

**Massachusetts Department of Conservation and Recreation**  
**Division of Water Supply Protection, Office of Watershed Management**  
**Forest Management Project Proposal Summary for Public Comment**

Location, goals, and summary of proposed forest management.

| Proposal Summary Item                        | Item Information/Description  |
|--|---|
| <b>Lot Proposal ID</b>                       | <b>PE-26-10</b>   |
| <b>Fiscal Year</b>                           | 2026  |
| <b>Watershed</b>                             | Quabbin   |
| <b>Town(s)</b>                               | Pelham  |
| <b>Forester</b>                              | Richard G MacLean   |
| <b>Estimated Acres by Treatment Type</b>     | 22 acres in regeneration openings and an additional 44 acres in thinning  |
| <b>Total Proposal Acres</b>                  | 78  |
| <b>Block</b>                                 | Pelham  |
| <b>Compartment and/or Working Unit</b>       | 10  |
| <b>Location and Boundary Description</b>     | Located at the eastern end of Bohmer Road. The proposal sits at the top of a ridgeline. The boundary follows an old cart road southeast, and then follows the break in slope south by southeast until reaching a large dense thicket of mountain laurel. The western side of the proposal follows the break in slope on the western side of the ridge and along a 200 ft buffer of a vernal pool, and beaver pond.  |
| <b>Previous Proposal?</b>                    | None  |
| <b>Project Goals and Summary Description</b> | The proposed area has very little tree regeneration, and little to no diversity in what regeneration is present. There is abundant evidence of past heavy deer and moose browse, which is a likely driver of the absence of preferred browse species and, in limited places, established fern or mountain laurel as an interfering cover. This proposed harvest seeks to create conditions for abundant regeneration to establish and, if possible, to construct a slash wall area to exclude large browse animals. |

**Forest Cover Types and Acreages**

| Overstory Forest Types | Acres |
|------------------------|-------|
| Black birch - Hardwood | 25    |
| Oak - Hardwoods        | 25    |
| White pine - Oak       | 18    |
| White pine - Hardwoods | 7     |
| Northern hardwoods     | 3     |

**Understory Cover Types and Relative Importance**

| Understory Cover Type                        | Relative area covered (Dominant, Secondary, Minor, None) |
|--|--|
| Tree seedlings and saplings                  | Secondary  |
| Mountain laurel                              | Secondary  |
| Mesic site - witch hazel, highbush blueberry |  |
| Dry site -Huckleberry, blueberry             |  |

| Understory Cover Type                      | Relative area covered (Dominant, Secondary, Minor, None)  |
|--|---|
| Mesic site - cinnamon fern, mixed hardwood |   |
| Hayscented fern                            | Secondary   |
| Invasive shrubs/vines                      |   |
| Other                                      | Dominant. For a majority of the area vegetation is absent, or sparse enough to prevent confident assessment of what community might be present or supported without browse suppression. |

