

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 |
|--|--|
| Lot Proposal ID | WA-26-151 |
| Fiscal Year | 2026 |
| Watershed | Wachusett |
| Town(s) | Holden |
| Forester | Greg Buzzell |
| Estimated Acres by Treatment Type | 21 acres of thinning to establish regeneration, 3 acres in regeneration patch cuts. |
| Total Proposal Acres | 42 |
| Block | n/a |
| Compartment and/or Working Unit | 151 |
| Location and Boundary Description | In the west side of Holden off of Broad St. (Rt. 68). This area is bound on the east and south sides by property boundary line; on the west side by an internal, unmarked line that connects through the center of several wetlands and over both high and low points in topography and along a stream and on the north side by property boundary line that is a stone wall. |
| Previous Proposal? | No |
| Project Goals and Summary Description | <p>This 42-acre forest is part of a larger parcel that was acquired in 1997 for the protection of water quality. Forests provide exceptional water quality protection and yield high-quality water. Active forest management can increase the resistance and resilience of these watershed protection forests to disturbance by deliberately diversifying forest age structure and species composition.</p> <p>The predominantly red oak forest in this area is not sufficiently diverse, particularly in age structure with 100% greater than 80 years old. Given the lack of adequate numbers and diversity of young trees and a thick understory of mountain laurel, this operation will focus on encouraging the establishment of tree seedlings. This will be accomplished by removing portions of the older overstory while damaging the inhibiting mountain laurel.</p> |

Forest Cover Types and Acreages

| Overstory Forest Types | Acres |
|------------------------|-------|
| Northern red oak | 27.3 |
| White Pine - Oak | 11.9 |
| White pine | 2.4 |

Understory Cover Types and Relative Importance

| Understory Cover Type | Relative area covered (Dominant, Secondary, Minor, None) |
|-----------------------------|--|
| Tree seedlings and saplings | Minor |
| Mountain laurel | Dominant |

| Understory Cover Type | Relative area covered (Dominant, Secondary, Minor, None) |
|--|---|
| Mesic site - witch hazel, highbush blueberry | Minor |
| Dry site -Huckleberry, blueberry | None |
| Mesic site - cinnamon fern, mixed hardwood | None |
| Hayscented fern | None |
| Invasive shrubs/vines | None |
| Other | None |

Forest Vegetation Description

| Vegetation Topic | Description |
|--|---|
| General Description, Forest Composition, Stand History, and Harvest History | This property was acquired in 1997. The red oak stand is comprised primarily of red oak along with white oak, white pine, black birch and red maple. There is an area in the northeast end of this area that, perhaps due to a fire or other disturbance, has a significant component of beech and bigtooth aspen and little mountain laurel in the understory. The beech is heavily infected by beech bark disease and beech leaf disease. The white pine-oak stand has a similar composition along with a component of white pine. The defining characteristic of this entire area is a very thick understory of mountain laurel that allows very little else to grow. There are the occasional saplings of pine, red maple, hemlock, black birch, beech and others, but these are widely scattered for the most part. The only area where there is adequate advance regeneration is in the far west side |
| Advance Regeneration description | Sampling found adequate advance regeneration in just 2% of the plots with marginally adequate regeneration in an additional 2%. What little regeneration is present is comprised of white pine, red maple, hemlock, black birch and beech. |
| Terrestrial Invasive Plants description | Sampling found no terrestrial invasives present. |

Description of Wetland Resources Present

| Resource Type | Description of resources present |
|----------------------|--|
| Wetlands | There are several shrub swamps throughout the southern half of this area and a bordering vegetated wetland associated with the stream along the northwest edge of this area. |
| Streams | A stream forms the northwest edge of this area. |
| Vernal pools | None known although the shrub swamps may be worth checking. |
| Seeps | Known known. |

Description of Soils by Hydric Class

| Soil Hydric Classes | % of area | Soil series and any further comments |
|--------------------------------------|------------------|---|
| Excessively Drained | 47 | Merrimac sandy loam |
| Well-drained Thin | 0 | |
| Well-drained thick | 53 | Paxton fine sandy loam |
| Moderately well-drained | 0 | |
| Poorly to very poorly drained | 0 | |

