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	**HA-25-05**
Fiscal Year	2025
Watershed	**Quabbin**
Town(s)	**Hardwick, Ware**
Forester	Steven Wood
Total Acres	90.5
Block	Hardwick
Compartment and/or Working Unit	05
Location and Boundary Description	Same area as lot 1041. From gate 48 (note: not accessible from Miner Road. Access is from west – East Street to Devils Kitchen Road) north along boundary almost to gate 47 then following wetland south to boundary, east and north back to G 48.
Previous Proposal?	
Project Goals and Summary Description	There are two areas of timber harvesting in this 90-acre project: 23 acres of red pine, and 67 acres of oak, white pine, and mixed hardwood. The non-native planted red pine is entirely the same age. Even aged forest stands of one species, which lack diversity, are susceptible to large scale damage such as insect outbreaks and high winds. Removing all red pine will allow native tree, shrub, and ground cover species to regenerate and create a new age class. Recent harvests in the oak/pine/mixed hardwood section began the diversification of forest age structure. This harvest will continue that effort by removing slow growing, poorly formed, diseased, or dying trees (ex: Ash trees damaged by the Emerald Ash Borer and oaks by the Spongy Moth) of all species. Doing so will allow the healthier, more vigorous, remaining trees more access to moisture and sunlight. Faster growing trees are more resilient to climate impacts and better able to capture and store carbon.

Forest Cover Types and Acreages

Overstory Forest Types	Acres
RP (now actually mainly WH2 w/RP/WP)	23.1
WO	17.8
WP	7.4
RO	19.4
OH	13.1
OM	5.1

Understory Cover Types and Relative Importance

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

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

Forest Vegetation Description

Vegetation Topic	Description
General Description, Forest Composition, Stand History, and Harvest History	This area is mainly a hill with the peak towards the NE corner, moderate slopes to west and south flattening out as approach the west side (wetland and stream) and south (property boundary). The whole eastern edge is property boundary much of it cutting across mid slope. A small area of the eastern slope near the peak is steeper but mostly operable. Mid slope of the area right around the hill peak tends to be rocky with some big boulders and small sections of ledge. The rest of the terrain is gently sloping and not rocky. There is a good existing skid road network so most of this area is operable though a machine with a cable would help extract wood. Lot is generally well drained once away from the wetlands though there are a couple of isolated wet spots and seeps which are mapped. There are basically 3 overstory types here: an old red pine plantation, oak, and white pine. The RP has been mostly harvested with groups of it and mainly WP remaining, rest has regenerated to WH. The areas of oak range from the drier ridge top (OM) which has mainly red, white and black oak with some WP and scattered RM, WB and HI. Downslope (RO and OH) RO becomes the dominate species, but the others mentioned are still common. Nearer the wetland BC, WA and scattered YB start to show up. It appears most of the BB in overstory was previously harvested as little was noted other than scattered in uncut areas. The WP types are WP and WO and currently have similar composition but with the WP type having more WP. Associated species are similar, listed in decreasing order: RO, RM, BO, WO, HI, HM, and WB and again towards wetland some scattered YB, BC and WA.

Vegetation Topic	Description
General Description, Forest Composition, Stand History, and Harvest History	This whole area was previously harvested in 2010 (lot 1041). Silviculture was ½ acre openings with retention with thinning in between groups on about 2/3rds of the area in the WP and hardwood types. RP plantation had openings up to 2 acres with retention created. Site visit on 5/7/2010 (before 1041 started) noted "The largest opening occurred in the red pine plantation and measured 1.5 acres. ...green retention throughout in the form of sapling and pole-sized advanced white pine regeneration up to 5" in DBH and 15'-30' tall. Other openings in the red pine contain variable green retention consisting of hardwood, softwood, and mixed advanced regeneration as well as overstory structure. Openings in hardwood and mixed stands average ¾ acre or less with variable retention including understory and overstory structure". The first cut here was lot 743, 40.3 acres, completed 2/28/99 on the plantation and a few adjacent stands. Silviculture appears to have been the standard irregular shelterwood popular at the time but with openings up to 1.5 acres as noted in the May 2010 site visit. A lot of the regeneration created in that harvest appears to have not survived the 2010 harvest as the current advance regeneration is up to 7" DBH and mainly a similar height of 15'-25' tall. Both harvests were completed by mechanized crews utilizing harvesters and forwarders, unclear whether pole length skidding was allowed but appears it was not.
Advance Regeneration description	Regeneration is present throughout in at least moderate amounts except for a couple of areas in the old RP plantation, mainly near cellar holes and some wetter sections, that are dominated by invasives. Openings created from last harvest have very dense regeneration to 25'. RP type has regenerated to mainly WP and BB. Other types have regenerated more to BB and/or RM with WP in spots. Species mix is fairly varied over the area. Other species present across most of the types are (roughly in order of number): WO, BO, RO, HM (not on poorer upland sites), BC, HI, WB, and Chestnut. Iron wood, muscle wood, hawthorn, WA and YB were locally common along the wetland on better sites. A few scattered BE were also seen in this area.
Terrestrial Invasive Plants description	Approximately 7 acres north and south of road along and in the wetland east to the area of foundations is moderate-heavily infested with Asiatic Bittersweet and Japanese barberry. Same area also has scattered multiflora rose and winged euonymus. On approximately 5 acres of this bittersweet is heavily impacting regeneration. Most of this area outside of the wetland was the red pine plantation which was mostly harvested by December 2010.

