soils, 3 to 8 percent slopes, very stony

Map Unit Setting
National map unit symbol: 9fhx
Elevation: 460 to 4,000 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition
Lyme and similar soils: 55 percent
Moosilauke and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyme

Setting
Landform: Ground moraines
Parent material: Till

Typical profile
Oe - 0 to 6 inches: mucky peat

H1 - 6 to 11 inches: cobbly fine sandy loam
H2 - 11 to 22 inches: cobbly fine sandy loam
H3 - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

Description of Moosilauke

Setting

Landform: Ground moraines
Parent material: Glacial drift

Typical profile

H1 - 0 to 5 inches: fine sandy loam
H2 - 5 to 22 inches: fine sandy loam
H3 - 22 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Minor Components

Not named
Percent of map unit: 8 percent
Hydric soil rating: No

Not named wet
Percent of map unit: 7 percent
Landform: Depressions
Hydric soil rating: Yes

355C—Hermon sandy loam, 8 to 15 percent slopes, extremely bouldery

Map Unit Setting
National map unit symbol: 2x9ns
Elevation: 160 to 1,670 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition
Hermon, extremely bouldery, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon, Extremely Bouldery

Setting
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile
Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities
Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Monadnock, extremely bouldery

Percent of map unit: 8 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, extremely bouldery

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Tunbridge, extremely bouldery

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton, extremely bouldery

Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope

Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

355E—Hermon sandy loam, 15 to 35 percent slopes, extremely bouldery

Map Unit Setting

National map unit symbol: 2x9nt
Elevation: 560 to 1,740 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Hermon, extremely bouldery, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon, Extremely Bouldery

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 3 inches: sandy loam
Bhs - 3 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Monadnock, extremely bouldery

Percent of map unit: 8 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, extremely bouldery

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Tunbridge, extremely bouldery

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton, extremely bouldery

Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

395—Chocorua mucky peat

Map Unit Setting

National map unit symbol: 9fjd
Elevation: 10 to 2,800 feet
Mean annual precipitation: 28 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Chocorua and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chocorua

Setting

Landform: Bogs
Parent material: Organic material over outwash

Typical profile

O1 - 0 to 5 inches: mucky peat
O2 - 5 to 26 inches: mucky peat
H - 26 to 65 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 15.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Ecological site: F144BY302ME - Mucky Swamp
Hydric soil rating: Yes

Minor Components

Not named

Percent of map unit: 5 percent
Landform: Swamps

Hydric soil rating: Yes

Greenwood

Percent of map unit: 4 percent
Landform: Bogs
Hydric soil rating: Yes

Searsport

Percent of map unit: 4 percent
Landform: Swamps
Hydric soil rating: Yes

Water

Percent of map unit: 2 percent
Hydric soil rating: Unranked

406—Medomak silt loam

Map Unit Setting

National map unit symbol: 9fjj
Elevation: 10 to 2,000 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Medomak and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Medomak

Setting

Landform: Flood plains
Parent material: Sandy and/or coarse-loamy alluvium derived from granite, gneiss or schist

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 15.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: F144BY120ME - Small Floodplain Riparian Complex (reserved), F144BY110ME - Broad Floodplain Riparian Complex
Hydric soil rating: Yes

Minor Components

Rumney

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Podunk

Percent of map unit: 5 percent
Hydric soil rating: No

559B—Skerry fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w9pc
Elevation: 160 to 1,380 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Skerry, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Skerry, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and gneiss and/or schist over sandy lodgment till derived from granite and gneiss and/or schist

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 4 inches: fine sandy loam
Bhs - 4 to 6 inches: fine sandy loam

Bs1 - 6 to 20 inches: gravelly fine sandy loam
Bs2 - 20 to 25 inches: gravelly fine sandy loam
Cd1 - 25 to 34 inches: gravelly loamy sand
Cd2 - 34 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 19 to 34 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Pillsbury, very stony

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Becket, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Colonel, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

Monadnock, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

613—Croghan loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wqnz
Elevation: 150 to 2,300 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Croghan and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Croghan

Setting

Landform: Outwash deltas
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: loamy fine sand
Bs - 7 to 17 inches: loamy fine sand
BC - 17 to 30 inches: fine sand
C - 30 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F144BY602ME - Sandy Toeslope
Hydric soil rating: No

Minor Components

Naumburg

Percent of map unit: 10 percent
Landform: Outwash deltas
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Adams

Percent of map unit: 5 percent
Landform: Outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Colton