### Forest Vegetation Description

| Vegetation Topic   | Description   |
|--|---|
| <b>General Description, Forest Composition, Stand History, and Harvest History</b> | <p>Stand 1 is twenty-five acres of black birch hardwood in the middle of the proposed area. The composition of the overstory is unusual for the Quabbin Reservoir as the black birch is the majority canopy codominant species (57 %), with red maple (21 %), northern red oak (9 %), and eastern white pine (7 %), and minor amounts of eastern hemlock, black oak, and American beech. The 1938 real estate sheets record blazed black birch on a property line, suggesting that black birch has been a major component of the overstory for a long time here. The stand averages 137 (100 – 170) square feet basal area per acre and the canopy is dominated by black birch and red maple, with some scattered sprawling canopy northern red oaks. This stand contains 1.4 snags per acre, most of which were oaks killed in the recent spongy moth outbreak. Along the eastern edge closest to the reservoir emergent and other tall white pine will be retained for their potential wildlife benefit.</p> <p>Stand 2 contains twenty-five acres of oak hardwoods on the north end of the proposal. The overstory is 34 % eastern white pine, 21 % red maple, 17 % northern red oak, 17 % white oak, and 6 % black oak, with minor amounts of eastern hemlock and black birch. This stand averages 129 (80-170) square feet per acre basal area and 2.8 standing snags per acre, mostly spongy moth killed oaks. The eastern portions of this stand saw light harvest in 1985, likely as part of a spongy moth salvage. There is an intermittent stream which bisects this stand as it drains from a beaver pond at the top of the ridge. Along the stream there is dead and dying white ash with abundant evidence of emerald ash borer. The amount of downed logs suggests the ash was dying out prior to more recent emerald ash borer infestation. On the western edge there is a beaver pond, the proposed area buffers the pond by two hundred feet.</p> <p>Stand 3 is an eleven acre white pine oak stand in the north west corner of the proposed area. The overstory composition is 35 % northern red oak, 27 % black birch, 22 % eastern white pine, and 11 % red maple with minor amount of hickory. The canopy is dominated by large wide oak canopies and tall to emergent white pine. The stand averages 125 (80-150) square feet basal area per acre and contains one snag per acre. This stand was harvested in the same 1985 harvest as Stand 2.</p> |

| Vegetation Topic   | Description   |
|--|---|
| <b>General Description, Forest Composition, Stand History, and Harvest History (cont.)</b> | <p>Stand 4 is a white pine hardwood stand of seven acres located at the eastern edge of the proposal. This stand sits at the lowest edge of the proposal but is on a bench above steeper slopes leading down to the reservoir. The overstory composition is 35 % eastern white pine, 31 % black birch, 15 % northern red oak, 12 % red maple, with minor amounts of eastern hemlock and American beech. The canopy is dominated by eastern white pine with many emergent pines. Most of the remaining canopy is northern red oak as the black birch is mostly small pole sized trees growing into small gaps created by standing snags. The stand averages 131 (100 – 150) square feet per acre basal area and contains nearly 2 snags per acre. The 1938 real estate sheets and aerial imagery show that this area was regrowing to young forest at this time. This stand contains a known bald eagle nest that is known to have been active several years ago.</p> <p>Stand 5 contains 7 acres of white pine oak at the southern end of the proposed area. The overstory is dominated by eastern white pine (35 %) and northern red oak crowns (15 %) but with a large component of canopy codominant black birch (31 %), and red maple (4 %) with minor amounts of eastern hemlock and white ash. The stand averages 128 (100-150) square feet of basal area and two standing snags per acre. A similar overstory composition continues to the south, but understory mountain laurel transitions into an extensive dense thicket.</p> <p>Stand 6 is three acres of northern hardwoods in the northern end of the proposed area. With a northern aspect and slightly enriched soils, this stand contains the only sugar maple (47 %) in the proposed area, along with black cherry (24 %), northern red oak (18 %), white ash (6 %), and red maple (6 %). The canopy was dominated by large sugar maple and white ash crowns, but nearly all of the canopy ash has died from recent ash decline and emerald ash borer invasion. This mortality has resulted in the stand having 1.4 standing snags per acre, and a large amount of large diameter coarse woody debris from snags which have already fallen.</p> |
| <b>Advance Regeneration description</b>  | <p>Stand 1. The understory of stand 1 exhibits evidence of past and recent heavy browse. Half of measured plots had little to no regeneration with most of these plots containing only scattered fern and eastern white pine seedlings. Another third of the plots contained monoculture pockets of dense eastern white pine seedlings to saplings. The remaining plots were either dominated by abundant fern cover or contained scattered amounts of heavily browsed stripe maple. The stripe maple showed multiple years of heavy browse and where individual American beech or black birch saplings were present, they also had growth forms evident of past heavy browse pressure. The browse line on this hardwood regeneration ranged from a foot above ground to six feet, indicating both deer and moose are contributing to the browse damage.</p> <p>Stand 2's understory was 56 % in little to no regeneration, and what little regeneration was present was eastern white pine and black birch. Another 33 % of the area had monoculture regeneration of eastern white pine, or red maple. The remaining area was heavily impacted by browse damage, black birch present in these plots was browsed hard enough to prevent viability, and only eastern white pine was present otherwise</p> <p>Stand 3. Understory vegetation in this stand was mostly in monocultural eastern white pine, or red maple (43 %). The remainder of the area was split between having little to no regeneration present or regeneration interference from dense mountain laurel. The dense mountain laurel is in the southwest corner near the beaver pond and is on thin ledge ridge top soils.</p>  |