Proposed Silvicultural Activities

| Topic | Description |
|--|--|
| Site Selection and Silvicultural Objectives | <p>This working unit was selected due both to the lack of age diversity in the forests of this subwatershed and in this working unit itself. Most of this area is within subwatershed #22 (Quinapoxet Reservoir). Only 5% of the forest stands within this subwatershed are 20 years old or less. Within the 42 acres of this working unit, there are no stands 20 years old or less while 100% of the stands are more than 80 years old with 94% greater than 100 years old. The age structure of this working unit is as follows: 0%, 0-20 years old; 0%, 21- 40 years; 0%, 41-60 years; 0%, 61-80 years; 6%, 81-100 years; 94%, 100+ years old. The oldest stands date to about 1895 making them 130 years old.</p> <p>Given the lack of young stands in this area, the interfering understory of mountain laurel resulting in the lack of adequate advance regeneration, the primary goal will be to encourage the establishment of regeneration comprised of species well suited to this site with the long-term goal of increasing the proportion of young forest stands in this area.</p> |
| Silviculture Prescription | <p>A technique that has shown to be effective in encouraging the establishment of regeneration in the presence of such a thick mountain laurel understory is the removal of about half of the overstory stocking on up to half of the area. This is done in blocks that range up to about 5 acres in size and are distributed throughout the area. In addition to the removal of a proportion of the overstory, effort is made to do as much damage to the mountain laurel in these blocks as possible. This allows for the establishment of regeneration and for its growth before the mountain laurel can recover to a point where it is again, inhibiting to seedling and sapling development.</p> <p>Therefore, a series of these blocks ranging up to 5 acres in size, well distributed and totaling up to 21 acres will be created. No cutting will occur between the blocks except for the removal of at least some of the black birch. In the very limited areas where there is presently adequate regeneration, openings in the overstory will be made to release these young trees. This is not expected to occur on more than 3 acres.</p> <p>After the operation, the age structure of the forest is estimated to be: 7%, 0-20 years old; 0%, 21-40 years; 0%, 41-60 years; 0%, 61-80 years, 6%, 81-100 years and 87%, 100+ years old.</p> |

Climate Change Considerations: DWSP has determined that the decision to implement this project is consistent with EEA climate goals and guidelines and agency land management objectives. Carbon and 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>Partial and Variable Overstory Removal. Regeneration Establishment.</p> <p>(see page 3, Silvicultural Prescription)</p> | <p>Partial cutting via single trees or small groups in a mature stand can advance a variety of management objectives as well as climate-smart practices. Single tree or very small group removals, if used exclusively and repeatedly, will perpetuate an uneven-aged stand condition 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"> • Partial cutting retains carbon on the landscape for extended periods while regeneration develops. • Reducing competition for resources improves growth and carbon sequestration rates on residual trees. • Promotion of a diversity of age classes enhances overall forest resiliency. • Maintenance of continuous forest corridors provides for wildlife habitat. • As part of a regeneration system this method can be used to help guide species diversity towards more future-adapted mixes. |

| Proposed Activity | Alignment of Activity with Climate Oriented Strategies and Recommendations |
|--|--|
| Patch Regeneration Cut (see page 3, Silvicultural Prescription) | <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 climate-smart forestry practices:</p> <ul style="list-style-type: none"> • Increasing structural diversity improves resiliency by reducing the impact of age/size related disturbances. • Extending regeneration periods minimizes short term impacts to groundwater and nutrient cycling. • Partial stand overstory removals more closely align with natural disturbance patterns. • More carbon is left on the landscape for longer periods, and within-patch live tree, snag, and coarse debris retention allow for development of old forest characteristics. • Can also be used as opportunities to increase the stocking of future climate adapted species, current climate imperiled species, or other types of desirable vegetation. |
| General/other Climate Change Considerations | <p>This silvicultural approach addresses a significant lack of age diversity and resilience in the forest structure. Currently, this working unit lacks any young forest stands and has very limited regeneration, with 94% of the area composed of trees older than 100 years. This lack of structural diversity weakens the forest's ability to respond to disturbance, adapt to changing conditions, and maintain key ecosystem services, including long-term watershed protection. The proposed treatment also targets a key barrier: the pervasive mountain laurel understory that inhibits regeneration and reduces biodiversity. The retention of live trees, snags, and coarse woody debris within patches will help develop old-growth characteristics, supporting biodiversity and long-term carbon storage.</p> |

