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-25-195**
Fiscal Year	2025
Watershed	**Wachusett**
Town(s)	**West Boylston**
Forester	Greg Buzzell
Total Acres	54
Block	n/a
Compartment and/or Working Unit	195
Location and Boundary Description	This proposed sale area is bound on the west side by the Stillwater Basin of the Wachusett Reservoir, on the south and east sides by the railroad and on the north side primarily by property boundary line most of which is stone wall and partly by an internal stone wall and forest road. This northern boundary line is also the West Boylston/Sterling town line.
Previous Proposal?	None.
Project Goals and Summary Description	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. The forest in this area is not sufficiently diverse, particularly in age structure with 0% less than 21 years old, 18% 21-40 years old and 46% greater than 100 years old. This operation will result in up to 17 acres of young forest through the removal of the older overstory in patches. These patches will range in size up to 2 acres and will be located throughout the area taking advantage of where young seedlings and saplings of diverse species are already present.

Forest Cover Types and Acreages

Overstory Forest Types	Acres
Oak – Hardwoods	15.2
White Pine - Oak	13.3
Mixed Hardwoods	10

Understory Cover Types and Relative Importance

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

Understory Cover Type	Relative area covered (Dominant, Secondary, Minor, None)
Mesic site - cinnamon fern, mixed hardwood	Minor
Hayscented fern	None
Invasive shrubs/vines	None
Other	None

Forest Vegetation Description

Vegetation Topic	Description
General Description, Forest Composition, Stand History, and Harvest History	Nearly all of the oak-hardwood stands originate from the severe thunderstorm on July 10th, 1989 and the subsequent salvage operation in the months after. These now 34-year-old stands in the eastern end of this area are comprised of red maple, black oak, white oak, black birch, bigtooth aspen, gray birch, hickory, white pine and sugar maple. The gray birch is dying, having completed its life cycle as a pioneer species. The 34-year-old stand south of Waushacum Brook on the flat area near Stillwater Basin is comprised of red maple, sugar maple, black cherry and red oak. The older stands originated in either 1915 following the taking by the Commonwealth at the time of the construction of the Wachusett Reservoir or in 1938 when 4-year-old white pines were planted. The overstory in these stands are comprised primarily of white pine, black oak and white oak. Paper birch, black birch, red maple, hickory, sugar maple, yellow birch and bigtooth aspen are also present. In the eastern part of this area near Prescott Street there also a significant component of pitch pine in the overstory. On the flat area south of Waushacum Brook there are also red oak, sugar maple, hickory and black cherry in the overstory. Hemlock infested with hemlock wooly adelgid is present on the short steep slope along Waushacum Brook.
Advance Regeneration description	Adequate advance regeneration was found in 49% of the plots taken. These plots are well distributed throughout the proposed sale area. This regeneration is comprised primarily of red maple, white pine, white oak, red oak and black birch. Also present are hickory, white ash, black cherry, hemlock and sugar maple.
Terrestrial Invasive Plants description	Invasive species were found in 19% of the plots taken. Nearly all these plots are associated with the small stream that flows southerly through the middle of this area and the mixed hardwood stands and the wooded wetland where this stream flows into Waushacum Brook. The most common species are European buckthorn and Japanese barberry. Multiflora rose was only found in the wettest areas in the wetland. Asiatic bittersweet was present but was also restricted to the stream and wetland areas.

Description of Wetland Resources Present

Resource Type	Description of resources present
Wetlands	There's a small bordering vegetated wetland along the small brook near where it flows into Waushacum Brook.
Streams	An intermittent stream flows southerly through the middle of this area and flows into Waushacum Brook. Waushacum Brook flows through the southwest corner of this area.
Vernal pools	None known.
Seeps	None known.

Description of Soils by Hydric Class

Soil Hydric Classes	% of area	Soil series and any further comments
Excessively Drained	52	Hinckley fine sandy loam
Well-drained Thin		
Well-drained thick	48	Paxton fine sandy loam
Moderately well-drained		
Poorly to very poorly drained		