| Vegetation Topic                                | Description  |
|---|--|
| <b>Advance Regeneration description (cont.)</b> | <p>Stand 4 understory composition is 50 % monoculture eastern white pine, with the remaining area in little to no regeneration with scattered black birch, or regeneration interfered by dense mountain laurel.</p> <p>Stand 5 regeneration was dominated by eastern white pine in pockets of dense monoculture (67 %) or scattered marginal density (33 %). This stand is bordered by dense, tall mountain laurel to the south, outside of the proposed treatment area.</p> <p>Stand 6 has an understory that demonstrates the negative effects of heavy browse pressure. The only tree regeneration present is scattered stems of heavily browsed striped maple. The rest of the ground cover is dense fern. There is not any sugar maple or white ash regeneration present. The presence of the fern thatch and collapse of the white ash will likely result in the establishment of smaller seeded species such as black birch and white pine and exclude larger seeded species such as oak and hickory.</p> |
| <b>Terrestrial Invasive Plants description</b>  | There is a small amount of Japanese barberry ( <i>Berberis thunbergii</i> ) in the northern hardwoods at the north end of the harvest area. No other invasive species were observed while sampling.  |

#### Description of Wetland Resources Present

| Resource Type       | Description of resources present  |
|---------------------|---|
| <b>Wetlands</b>     | None present within the harvest area  |
| <b>Streams</b>      | One intermittent stream bisects the harvest area. This stream is drainage from the beaver pond at the top of the ridge.     |
| <b>Vernal pools</b> | None present within the harvest area; three verified vernal pools are nearby but greater than 200 ft from potential harvest |
| <b>Seeps</b>        | Seeps are present near the western edge of the harvest area, at the lower end of the slope draining into ephemeral streams. |

#### Description of Soils by Hydric Class

| Soil Hydric Classes                  | % of area | Soil series and any further comments  |
|--------------------------------------|-----------|---|
| <b>Excessively Drained</b>           | 0         |   |
| <b>Well-drained Thin</b>             | 76        | Charlton-Hollis-Rock-outcrop  |
| <b>Well-drained thick</b>            | 24        | Mainly Canton fine sandy loam, with Gloucester gravelly fine sandy loam, both extremely stony |
| <b>Moderately well-drained</b>       | 0         |   |
| <b>Poorly to very poorly drained</b> | 0         |   |