Equipment and Access Constraints and Considerations

| Constraint Topic | Description and Considerations |
|--------------------------------------|--------------------------------|
| Proposed Equipment requirements | Skidding will be allowed. |
| Proposed wetland or stream crossings | None are planned. |
| Further wetland comments | None |

| Constraint Topic | Description and Considerations |
|---|--|
| Vernal Pools | If vernal pools are found to be present in any of the shrub swamp wetlands, all restrictions and recommendations will be followed. |
| Access improvements needed | None needed. |
| 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 |
|---------------------------|---|--|---|--|
| 22/Quinapoxet Reservoir | 171 | 10 | 32 | 41.8 |

Additional comments on Subwatershed analysis:

Wildlife and Habitat Observations and Considerations

| Wildlife/Habitat | Observations and Considerations |
|-------------------------------------|---|
| Natural Heritage Priority Habitats? | None |
| State Listed species present: | None known |
| Rare Natural Communities: | None known |
| General Wildlife Comments | This thick mountain laurel understory no doubt provides excellent cover for deer during hunting season. While moving through this area is very difficult due to the mountain laurel, the old cart path that connects from the north end to the western side allows for easy access. A couple uncommon (though not listed) wildlife species have been detected in surveys near this proposal, and appear to be benefitting from regeneration harvests implemented in 2016. |

Cultural Resources Description and proposed protection measures

| Cultural Resource | Description and proposed protection measures |
|--|---|
| Historical features present; comments regarding protection | There are two small cellar holes on the south-facing side of a knoll. These will be avoided unless it is determined that removing trees immediately adjacent to the cellar holes would be beneficial. |

| Cultural Resource | Description and proposed protection measures |
|---|---|
| Description of site characteristics in relation to Ancient sites modeling or other verified evidence | <p>Very little of the upland is less than 7% sloped. Most of this area is very stony except for the eskers in the southern half that surround many of the wetlands.</p> |