Proposed Silvicultural Activities

Topic	Description
Site Selection and Silvicultural Objectives	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 #4 (Thomas/Quinapoxet/Stillwater Basins). Only 10% of the forest stands within this subwatershed are 20 years old or less. 42% of the stands are more than 100 years old. Within the 54 manageable acres of this working unit, there are no stands that are 20 years old or less. The full age structure is as follows: 0%, 0-20 years old; 18%, 21-40 years; 3%, 41-60 years; 5%, 61-80 years; 28%, 81-100 years and 46%, greater than 100 years old. Given the lack of young stands in this area and given the presence of good advance regeneration comprised of species well suited to this site, the primary goal will be to increase the proportion of young forest stands in this area.
Silviculture Prescription	With the overall goal of having a forest with a diverse age structure with at least 3 age-classes distributed throughout both the subwatershed and the 54 acres within this specific area, the older overstory will be removed in patches. These patches will total as many as 18 acres which is 1/3rd of the 54 manageable acres in this area. They will range in size from as small as 1/5th acre up to a maximum of about 2 acres. They will be as well distributed throughout the working unit as possible, taking advantage of where the advance regeneration is present. While openings will be made in the approximately 5 acres that has a significant component of pitch pine, it is common practice to leave a small number of overstory trees within most openings and it will be pitch pine that are left standing in any opening where it exists. With Waushacum Brook isolating an approximately 8-acre chunk in the southwest corner of this area, there is no plan to cross Waushacum Brook as part of this operation.

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
Full overstory removal, partial stand, patch regeneration cut. **(*see page 3, Silvicultural Prescription, patch openings*)**	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**: • 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	The primary purpose of forest management by the DCR Division of Water Supply Protection is to maintain and improve the **watershed forest resilience**, i.e. the ability to resist and recover quickly from major disturbances, including climactic events such as hurricanes, tornados, microbursts, prolonged drought or excessive rainfall, as well as severe disease or insect infestations. DCR-DWSP conducts timber harvests on <1% of the forest per year in order to achieve that objective, which is accomplished by **fostering forest health and diversity at all levels, resulting in communities of vigorous, healthy trees of multiple species and at various stages of development** (seedlings through large legacy trees). Species diversity improves resistance by reducing canopy loss in the event of major disease or insect outbreaks, because most such forest health issues target a limited selection of species. Age diversity ensures that even if the taller trees are blown over by high force winds, younger trees will be present to continue to hold the soil. These measures, taken for the purpose of maintaining high quality drinking water in perpetuity, are also **highly adaptive for climate change** in that they increase forest **carbon resilience**, the maintenance of both carbon

General/other Climate Change Considerations (cont.)	sequestration and carbon storage over time, and **climate resilience,** the ability of a forested ecosystem to survive and thrive despite major disturbances. Specifically, this harvest will improve carbon and climate resilience by: **Enhancing carbon sequestration:** o Initiating regeneration (fast-growing young trees) by increasing sunlight to the forest floor. o Thinning to increase growth rates of mature trees. **Protecting forest carbon:** o Retaining large legacy trees for their full lifespan. o Retaining the healthiest, most vigorous (fastest growing) trees. o Installing water bars to prevent loss of soil carbon to erosion. o Careful routing of skid trails to avoid sensitive soils. **Sustaining forest hydrology:** o Protecting riparian areas with filter strips of increasing width based on slope, and avoiding steep slopes altogether. o Avoiding stream and wetland crossings, and using Best Management Practices to reduce impact when crossings are necessary. o Refraining from harvesting in wetlands, unless absolutely necessary to protect overall forest health. **Maintaining native plant biodiversity:** o Minimizing new introductions of invasive plants on vehicles and equipment, and removing existing invasive plants. o Ensuring the diversity of the next generation of trees by creating canopy gaps large enough to support the full breadth of tree species diversity. o Retaining the healthiest trees of all native species. **Protecting rare wildlife:** o Following NHESP guidance for preserving and enhancing habitat for species that are protected under the Massachusetts Endangered Species Act. o Creating/maintaining refugia for rare species. o Protecting uncommon and vulnerable habitats. **Preserving wildlife habitat:** o Retaining uncommon habitat features, such as large diameter logs, snags, and den trees. o Protecting current and potential nesting trees for raptors. o Maintaining 100 foot shade zones and 200 foot low ground disturbance zones around vernal pools. o Maintaining stream water temperature for aquatic species by preserving forested corridors along perennial streams and rivers.

Proposed Activity	Alignment of Activity with Climate Oriented Strategies and Recommendations
General/other Climate Change Considerations (cont.)	**Reducing impacts of severe disturbances:** ○ Improving overall forest health. ○ Favoring the tree species that are expected to be best adapted to future climate conditions, such as oak and hickory. Increasing age class diversity to allow rapid recovery after disruption of the forest canopy.