#### Proposed Silvicultural Activities

| Topic  | Description   |
|--|---|
| <b>Site Selection and Silvicultural Objectives</b> | <p>The high ridge position of the proposed area increases its vulnerability to a large-scale wind disturbance. The lack of advanced regeneration further increases the vulnerability of the area to experience delayed regeneration in the event of such a large-scale wind disturbance. The objective of this treatment is to increase forest resiliency by creating the conditions allowing for establishment of new tree regeneration.</p>   |
| <b>Silviculture Prescription</b>                   | <p>Stand 1. The desired future condition of this stand is an overstory with a more diverse age structure, oaks having a more prominent place in the composition, and an understory with more abundant and more diverse regeneration. To accomplish this condition in the face of heavy browse pressure a four-acre slash wall around a regeneration opening is proposed, along with a comparative four-acre regeneration opening without a wall. Additionally, heavy thinning will be performed throughout the stand targeting suppressed and poorly formed black birch and red maple and reducing the codominant black birch in the canopy. If a slash wall proves to be infeasible at this site, roughly a third of the stand will be regenerated with regeneration openings ranging one to two-acres in size with five to ten square feet of interior retention. Retention trees will favor oaks. The northern end of this stand, where it abuts Stand 4, may be affected by bald eagle conservation management practices buffers. Should any nests be active at the time of harvest, three acres would be restricted to harvest of only suppressed and intermediate canopy trees. To plan for this possibility, that area will only be treated with thinning of suppressed and intermediate canopy trees, with midstory treatments focused on tending existing overstory white pine. The largest diameter oak trees will be retained throughout the stand to maintain their carbon storage, wildlife habitat benefits, and as a long term legacy age class.</p> <p>Stand 2. The desired future condition of this stand is an oak hardwood overstory, with a high proportion of northern red, black, and white oaks, and a secondary component of hickory, red maple, black birch, eastern white pine. Desired regeneration would favor oaks and hickory. To accomplish this desired stand, regeneration openings will target concentrations of overstory black birch and red maple for removal where there is diverse oak regeneration available for retention. Eight acres of openings will range one to two acres in size, with their individual size drive by seed tree presence, understory, and other site characteristics. Between the openings thinning will similarly target black birch and red maple to reduce their seeding influence on openings. Where hickory is present, thinning will be used adjacent to encourage new hickory recruitment. Future regeneration openings will be placed adjacent to these openings to further release established regeneration. A third of the stand will be retained long term as a legacy age class. While the intention will be to preserve this existing age class long term, future changes to the stand due to pests, pathogens, disturbance, or climate change may necessitate the reevaluation for management.</p> |

| Topic                                    | Description  |
|--|--|
| <b>Silviculture Prescription (cont.)</b> | <p>Stand 3. The desired future condition of this stand is a pine oak overstory with a greater proportion of oak in the overstory, and increased age and height diversity. This stand will be treated with three acres of regeneration opening treatments. Openings will range from one to two acres in size and focus on establishing openings with high edge oak retention to create the conditions where oak regeneration could establish. A third of the stand will be retained long term as a legacy age class. While the intention will be to preserve this existing age class long term, future changes to the stand due to pests, pathogens, disturbance, or climate change may necessitate the reevaluation for management.</p> <p>Stand 4. In order to support current and future bald eagle populations the desired future condition of this stand is an eastern white pine stand with establish white pine regeneration. Treatment of this stand will be thinning and small regeneration openings. Following bald eagle conservation management practices and collaborating with DWSP Natural Resources, and current actively, or recently active nest trees will be located and clearly marked for retention. A majority of treatment within the stand will be light thinning to release potential nesting trees, or reduce establishing black birch (not a preferred nesting species). Regeneration openings less than an acre in size will be used to release pockets of white pine regeneration to serve as future nesting trees.</p> <p>Stand 5. The desired future condition of this stand is a pine oak overstory with a greater proportion of oak in the overstory, and increased age and height diversity. This stand will be treated with two acres of regeneration openings ranging from one to two acres in size and focused on release of existing white pine regeneration, or establishing openings with high edge oak retention to create the conditions where oak regeneration could establish. A third of the stand will be retained long term as a legacy age class. While the intention will be to preserve this existing age class long term, future changes to the stand due to pests, pathogens, disturbance, or climate change may necessitate the reevaluation for management.</p> <p>Stand 6. The desired future condition is a sugar maple dominated stand with sugar maple regeneration present. Given the high browse pressure and small size of the stand, it's unlikely that sugar maple regeneration will be achievable until browser populations decrease. Since it will be difficult to regenerate sugar maple under current conditions this stand will only be treated with light thinning of non-desirable species to release current overstory sugar maple.</p> |

**General Climate Change Considerations:**

*This silvicultural approach is designed to improve forest resilience by initiating structural and species diversity and enhancing the forest’s adaptive capacity to climate-related stressors. Currently, the area is marked by a lack of adequate regeneration, low species diversity in the understory, and the pervasive impacts of deer and moose herbivory, which threaten the forest’s long-term ecological stability and capacity to recover from disturbance events like windthrow, pests, or drought. The use of slash walls to protect seedlings from herbivory will help to ensure regeneration success. By creating space for desirable regeneration, diversifying stand structure, and tailoring silviculture to species and site conditions, the treatment builds adaptive capacity, promotes regeneration, and lays the groundwork for a more resilient, climate-ready forest.*

