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-25-51**
Fiscal Year	2025
Watershed	**Wachusett**
Town(s)	**Holden**
Forester	Greg Buzzell
Total Acres	28
Block	n/a
Compartment and/or Working Unit	51
Location and Boundary Description	This area is bound by Trout Brook to the west, Manning St. to the north, the Quinapoxet River to the south and private land to the east. There is also a small (1.4 acre) parcel at the northwest intersection of Manning St. and North St.
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 28 acres of forest in this area are not sufficiently diverse, particularly in age structure with 86% greater than 80 years old and 0% less than 41 years old. This operation will result in up to 9 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. Mature trees will be retained within nearly all of the patches, particularly those larger than ½-acre in size. This retention provides habitat diversity, ensuring the availability of snags, den trees and future downed woody debris for a variety of wildlife while more closely mimicking natural disturbance patterns than the complete removal of the forest overstory. It has the additional benefit of improving the visual aesthetics of the recently regenerated patches. No invasive species were found during sampling however, there is a small patch of oriental bittersweet near Manning Street. Dead snags and trees with large cavities will be retained for wildlife value. Old, non-active stick nests are present. If trees with active raptor nests are found, they will not be harvested.

Forest Cover Types and Acreages

Overstory Forest Types	Acres
White Pine - Oak	4
Mixed oak	13
White pine	9

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	minor
Dry site -Huckleberry, blueberry	
Mesic site - cinnamon fern, mixed hardwood	
Hayscented fern	
Invasive shrubs/vines	
Other	

Forest Vegetation Description

Vegetation Topic	Description
General Description, Forest Composition, Stand History, and Harvest History	The primary species in the forest overstory in this area is white pine along with red oak, hemlock (which looks pretty good though not devoid of hemlock wooly adelgid) is found in the gullies, white oak, black cherry, gray birch, red maple and black birch. The understory is comprised of excellent advance regeneration in almost all areas with some small pockets of witch-hazel, mountain laurel or no regeneration. The youngest stand dates to the 1970's and is along the Quinapoxet River. There are a couple of small stands of white oak now dead from spongy moth infestation, but otherwise the oaks and white pines look good. The land in the area where Trout Brook joins the Quinapoxet River has been altered several times over the years...probably from high water flows, ice flows in bad winters and the resident beaver. A forest management operation took place on the 1.4 acre parcel and in about 5.5 acres of the larger parcel in the white pine stands adjacent to Manning St. This took place in 1984 with the intent of encouraging the establishment of regeneration beneath this white pine stand that had been planted in 1938.
Advance Regeneration description	Sampling found adequate regeneration in 83% of the plots taken with marginal regeneration in another 9% of the plots. Oak was present in 62% of the plots, although this is also a good site for white pine and white pine regeneration was seen in good quantities in most areas of the working unit. There is some species variation of regeneration outside of white pine and red oak, including white oak, black birch, red maple, black cherry, hemlock and American hornbeam.
Terrestrial Invasive Plants description	There were no invasives tallied in the 59 plots taken. However, there was a tiny patch of bittersweet found at what appears to be an old access point off Manning Street in a pine stand. There is also a single Ailanthus (Tree-of-Heaven) standing on an "island" in the Quinapoxet River and while not technically within the working unit, it's worth noting. This working unit is within the ALB quarantine zone.

Description of Wetland Resources Present

Resource Type	Description of resources present
Wetlands	None.
Streams	Trout Brook borders this area to the west and the Quinapoxet River borders it to the south.
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	97	Hinckley sandy loam
Well-drained Thin	0	
Well-drained thick	1	Paxton fine sandy loam
Moderately well-drained	2	Winooski very fine sandy loam
Poorly to very poorly drained	0	

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 #15 (Trout Brook). Only 12% of the forest stands within this subwatershed are 20 years old or less. 74% of the stands are more than 80 years old. Within the 28 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; 0% 21-40 years; 11%, 41-60 years; 2%, 61-80 years; 42%, 81-100 years and 45% > 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 adequate regeneration found throughout the working unit, openings will be made on up to 9 acres thereby obtaining the goal of creating a new age class on 1/3rd of the unit. This will be accomplished by removal of the overstory in patches averaging an acre in size with a maximum of about 2 acres. These will be placed according to where the regeneration is best and the lay of the land will help shape each individual opening.