Percent of map unit: 3 percent
Landform: Outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sheepscot

Percent of map unit: 2 percent
Landform: Outwash deltas
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

647B—Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty6x
Elevation: 360 to 2,070 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 140 days
Farmland classification: Not prime farmland

Map Unit Composition

Pillsbury, very stony, and similar soils: 79 percent
Minor components: 21 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pillsbury, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy lodgment till derived from gneiss and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from granite

Typical profile

Oe - 0 to 1 inches: mucky peat
A - 1 to 6 inches: fine sandy loam
Bg1 - 6 to 13 inches: cobbly fine sandy loam
Bg2 - 13 to 23 inches: cobbly fine sandy loam
Cd - 23 to 65 inches: cobbly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

Minor Components

Peru, very stony
Percent of map unit: 9 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Peacham, very stony
Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wonsqueak
Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lyman, very stony
Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

731—Peacham and ossipee soils, very stony

Map Unit Setting
National map unit symbol: 9flq
Elevation: 380 to 3,560 feet
Mean annual precipitation: 28 to 95 inches

Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Peacham and similar soils: 41 percent
Ossipee and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peacham

Setting

Landform: Ground moraines
Parent material: Basal lodgement till derived from granite and gneiss and/or basal lodgement till derived from schist

Typical profile

Oa - 0 to 7 inches: muck
H1 - 7 to 15 inches: gravelly fine sandy loam
H2 - 15 to 65 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 39 inches to densic material
Drainage class: Very poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5s
Hydrologic Soil Group: D
Ecological site: F144BY301ME - Loamy Till Swamp
Hydric soil rating: Yes

Description of Ossipee

Setting

Landform: Bogs
Parent material: Organic material over till

Typical profile

Oe1 - 0 to 6 inches: mucky peat
Oe2 - 6 to 41 inches: mucky peat
H - 41 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 24.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Ecological site: F144BY302ME - Mucky Swamp
Hydric soil rating: Yes

Minor Components

Greenwood

Percent of map unit: 10 percent
Landform: Bogs
Hydric soil rating: Yes

Not named wet

Percent of map unit: 5 percent
Landform: Ground moraines
Hydric soil rating: Yes

Lyme

Percent of map unit: 3 percent
Landform: Ground moraines
Hydric soil rating: Yes

Pillsbury

Percent of map unit: 2 percent
Landform: Ground moraines
Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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APPENDIX E REPRESENTATIVE PHOTOGRAPHS

Photo 1. Representative view of the ROW near structure proposed 410. View west towards the Streeter Pond substation. May 2023.

Photo 2. Wetland W010 near proposed structure 420. View facing west. May 2023.

Photo 3. Wetland W018. View northeast towards proposed structure 426. May 2023.

Photo 4. PRA wetland W027 near proposed structure 436. May 2023.

Photo 5. Representative ROW photo near proposed structure 436. May 2023.

Photo 6. Indian Brook (Stream S012) through PRA near wetlands W032, W033, and W034 near proposed structure 440. May 2023.

Photo 7. Representative ROW photo near proposed structure 448. May 2023.

Photo 8. Miller Pond, including PRA wetlands W052 and W053. May 2023.

Photo 9. Representative ROW photo near proposed structure 465 and PRA wetland W057. May 2023.

Photo 10. Representative ROW photo near proposed structure 477 and PRA wetland W064. May 2023.

Photo 11. PUB portion of PRA wetland W064 near proposed structure 480. May 2023.

Photo 12. Black Brook (stream S024), west of structure 483. May 2023.

Photo 13. ROW view facing north from wetland W068 towards proposed structure 485. May 2023.

Photo 14. Wetland W074, view facing south out of ROW. Near proposed structure 492. May 2023.

Photo 15. PRA Wetland W079. Near proposed structure 496. May 2023.

Photo 16. Vernal pool CVP08 within wetland W087, west of proposed structure 507. May 2023.

Photo 17. Ammonoosuc River (stream S027) from PRA wetland W089 facing west. May 2023.

Photo 18. Representative ROW upland north of proposed structure 520. May 2023.

Photo 19. Wetland W101. North of proposed structure 531. May 2023.

Photo 20. Man-made vernal pool CVP11 within wetland W105, north of proposed structure 534. May 2023.

Photo 21. Perennial stream S030, south of Forest Lake Road. May 2023.

Photo 22. Vernal pool CVP12. Within rutted wetland W110 between proposed structures 537 and 538. May 2023.

Photo 23. Man-made vernal pool CVP13. Within wetland W112, west of proposed structure 539. May 2023.