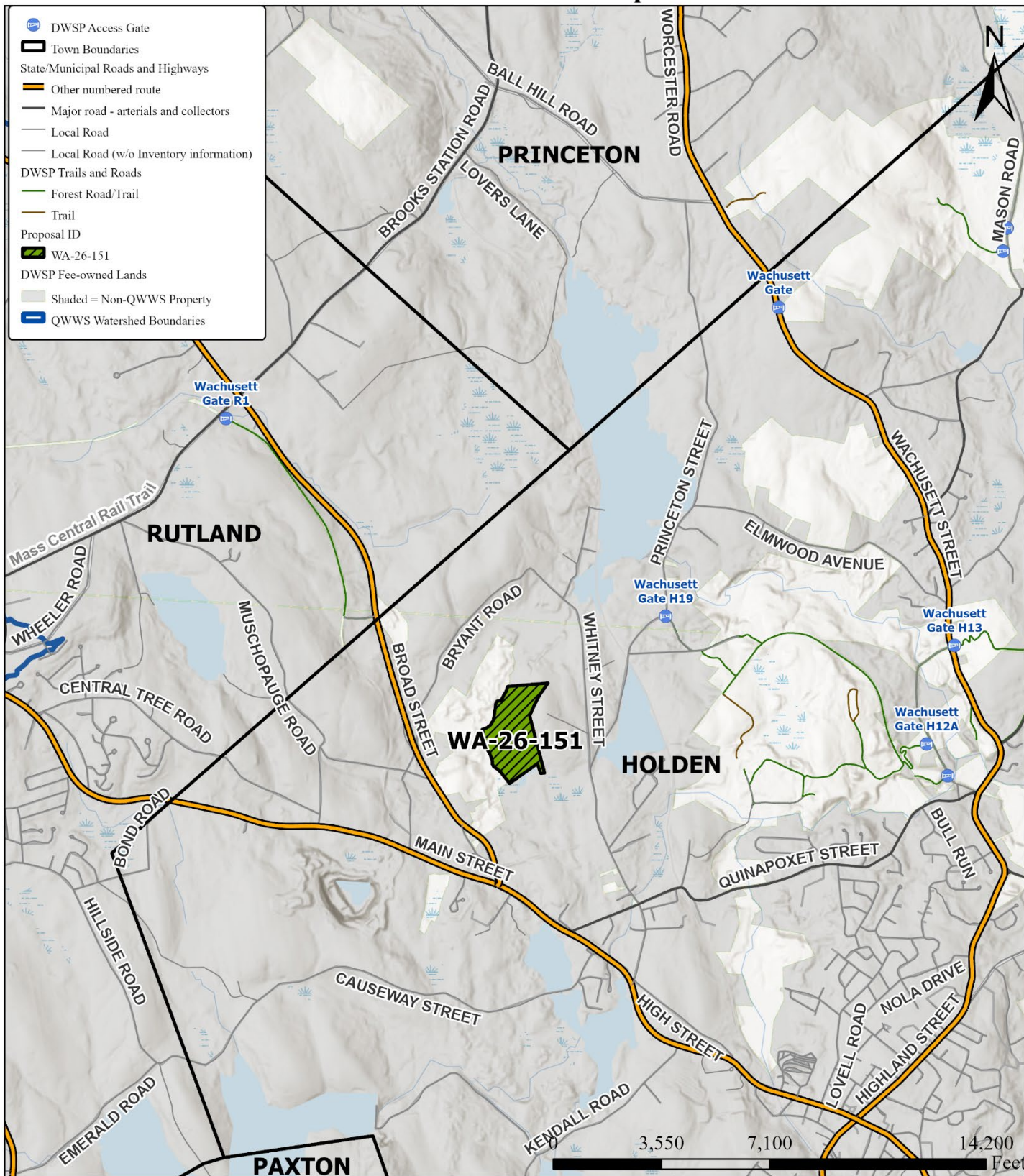


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WA-26-151 -- Locus Map



1 inch equals 4,000 feet



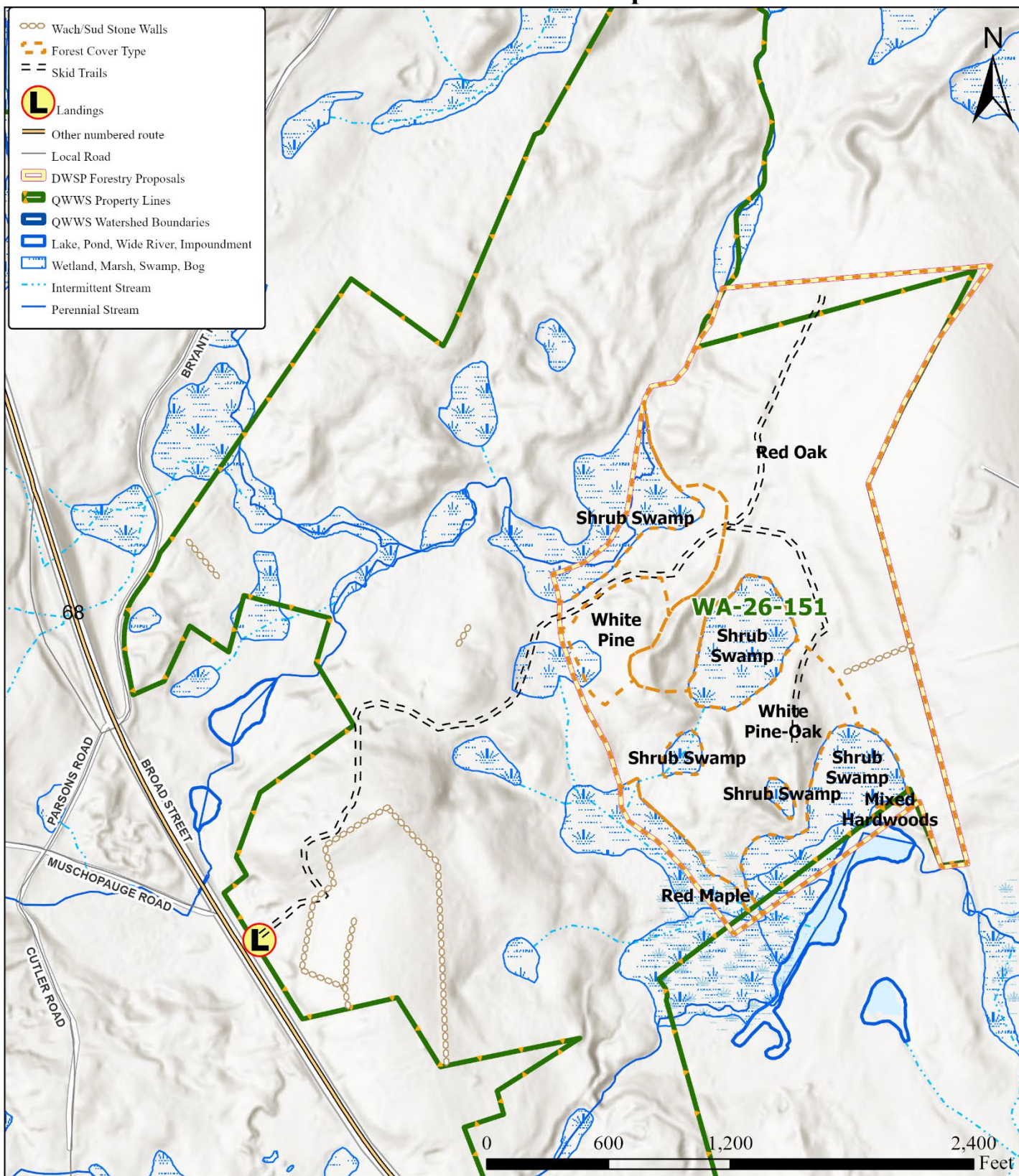