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 sequestration and carbon storage over time, and **climate resilience,** the ability

Proposed Activity	Alignment of Activity with Climate Oriented Strategies and Recommendations
General/other Climate Change Considerations (cont.)	of a forested ecosystem to survive and thrive despite major disturbances. Specifically, this harvest will improve carbon and climate resilience by: **Enhancing carbon sequestration:** ○ Initiating regeneration (fast-growing young trees) by increasing sunlight to the forest floor. ○ Thinning to increase growth rates of mature trees. **Protecting forest carbon:** ○ Retaining large legacy trees for their full lifespan. ○ Retaining the healthiest, most vigorous (fastest growing) trees. ○ Installing water bars to prevent loss of soil carbon to erosion. ○ Careful routing of skid trails to avoid sensitive soils. **Sustaining forest hydrology:** ○ Protecting riparian areas with filter strips of increasing width based on slope, and avoiding steep slopes altogether. ○ Avoiding stream and wetland crossings, and using Best Management Practices to reduce impact when crossings are necessary. ○ Refraining from harvesting in wetlands, unless absolutely necessary to protect overall forest health. **Maintaining native plant biodiversity:** ○ Minimizing new introductions of invasive plants on vehicles and equipment, and removing existing invasive plants. ○ Ensuring the diversity of the next generation of trees by creating canopy gaps large enough to support the full breadth of tree species diversity. ○ Retaining the healthiest trees of all native species. **Protecting rare wildlife:** ○ Following NHESP guidance for preserving and enhancing habitat for species that are protected under the Massachusetts Endangered Species Act. ○ Creating/maintaining refugia for rare species. ○ Protecting uncommon and vulnerable habitats. **Preserving wildlife habitat:** ○ Retaining uncommon habitat features, such as large diameter logs, snags, and den trees. ○ Protecting current and potential nesting trees for raptors. ○ Maintaining 100 foot shade zones and 200 foot low ground disturbance zones around vernal pools. ○ 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	Forwarding and mechanized felling will be required.
Proposed wetland or stream crossings	None planned.
Further wetland comments	No comments.
Vernal Pools	None known.
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
14/Quinapoxet River	2104	314	212	23
15/Trout Brook	1062	119	146	5

Additional comments on Subwatershed analysis:

Wildlife and Habitat Observations and Considerations

Wildlife/Habitat	Observations and Considerations
Natural Heritage Priority Habitats?	Priority Habitat of Rare Species, PH #1383, associated with the Quinapoxet River intersects with this area. Any and all requirements and restrictions placed on this operation by the Massachusetts Natural Heritage and Endangered Species Program will be followed.

Wildlife/Habitat	Observations and Considerations
State Listed species present:	NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.
Rare Natural Communities:	None known
General Wildlife Comments	There is some steep terrain dropping down to the Quinapoxet River in the eastern half of the unit with some old back channels of the Quinapoxet River along it in this area. There is a beaver dam at the confluence of Trout Brook and the Quinapoxet River.

Cultural Resources Description and proposed protection measures

Cultural Resource	Description and proposed protection measures
Historical features present; comments regarding protection	There is a cellar hole about 550’ inside the gate just off of the woods road. It seems this is likely related to the old sawmill that once stood on Trout Brook. There is a series of cellar holes and other artifacts related to the J. Heppler shoddy mill on the Quinapoxet River just downstream from the confluence with Trout Brook. All of these structures will be flagged and protected from disturbance as needed.
Description of site characteristics in relation to Ancient sites modeling or other verified evidence	Surface stone is not prevalent. Microtopography is not pronounced. The area near the Quinapoxet River and much of the upper portion along Manning St. is less than 7% sloped. If applicable, DWSP will follow the recommendations of DCR's Archeologist regarding protection of sensitive sites.