Photo 24. ROW view facing north into PRA wetland W118 near proposed structure 547. May 2023.

Photo 25. Man-made vernal pool CVP17. Within wetland W124, near proposed structure 555. May 2023.

Photo 26. Perennial stream S031 within PRA wetland W130, north of proposed structure 566. May 2023.

Photo 27. Vernal pool CVP23 within wetland W131, west of proposed structure 571. May 2023.

Photo 28. ROW view facing east towards PRA Wetland W134 and W135 and Johns River. May 2023.

Photo 29. Johns River (stream S035), view facing west from PRA wetland W135 toward PRA wetland W134. May 2023.

Photo 30. Distribution line ROW in wetland W142 looking east towards Cherry Valley Road. October 2023.

Photo 31. Existing Off-ROW access road between wetlands W156 and W157. October 2023.

Photo 32. PFO portion of wetland W001, between existing ROWs. November 2023.

APPENDIX F WAIVER REQUESTS

Alteration of Terrain Waiver Request

RSA/Rule: RSA 485-A:17, Env – WQ 1500

Water Division / Alteration of Terrain Bureau / Land resources Management
29 Hazen Drive, PO Box 95
Concord, New Hampshire 03302-0095

A. PROJECT INFORMATION	
X178-3 Transmission Line Rebuild Project **Project Name**	
Existing X178 Transmission Line Right-of-Way **Street Address**	
Sugar Hill, Bethlehem, Dalton, Whitefield **City/Town**	Multiple **Zip Code**
Multiple – see attached plans **Tax Map/Lot Number**	

B. APPLICANT/OWNER INFORMATION		
Ashley **First Name**	Friend **Last Name**	
Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource) **Organization**		
13 Legends Drive **Street Address**		
Hooksett **City/Town**	New Hampshire **State**	03106 **Zip Code**
ashley.friend@eversource.com **Email**	603-634-2992 **Telephone Number**	

C. APPLICANT/OWNER AGENT INFORMATION		
Andrew **First Name**	Ackerman **Last Name**	
Stantec Consulting Services Inc. **Organization**		
5 Dartmouth Drive **Street Address**		
Auburn **City/Town**	New Hampshire **State**	03032 **Zip Code**
andrew.ackerman@stantec.com **Email**	603-877-8198 **Telephone Number**	

D. WAIVER REQUESTS

Env-Wq 1503.12 (d)(1&2) **Rule Section Waiver Request**	Measurement of Contiguous Area Disturbed; Inclusion in Plans **Name of Rule**

Reason for Waiver Request
Eversource is requesting a waiver for including past terrain disturbance in the measurement of contiguous disturbed area included in this X178-3 Line AoT application. No known future disturbance, beyond the scope of X178-3 line rebuild project described in this application, is known at this time.

Waiver Timeline
Permanent

Proposed Alternative
Existing terrain alteration associated with past transmission line maintenance within the X178-3 ROW is present in some locations, but that work is complete, and these areas have since been restored. Any existing trails or access roads that may have been created within the last 10 years will be utilized and/or improved as part of this project and have been included in the current calculations within this application. Future structure maintenance may occur within the X178-3 ROW. Eversource, through consultation with NHDES, will evaluate whether future terrain disturbances within the X178-3 ROW will be permitted with an amendment to this application or subject to a new, separate application.

Compliance with Env-Wq 1503.12 (d)(1&2)
The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining and replacing existing utility infrastructure. This project is necessary to maintain the safety and reliability of the electrical infrastructure. Proposed disturbances anticipated for 2024-2026 within the X178-3 ROW are included in this application and shown on Figures 3 and 4. Project disturbances included in this application and subsequent permit approvals will be considered if future structure maintenance is proposed within the X178-3 ROW. Eversource respectfully requests a waiver from including past disturbance in this application. Future disturbances within the X178-3 ROW will be evaluated and discussed with NHDES and permit amendments or new permit applications will be submitted, if necessary.

E. SIGNATURES

2/27/24

Applicant/Owner, **Ashley Friend,** Date
Public Service Company of New Hampshire d/b/a Eversource Energy

2/27/24

Applicant/Owner Agent, **Andrew Ackerman,** Date
Stantec Consulting Services Inc.