Equipment and Access Constraints and Considerations

Constraint Topic	Description and Considerations
Proposed Equipment requirements	Mechanized felling and forwarding will be required.
Proposed wetland or stream crossings	The small stream that flows north to south will be crossed at the existing culvert on the road.
Further wetland comments	No comments.
Vernal Pools	There are no known vernal pools.
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
4/Thomas_Quin_Stillwater Basin	565	58	93	48
16/Waushacum Brook	845	120	91	6

Additional comments on Subwatershed analysis:

Wildlife and Habitat Observations and Considerations

Wildlife/Habitat	Observations and Considerations
Natural Heritage Priority Habitats?	PH #1543 associated with the Stillwater River and a portion of Waushacum Brook intersects much of this working unit.
State Listed species present:	None known.

Wildlife/Habitat	Observations and Considerations
Rare Natural Communities:	None known.
General Wildlife Comments	There are stick nests in this area and they will be protected consistent with all applicable BMPs. As many high wildlife value trees as possible will be retained. A particular focus will be paid to trees that are used for denning and nesting.

Cultural Resources Description and proposed protection measures

Cultural Resource	Description and proposed protection measures
Historical features present; comments regarding protection	There are numerous stone walls throughout the area and they will be protected from unnecessary damage. Any cultural features that are located before or during the harvest will be mapped, photographed, flagged, avoided and protected, consistent with the guidelines set forth in the 2017 DWSP Land Management Plan.
Description of site characteristics in relation to Ancient sites modeling or other verified evidence	Surface stone is prevalent. Microtopography is somewhat pronounced, particularly in the areas that were hardest hit in the storm on July 10th, 1989. There is a sizable proportion of this area that is less than 7% sloped although these areas are fairly disjointed, and spread throughout the area. The largest area less than 7% sloped is the area near the Stillwater Basin, south of Waushacum Brook. If applicable, DWSP will follow the recommendations of DCR's Archeologist regarding protection of sensitive sites.

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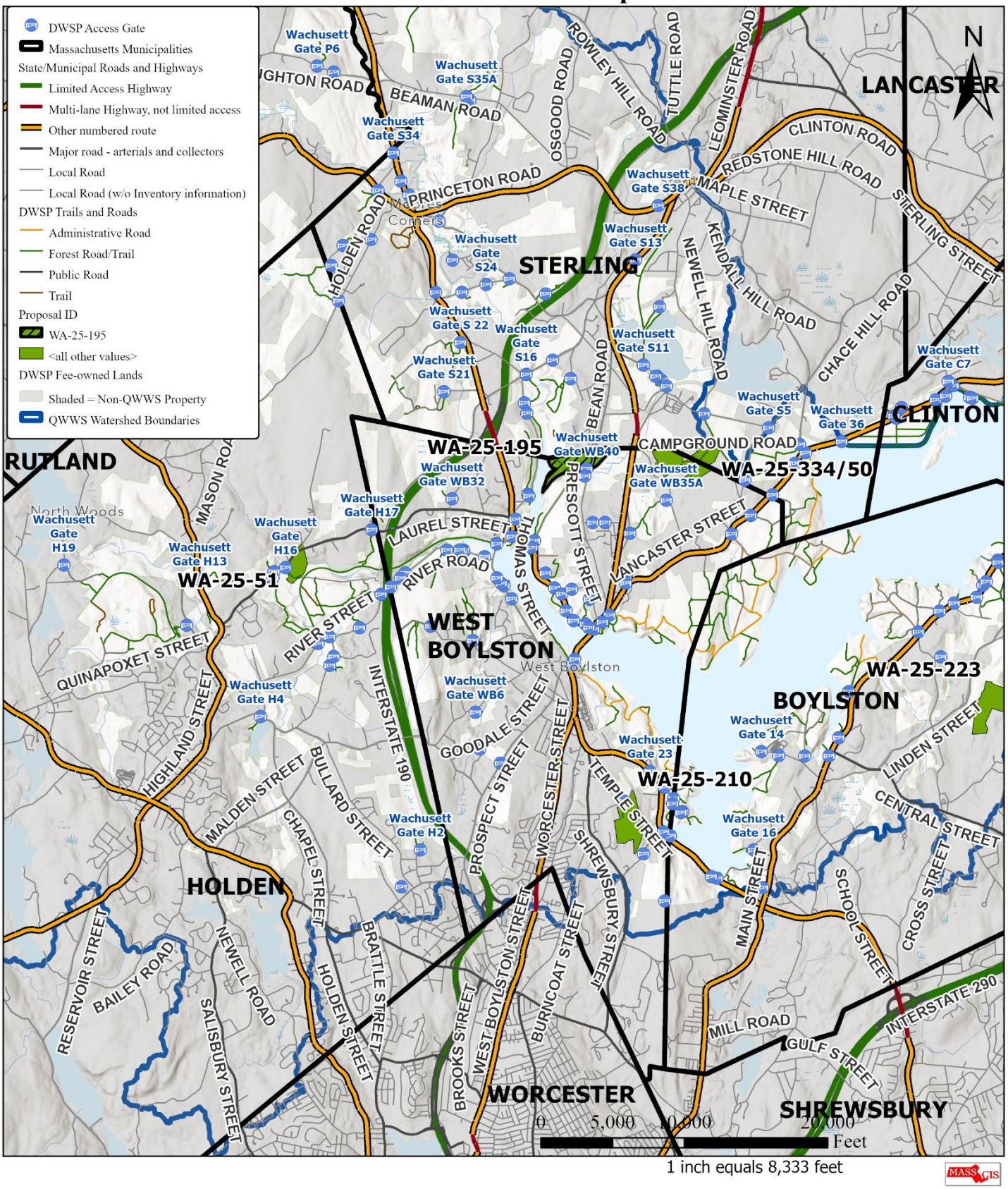
WA-25-195 -- Locus Map