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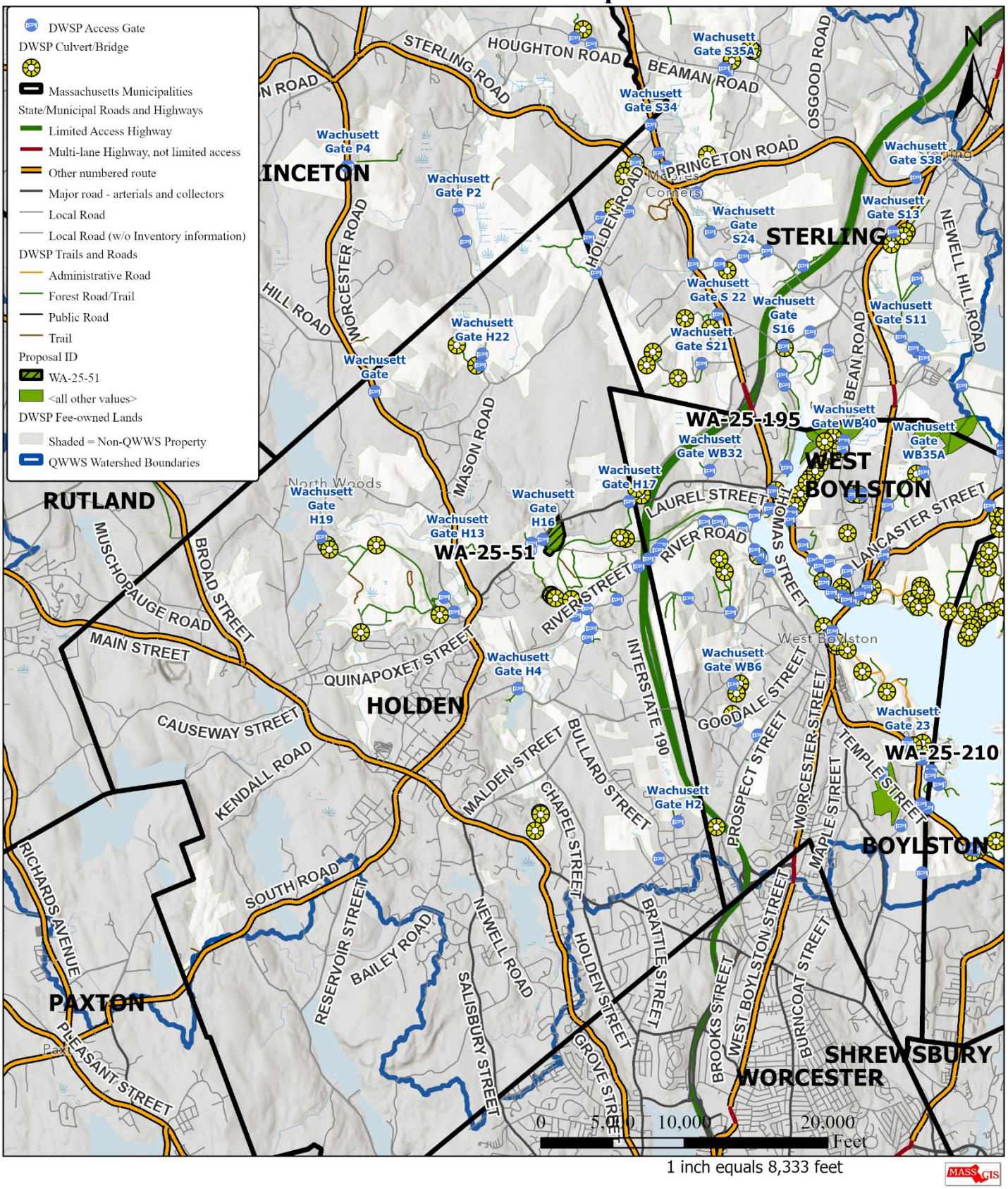
WA-25-51 -- Locus Map