Alteration of Terrain Waiver Request

RSA/Rule: RSA 485-A:17, Env – WQ 1500

Water Division / Alteration of Terrain Bureau / Land resources Management
29 Hazen Drive, PO Box 95
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Sugar Hill, Bethlehem, Dalton, Whitefield **City/Town**	Multiple **Zip Code**
Multiple – see attached plans **Tax Map/Lot Number**	

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13 Legends Drive **Street Address**		
Hooksett **City/Town**	New Hampshire **State**	03106 **Zip Code**
ashley.friend@eversource.com **Email**	603-634-2992 **Telephone Number**	

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5 Dartmouth Drive **Street Address**		
Auburn **City/Town**	New Hampshire **State**	03032 **Zip Code**
andrew.ackerman@stantec.com **Email**	603-877-8198 **Telephone Number**	

D. WAIVER REQUESTS

Env-Wq 1503.21 (d)(6&7) **Rule Section Waiver Request**	Notification; Certification **Name of Rule**

Reason for Waiver Request

Eversource is requesting a waiver for deviations from the approved plans without applying for an amended permit or a new permit if shifts in the proposed project layout occur. Changes in project layout are sometimes identified during construction by Eversource and their contractors and may be necessary to safely perform the work or avoid rare species locations identified during field surveys or biological monitoring. The need for additional permit applications can impact construction schedules and incur costly delays.

Waiver Timeline

Permanent

Proposed Alternative

Allow for the access road centerlines to be relocated during construction, if necessary, up to a distance equal to the approximate width of the ROW (approximately 150 to 300 feet on the X178 line). Shifts would not create greater than 5% increase in disturbed area along the individual access segment, which is assumed to be the length of the access road and associated work pads between designated access points from public or private roads.

Allow for the center point of the parking area, assumed to be the structure replacement work pads for transmission line projects, to be relocated during construction, if necessary, up to a distance equal to half the approximate width of the ROW (approximately 75 to 150 feet on the X178 line). Shifts would not create greater than 5% increase in disturbed area at each work pad.

This would allow contractors to avoid steep terrain or other hazardous areas, or areas that may require significant grading or earthwork that may not have been identified during initial constructability reviews. Landowners may also request layout changes be made after project permitting is complete. Avoidance of rare species may also necessitate shifts. In most cases this shift is done to reduce the amount of disturbed area. Increased wetland impacts, or impacts to new wetlands, would not be allowed under this waiver.

Compliance with Env-Wq 1503.21 (d)(6&7)

The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining existing utility infrastructure. This project is necessary to maintain the safety and reliability of the electrical infrastructure. Proposed disturbances shown on Figures 3 and 4 of the AoT application are the result of avoidance and minimization measures and constructability reviews. Layout changes and shifts will be limited to the proposed alternative above. A reduction in disturbed area is often the result. All other Best Management Practices will be utilized to protect wetlands from erosion, sedimentation, or other environmental degradation as originally proposed. Eversource respectfully requests a waiver from limiting shifts of the project road centerlines and parking areas to 20 feet.

E. SIGNATURES

2/27/24

Applicant/Owner, **Ashley Friend,** Date
Public Service Company of New Hampshire d/b/a Eversource Energy

2/27/24

Applicant/Owner Agent, **Andrew Ackerman,** Date
Stantec Consulting Services Inc.

Alteration of Terrain Waiver Request

RSA/Rule: RSA 485-A:17, Env – WQ 1500

Water Division / Alteration of Terrain Bureau / Land resources Management
29 Hazen Drive, PO Box 95
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5 Dartmouth Drive **Street Address**		
Auburn **City/Town**	New Hampshire **State**	03032 **Zip Code**
andrew.ackerman@stantec.com **Email**	603-877-8198 **Telephone Number**	

D. WAIVER REQUESTS	
Env-Wq 1504.09 **Rule Section Waiver Request**	Stormwater Drainage Report; Drainage Area Plans; Hydrologic Soil Group Plans **Name of Rule**

Reason for Waiver Request
Eversource is requesting a waiver for preparing a Stormwater Drainage Report, Drainage Area Plans, and Hydrologic Soil Group Plans for proposed access improvements and work pad grading associated with the rebuild of the existing X178-3 Transmission Line. The proposed access and work pad improvements for the transmission line rebuild work will not result in new impervious surfaces. As a result, stormwater treatment practices are not proposed.

Waiver Timeline
Permanent

Proposed Alternative
The proposed access and work pad improvements will not result in new impervious surfaces. Therefore, there is no proposed alternative to substitute the requirements of Env-Wq 1504.09.