Description of Wetland Resources Present

Resource Type	Description of resources present
Wetlands	Yes, west edge.
Streams	Yes, west edge.
Vernal pools	None known.
Seeps	Yes.

Description of Soils by Hydric Class

Soil Hydric Classes	% of area	Soil series and any further comments
Excessively Drained	0	Hinckley loamy sand
Well-drained Thin	0	

Soil Hydric Classes	% of area	Soil series and any further comments
Well-drained thick	79.3	Canton fine sandy loam, Charlton-Paxton association, Montauk-Canton association
Moderately well-drained	20.7	Scituate fine sandy loam
Poorly to very poorly drained	0	

Proposed Silvicultural Activities

Topic	Description
Site Selection and Silvicultural Objectives	This site was selected to complete the harvest and conversion of the non-native red pine plantation to a diverse mix of native tree species and to continue the regeneration process started on the rest of the area. Sections have some oak regeneration that is getting suppressed and will likely drop out if not released. This will be the final harvest of the red pine plantation. One more harvest cut will be needed on the rest of the area. Openings will be placed per our current guidelines and will be located first in areas with the highest percentage of poorly formed, diseased, dying or low vigor stems. The same class of trees will be marked first in areas of thinning. Additional large or higher quality trees will then be included to create the desired condition. Retained trees, other than wildlife and structural trees mentioned below, will generally be the better formed, vigorous individuals of the range of species that are expected to do well on the site, and considering expected climate change impacts. Attempt will be made to retain structure and select well rooted, wind firm trees, particularly those retained exposed individuals and groups in openings. Scattered wildlife trees, standing dead, healthy individuals of all species currently present and individuals with superior form and vigor will be retained throughout proposal to preserve habitat, maintain or increase diversity, improve overall stand health and vigor and retain some carbon storage and increase the growth rate (carbon sequestration) of the retained trees. One of the main silvicultural goals across the proposal is to diversify species and age structure by regenerating and expanding openings with free to grow regeneration, that should stay vigorous for at least 10 years. These openings should also encourage species that are better adapted to our changing climate to become established.
Silviculture Prescription	In the red pine plantation, the remainder of the merchantable red pine that isn't too scattered will be harvested along with any unacceptable growing stock and most of the remaining overstory of other species which are competing with the established regeneration. Scattered exceptional or otherwise desirable trees will be retained as a seed source, legacy or wildlife tree. The rest of the proposal will be treated with group selection creating openings from ½ up to possibly 4.5 acres in size. Most of these will have green retention and will expand upon existing small openings created by previous harvests. Edges of openings will be thinned along with about 10 acres of additional area suitable to thinning. Areas of thinning will be targeting dead/dying stems particularly ash (EAB) and any oak still salvageable, along with poorly formed or less vigorous stems.

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, complete stand, plantation conversion to native species. **(*see page 4, Silvicultural Prescription, red pine removal*)**	Long considered a critical practice on agency lands to improve biodiversity and forest resilience, the **conversion of single-species conifer plantations** to more diverse mixes of native species has also been encouraged as a climate-smart practice by NIACS and other climate adaptation experts. Tree monocultures, intensively managed throughout the world to produce much of the wood we all use, are **highly vulnerable** to the kinds of **pest and disease** impacts that are likely to worsen as climate changes. Conversion of monoculture plantations aligns with many climate-smart forestry practices highlighted in the CFC report, including but not limited to: • Improving **resistance to pests and pathogens**. • Increasing resiliency by promoting **diversity of plant species**. • Providing age class/**structural diversity**. • Improving conditions for a wide variety of local wildlife through the creation of temporary **young forest** habitat. • Promoting **future-adapted tree species** in the regeneration mix.
Full overstory removal, partial stand, patch regeneration cut. **(*see page 4, Silvicultural Prescription, group selection 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.