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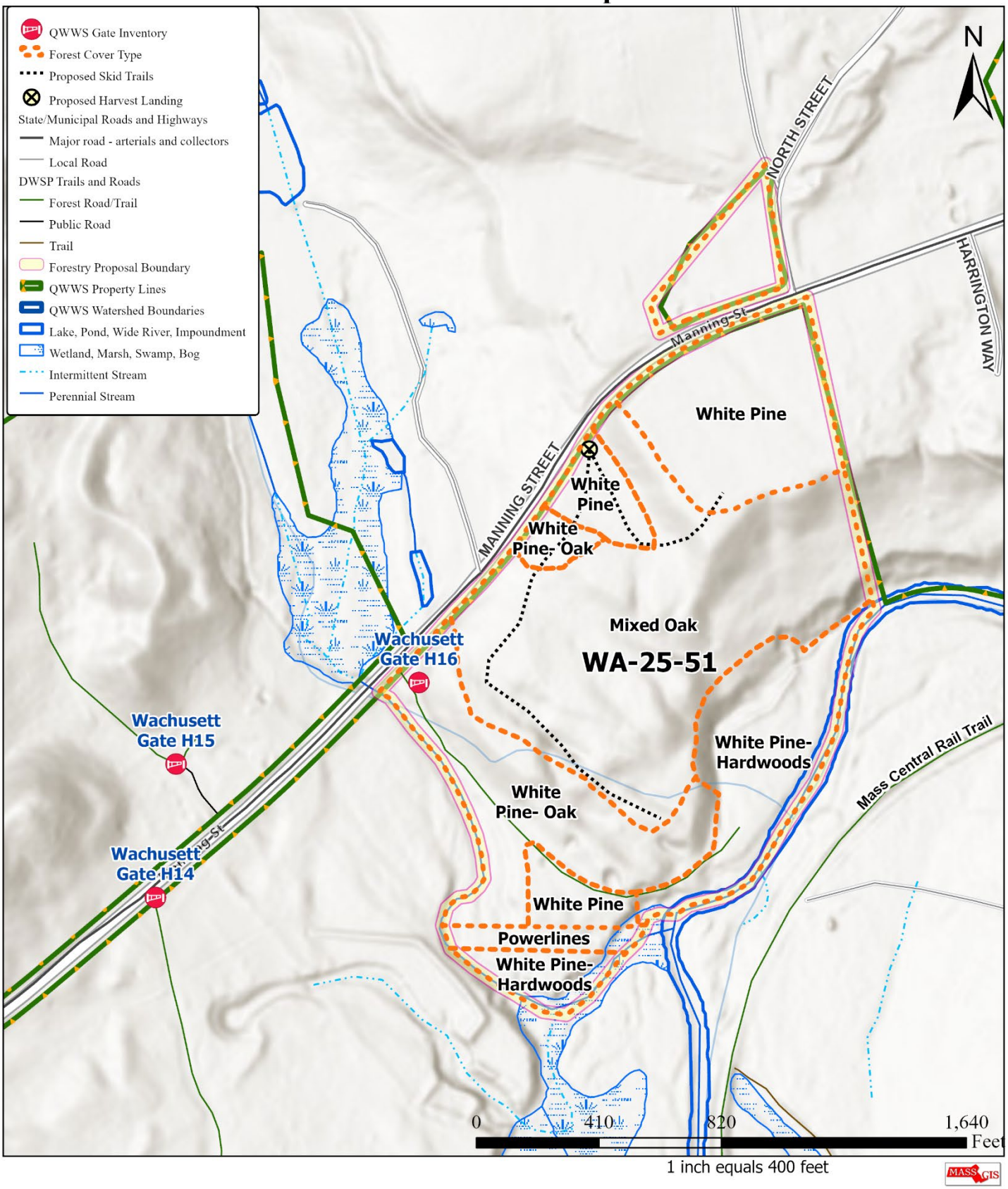
WA-25-51 -- Stand Map