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WA-26-151 -- Stand Map



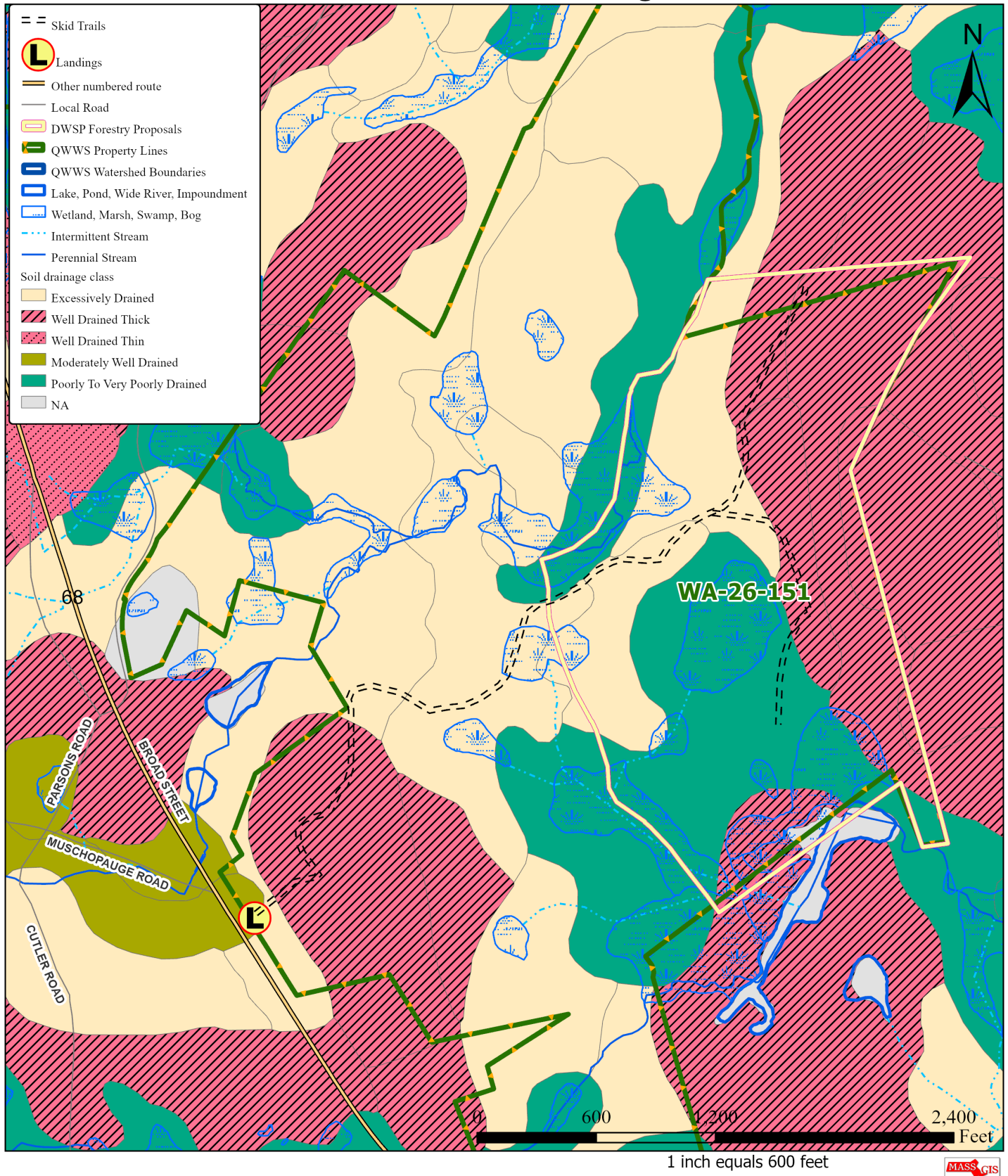


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WA-26-151 -- Soil Drainage Classes