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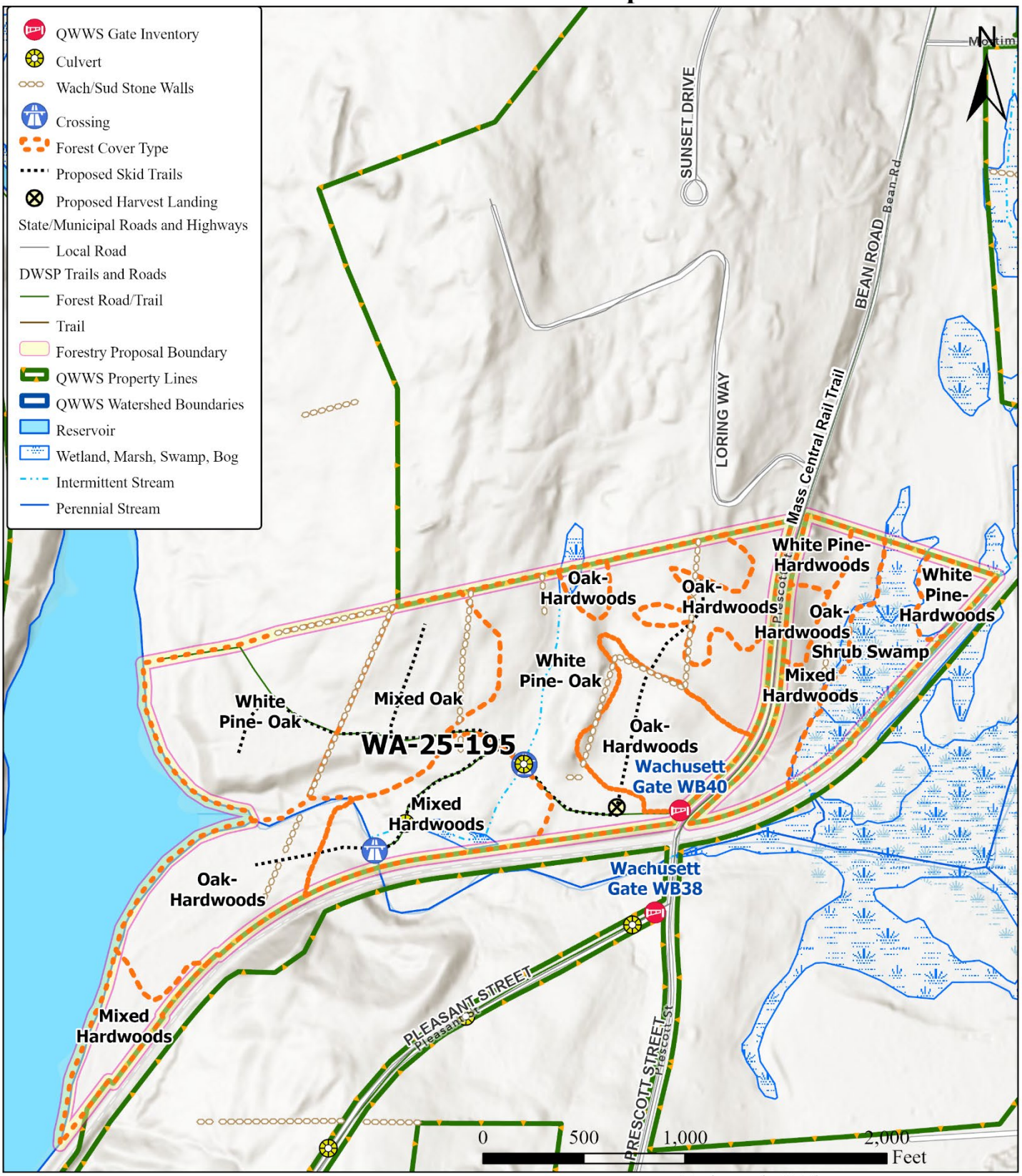
WA-25-195 -- Stand Map