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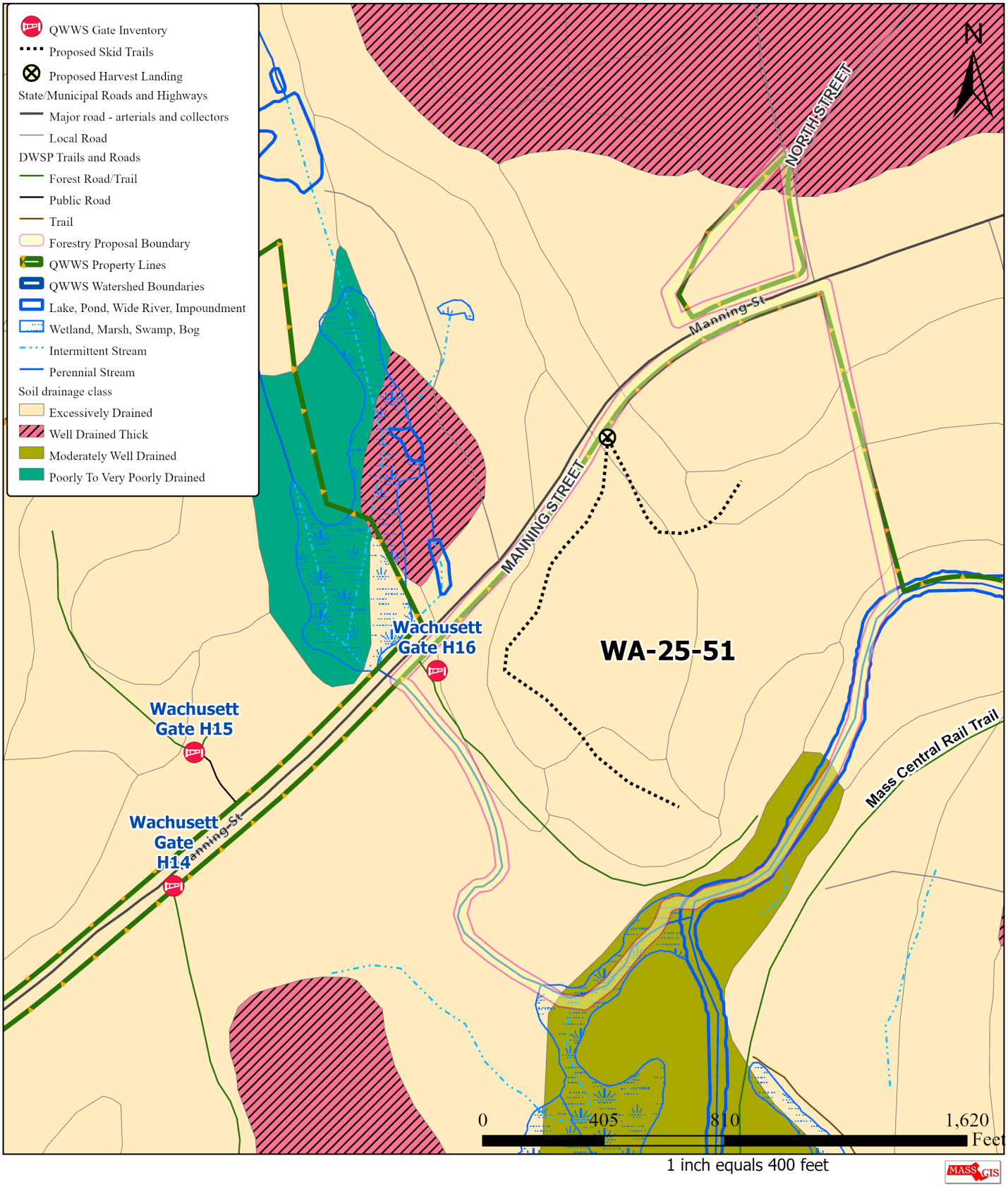
WA-25-51 -- Soil Drainage Class