Compliance with Env-Wq 1504.09
The project proposes to improve access routes and work pads around utility structures for the purpose of maintaining existing utility infrastructure. This project is necessary to maintain the safety and reliability of the electrical infrastructure. Access and work pad improvements will be completed using stone and gravel; therefore, stormwater drainage should not be affected by the proposed project. In addition, it is not anticipated that stormwater drainage area plans would show significant differences between existing and proposed conditions. An NRCS Web Soil Survey report was generated to show general soil information within the project area. Since there is no new impervious surface area proposed and stormwater drainage is not anticipated to be affected by the proposed project, it is not anticipated that soils will be significantly impacted by the project.

Best Management Practices will be utilized to protect wetlands from erosion, sedimentation, or other environmental degradation. In addition, gravel work pads will be coated with seed and mulch to allow vegetation growth on the surface, further minimizing and preventing erosion and sedimentation. As a result, Eversource respectfully requests a waiver from providing a Stormwater Drainage Report, Drainage Area Plans, and Hydrologic Soil Group Plans for the purposes of the proposed utility line maintenance project.

E. SIGNATURES

2/27/24

Applicant/Owner, **Ashley Friend,** Date
Public Service Company of New Hampshire d/b/a Eversource Energy

2/27/24

Applicant/Owner Agent, **Andrew Ackerman,** Date
Stantec Consulting Services Inc.


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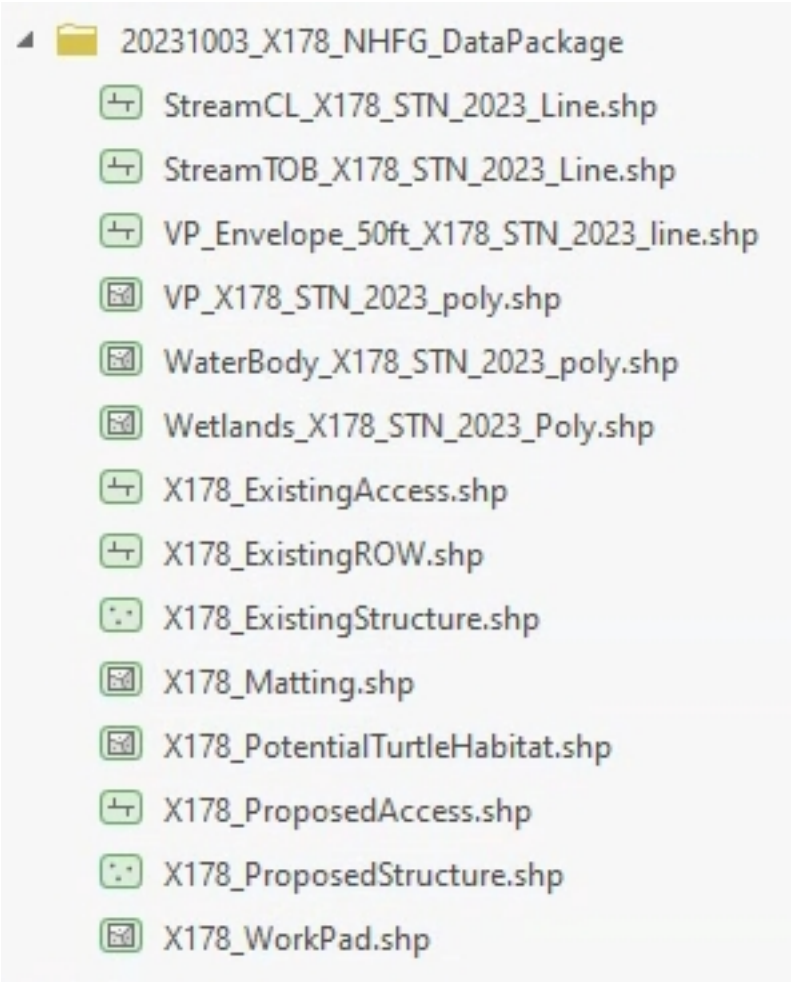
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X178_ProposedStructure.shp
X178_WorkPad.shp


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Redaction Log

Total Number of Redactions in Document: 5

Redaction Reasons by Page

Page	Reason	Description	Occurrences
130	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
131	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
132	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
139	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1
140	CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	1

Redaction Log

Redaction Reasons by Exemption

Reason	Description	Pages (Count)
CONFIDENTIAL DNCR	NH RSA 91-A:5, IV Confidential information. NH Department of Natural and Cultural Resources (DNCR) has asserted a claim of confidentiality. See also NH RSA 212-A, RSA 212-B, RSA 217-A, and/or RSA 227-C:11.	130(1) 131(1) 132(1) 139(1) 140(1)