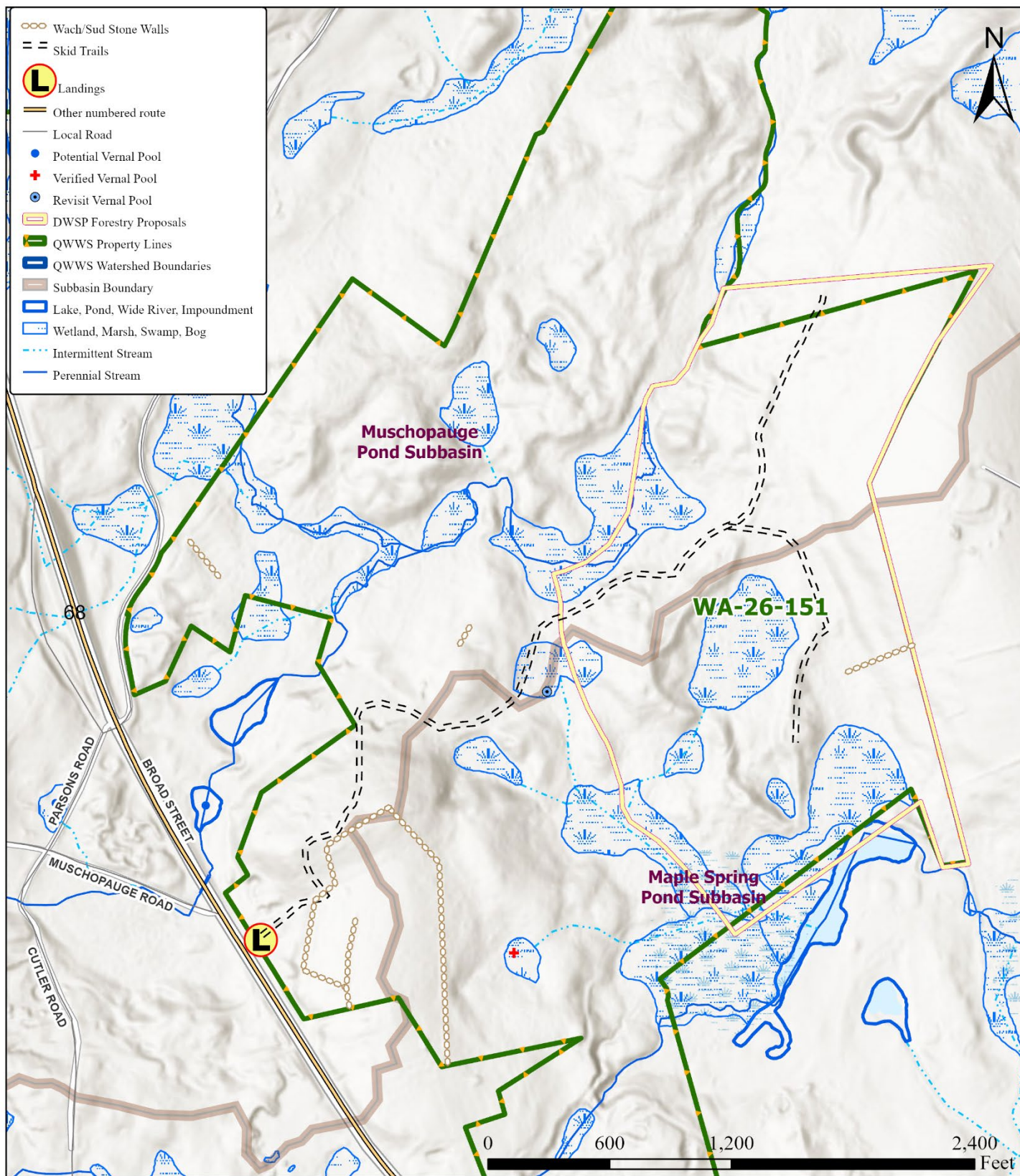


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WA-26-151 -- Wetlands and Wildlife Resources



1 inch equals 600 feet





Massachusetts Department of Conservation & Recreation

Division of Water Supply Protection
Office of Watershed Management



WA-26-151 -- Cultural Resources and Landscape Characteristics