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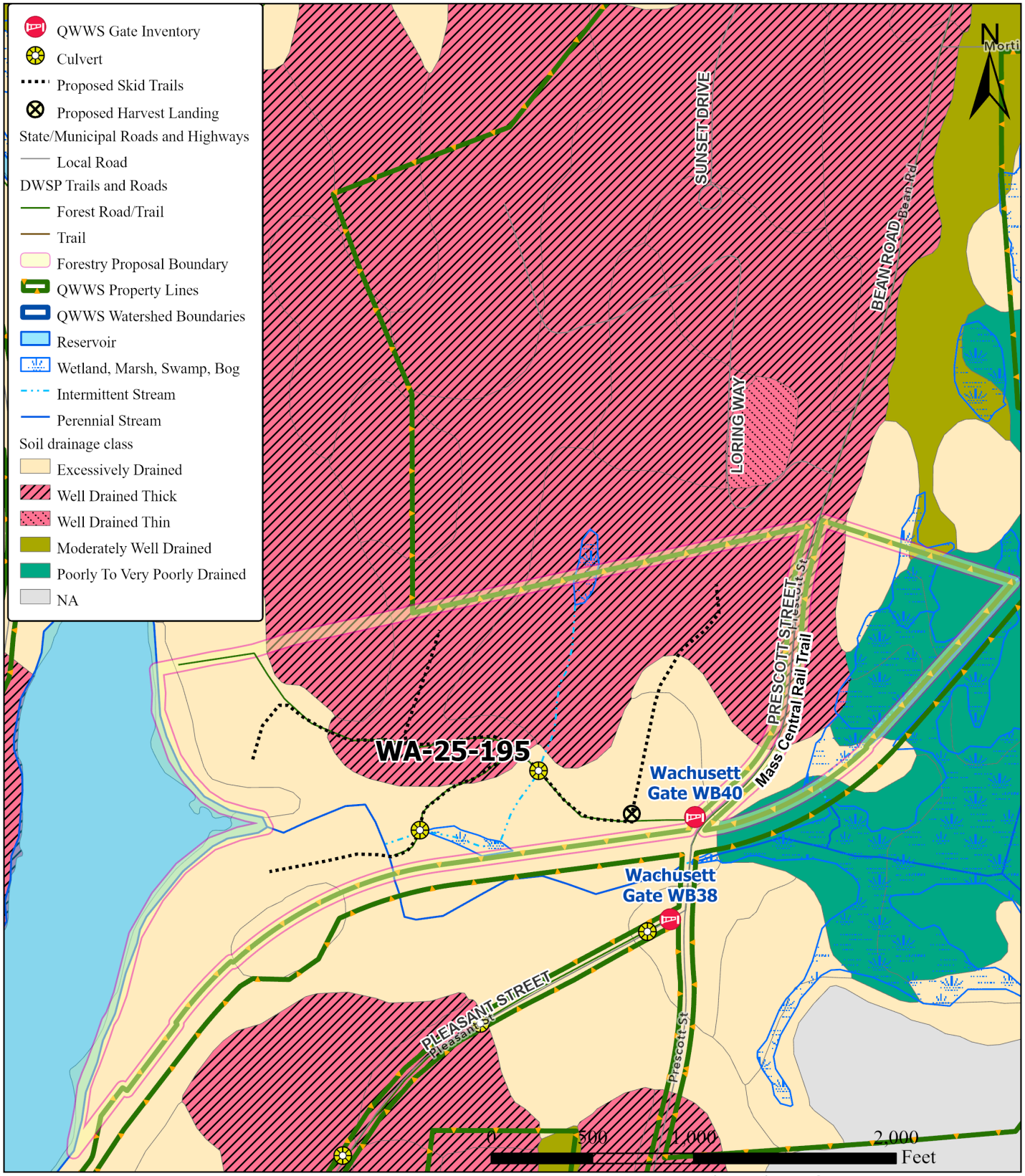
WA-25-195 -- Soil Drainage Class