**DWSP has determined that the decision to implement this project is consistent with EEA climate goals and guidelines and agency land management objectives.** Climate change considerations specific to the activities proposed for this project are discussed below.

| Proposed Activity  | Alignment of Activity with Climate Oriented Strategies and Recommendations   |
|--|--|
| <p><b>Full overstory removal, partial stand, patch regeneration cut.</b><br/><b>(Stands 4 and 6)</b></p> | <p>Patch cutting is a regeneration technique that straddles the boundary between classic even-aged and uneven-aged forest management systems. Foresters select appropriate areas (‘patches’ or ‘groups’) covering a portion of the stand to harvest rather than removing the entire stand and then return periodically to repeat the process in other portions of the stand. In using patch cutting there is no final regeneration cut. Patch size and shape are determined by many different factors including overstory condition, desired species composition in the regeneration layer, other desirable herbaceous and woody vegetation, location, stand re-entry period, etc. Harvesting in patches aligns with many <b>climate-smart forestry practices</b>:</p> <ul style="list-style-type: none"> <li>• Increasing <b>structural diversity</b> improves resiliency by reducing the impact of age/size related disturbances.</li> <li>• Extending regeneration periods minimizes short term impacts to groundwater and nutrient cycling.</li> <li>• Partial stand overstory removals more closely align with <b>natural disturbance patterns</b>.</li> <li>• More <b>carbon is left on the landscape</b> for longer periods, and within-patch live tree, snag, and coarse debris retention allow for development of old forest characteristics.</li> <li>• Can also be used as opportunities to increase the stocking of <b>future climate adapted species, current climate imperiled species</b>, or other types of desirable vegetation.</li> </ul> |

| Proposed Activity   | Alignment of Activity with Climate Oriented Strategies and Recommendations   |
|---|--|
| <p><b>Diffuse overstory removal, partial cut, late rotation regeneration related.</b></p> <p><b>(Stands 1, 2, 3, and 5)</b></p> | <p>Partial cutting via single trees or small groups in a mature stand can advance a variety of management objectives as well as <b>climate-smart practices</b>. Single tree or very small group removals, if used exclusively and repeatedly, will perpetuate an <b>uneven-aged stand condition</b> with a species mix shifted towards higher shade tolerance. However, this type of harvest can also serve within an even-aged system to establish regeneration of species of lower shade tolerance under a partial canopy for subsequent release using larger group or patch cuts (irregular shelterwood) or complete-stand overstory removals. Advantages of partial overstory removals include, but not limited to:</p> <ul style="list-style-type: none"> <li>• Partial cutting <b>retains carbon on the landscape</b> for extended periods while regeneration develops.</li> <li>• Reducing competition for resources improves growth and <b>carbon sequestration</b> rates on residual trees.</li> <li>• Promotion of a diversity of age classes enhances overall forest <b>resiliency</b>.</li> <li>• Maintenance of continuous forest corridors provides for wildlife habitat.</li> <li>• As part of a regeneration system this method can be used to help guide species diversity towards more <b>future-adapted mixes</b>.</li> </ul> |
| <p><b>Slash wall construction</b></p> <p><b>(Stand 1)</b></p>   | <p>Slash walls are barriers built with on-site harvesting debris to <b>enclose and protect areas of tree regeneration</b> (natural or planted) from browsing and herbivory by deer and moose.</p> <p>Opportunities:</p> <ul style="list-style-type: none"> <li>• <b>No high carbon footprint materials</b> needed such as plastic or metal fencing.</li> <li>• Resulting piles of large diameter dead material are beneficial to many species of wildlife.</li> <li>• <b>No maintenance</b> required and never need to be removed as they decay on-site over time.</li> <li>• <b>Carbon retained longer on the landscape</b> as piles decompose more slowly than scattered material.</li> <li>• Maintain and improve the density and/or occurrence of desired species already regenerating on-site.</li> </ul> <p>Adjust and/or alter composition to species that may be more adapted to anticipated <b>future climate conditions</b>..</p>  |
| <p><b>Additional comments</b></p>   |  |