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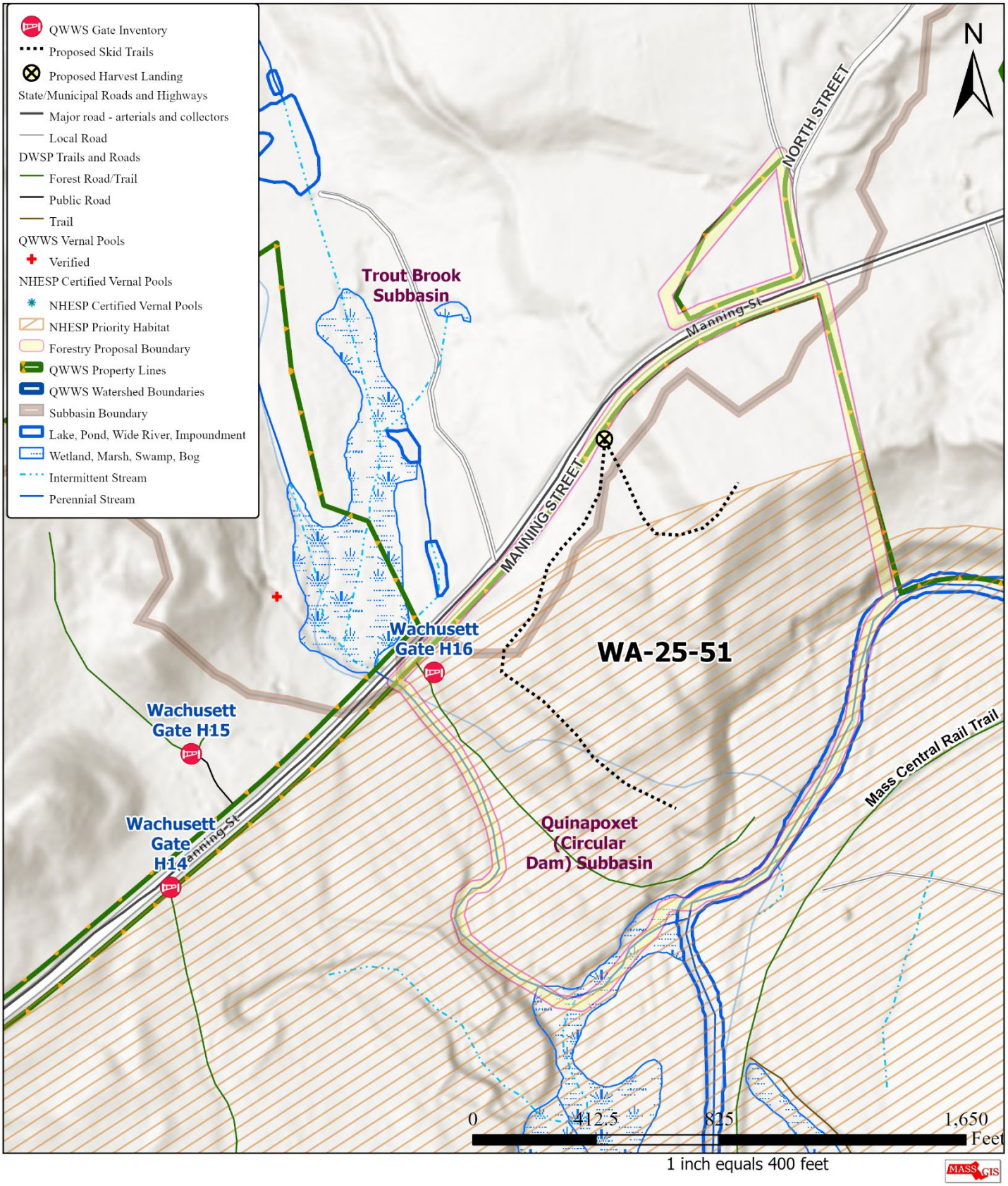
WA-25-51 -- Wetlands and Wildlife Resources



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WA-25-51 -- Cultural Resources and Landscape Characteristics