1 inch equals 600 feet

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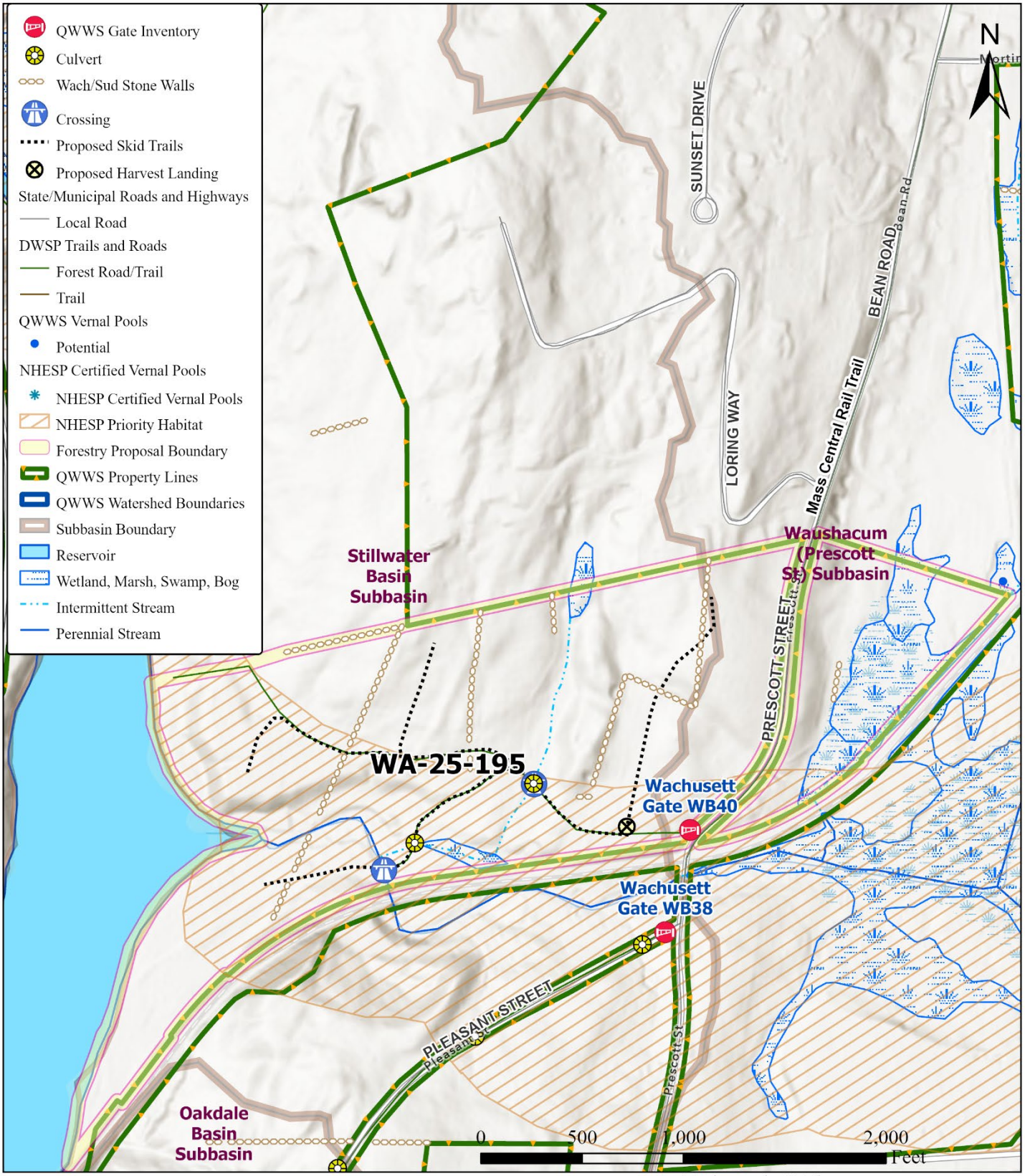
WA-25-195 -- Wetlands and Wildlife Resources



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WA-25-195 -- Cultural Resources and Landscape Characteristics