**Equipment and Access Constraints and Considerations**

| Constraint Topic                              | Description and Considerations   |
|---|--|
| Proposed Equipment requirements               | Due to stone walls, the possibility that a slash wall will be constructed and the likely need to forward on existing roads, a forwarder will be required.  |
| Proposed wetland or stream crossings          | One stream crossing will be utilized for crossing the intermittent stream bisecting the proposed area. Two crossings are proposed, only one will be utilized during operations.  |
| Further wetland comments                      | None   |
| Vernal Pools                                  | No vernal pools are present within the harvest area or adjacent to areas where equipment might operate.  |
| Access improvements needed                    | Improvements are needed to Bohmer Road from intersection 12-4 east. Drainage ditches need to be dug out, areas of washed road will need material and grading, and there is one narrow choke point that needs widening if possible. Widening may require crushing boulders/bedrock on the edge of the road. |
| Other EQ issues                               | None   |
| In-kind Services                              | None   |
| Other Access Concerns (parking, trails, etc.) | None   |

#### Subwatershed Analysis

| Sub-Watershed number/name | Total DCR-owned acres in this sub-watershed | Acres regenerated on DCR land in the last 10 years in this sub-watershed | Total DCR-owned acres remaining for regenerating up to the 25% per 10 year limit for this sub-watershed | Acres in this sub-watershed that are part of this proposed lot |
|---------------------------|---|--|---|--|
| Pelham Hollow Shore       | 769   | 114.4  | 78  | 74   |
| Purgee                    | 1559  | 20.5   | 369   | 4  |

#### Additional comments on Subwatershed analysis:

#### Wildlife and Habitat Observations and Considerations

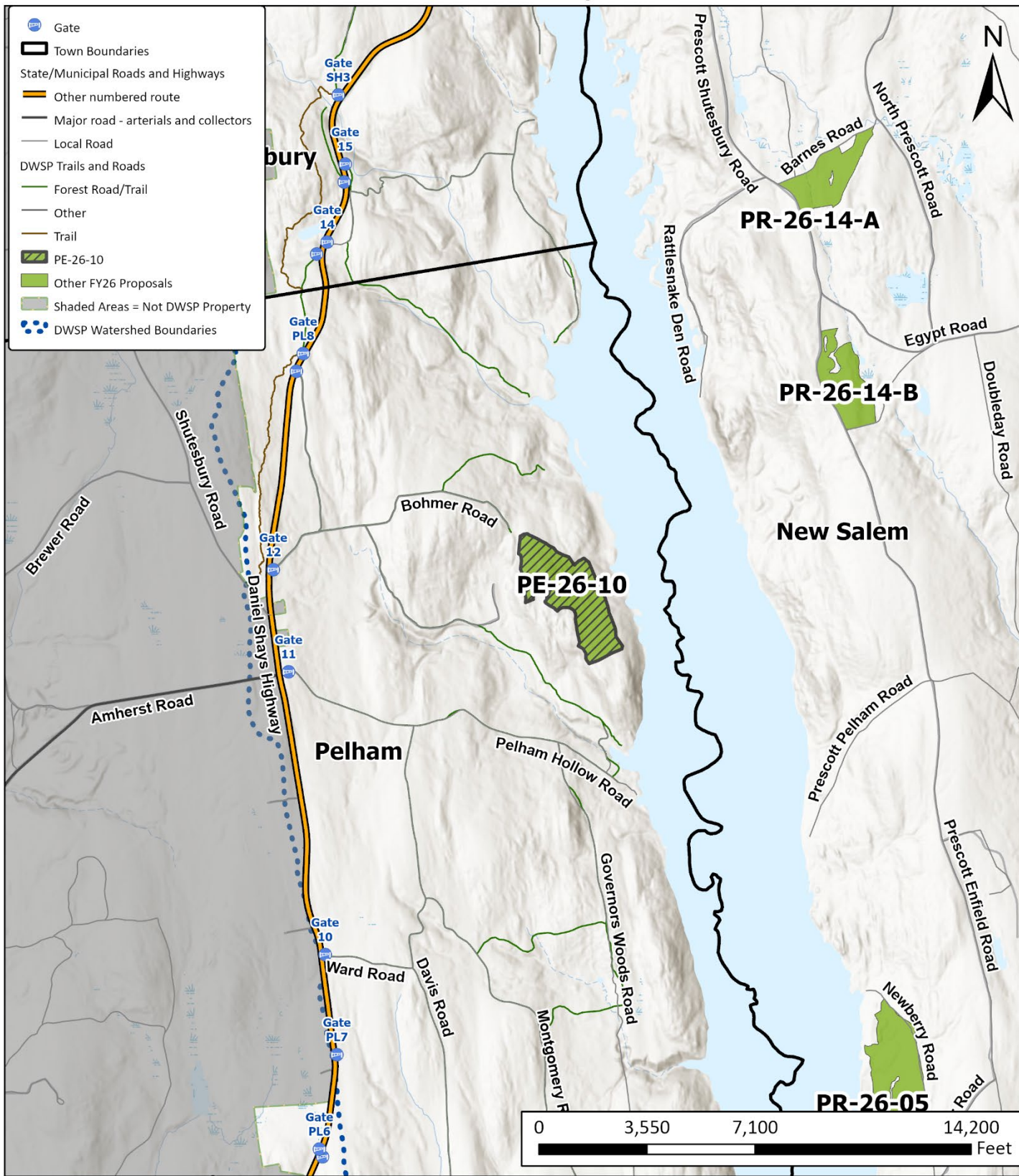
| Wildlife/Habitat                    | Observations and Considerations   |
|-------------------------------------|---|
| Natural Heritage Priority Habitats? | Yes   |
| State Listed species present:       | Yes   |
| Rare Natural Communities:           | No  |
| General Wildlife Comments           | A bald eagle nesting site was identified in the proposed area many years ago. It's unknown if the nest is still active. Heavy browse has been present in the proposed area for many decades. Evidence of browse pressure is present in browsed damaged striped maple, eastern hemlock, black birch, and occasionally even on the mountain laurel. Deer and moose scat was observed during sampling. |

**Cultural Resources Description and proposed protection measures**

| <b>Cultural Resource</b>  | <b>Description and proposed protection measures</b>   |
|---|---|
| <b>Historical features present; comments regarding protection</b>   | <p>Stone walls are present throughout the proposed area, but are concentrated in the northwest corner, as well as the eastern side. There are three known foundations, one is to the northwest of the landing, just outside of the proposed area. Another is south by southeast of the end of the old cart road on the northeast edge. The final is in the middle of the eastern edge of the proposed area. Notation on the 1938 taking sheets and aerial imagery suggest that none of these foundations were in use at the time of the taking. Existing barways and breaks in walls will be used during forwarding, walls and foundations will be flagged and protected during operations.</p> |
| <b>Description of site characteristics in relation to Ancient sites modeling or other verified evidence</b> | <p>Aside from a north south strip of ridge top in the northwest corner, almost none of the proposed area is &lt; 7 % slope. The adjacent beaver pond may have served as a perennial water source in the past, but there are otherwise no perennial water sources nearby. Portions of the proposed lot in the northwest and northeast of the proposed area are classified as very stony.</p>   |



### PE-26-10 -- Locus Map



1 inch equals 4,000 feet





### PE-26-10 -- Stand Map

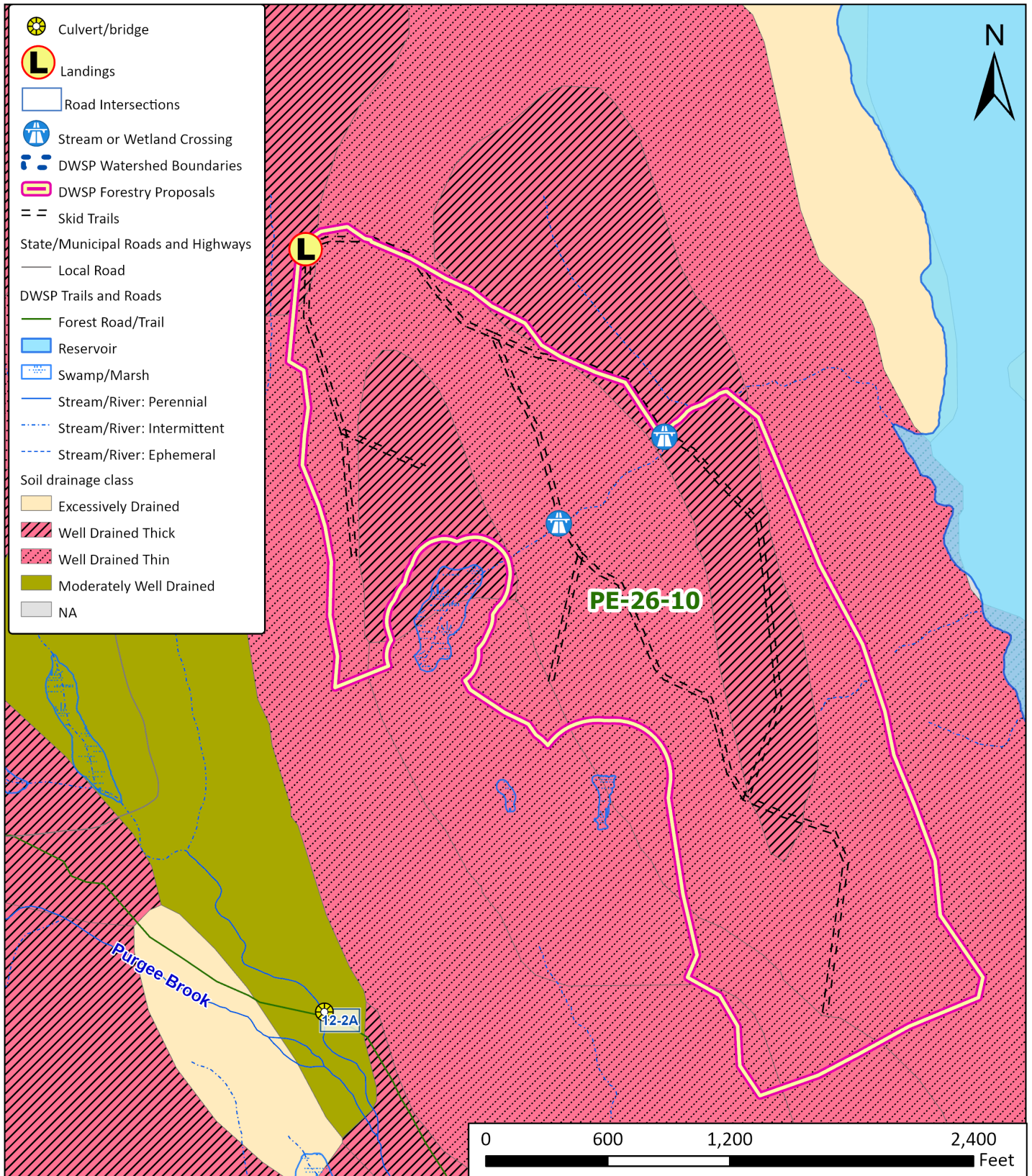


1 inch equals 600 feet





### PE-26-10 -- Soil Drainage Classes



1 inch equals 600 feet





### PE-26-10 -- Wetlands and Wildlife Resources





# PE-26-10 -- Cultural Resources and Landscape Characteristics