Proposed Activity	Alignment of Activity with Climate Oriented Strategies and Recommendations
Diffuse overstory removal, partial cut, late rotation regeneration related. **(*see page 4, Silvicultural Prescription, thinning between openings*)**	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: • 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**.
General/other Climate Change Considerations	Part of the goals of this proposal are to sustain fundamental ecological functions (reducing competition for moisture, nutrients, and light by releasing regeneration and maintaining filter strips along streams); reducing the impact of biological stressors (improve the ability of forest to resist pests and pathogens by removing weakened and susceptible trees such as red pine and ash, prevent the introduction of new invasive species by inspecting equipment before enters property, and hopefully be able to do some control of the existing invasive plants particularly around the landing area); reduce the risk and long-term impacts of severe disturbances by regenerating part of the area to reduce severity and extent of potential damage, and by salvaging dead and dying trees; and enhancing species and habitat diversity by removing the rest of the non-native red pine and retaining or promoting conditions favorable to regenerating less common species such as hickories specifically and generally a broad range of species.

Equipment and Access Constraints and Considerations

Constraint Topic	Description and Considerations
Proposed Equipment requirements	Most likely will require forwarder transport because of the small landing area and the number of stone walls that need to be crossed, several through barways with squared up ends. Pole length skidding will be allowed if operator can demonstrate ability to protect residual stand and regeneration, and cultural resources.
Proposed wetland or stream crossings	None appear to be needed.

Constraint Topic	Description and Considerations
Further wetland comments	Exemption to allow a tracked harvester in filter strip is desirable.
Vernal Pools	None known.
Access improvements needed	Road including stream crossing, and landing improvements are needed to permit trailer access again. Depending on what improvements are done, a steel plate may be required to protect stream crossing in road.
Other EQ issues	None known.
In-kind Services	Road/landing work if not completed by WM.
Other Access Concerns (parking, trails, etc.)	Gate 48 was a barway that is long gone. Abutter has an access road nearby and four-wheeler access has been an issue in past. Area is now mostly blocked off by rocks, but reestablishing gate may be a better solution to allow passage of emergency vehicles if needed.

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
Off watershed				

Additional comments on Subwatershed analysis: Whole proposal is off watershed..

Wildlife and Habitat Observations and Considerations

Wildlife/Habitat	Observations and Considerations
Natural Heritage Priority Habitats?	No
State Listed species present:	None known.
Rare Natural Communities:	None known.
General Wildlife Comments	Deer, moose, turkey, and black bear signs or sightings. There is a range of wetland and upland habitats, so a large range of wildlife frequent this area. No beaver activity was noted in the stream though activity was noted in early 2022 on the southernmost end which hasn't been walked since.

Cultural Resources Description and proposed protection measures

Cultural Resource	Description and proposed protection measures
Historical features present; comments regarding protection	Features known are stone walls, wells and cellar holes. Historic features will be avoided and/or protected as per current DWSP policy. Almost all the proposed area has been logged at least once during last 30 years and appears there are barways sufficiently wide to allow modern equipment access with minimal disturbance to them. If such a barway doesn't exist, if possible, the wall will be crossed where previously disturbed or at a section that is low and made of tossed stone. Features that may get obscured by snow or vegetation will be flagged. Main skid trails with unstable soils will be armored with slash to avoid excessive rutting.
Description of site characteristics in relation to Ancient sites modeling or other verified evidence	Surface stone is prevalent except for some of the flat section of the red pine plantation. Microtopography is pronounced along most of the stream/wetland complex along the western border. There are scattered blow downs of various ages across most of the proposal. Slope varies from flat to about 20% on a small portion of the northeast side but there are no areas with a slope of 30% or greater for more than 200'. Any cultural resource features located before or during the forestry project will be protected according to guidelines set forth in the current DWSP Land Management Plan and indicated on harvest maps accordingly. If applicable, DWSP will follow any additional recommendations from DCR's Archeologist regarding protection of sensitive sites.

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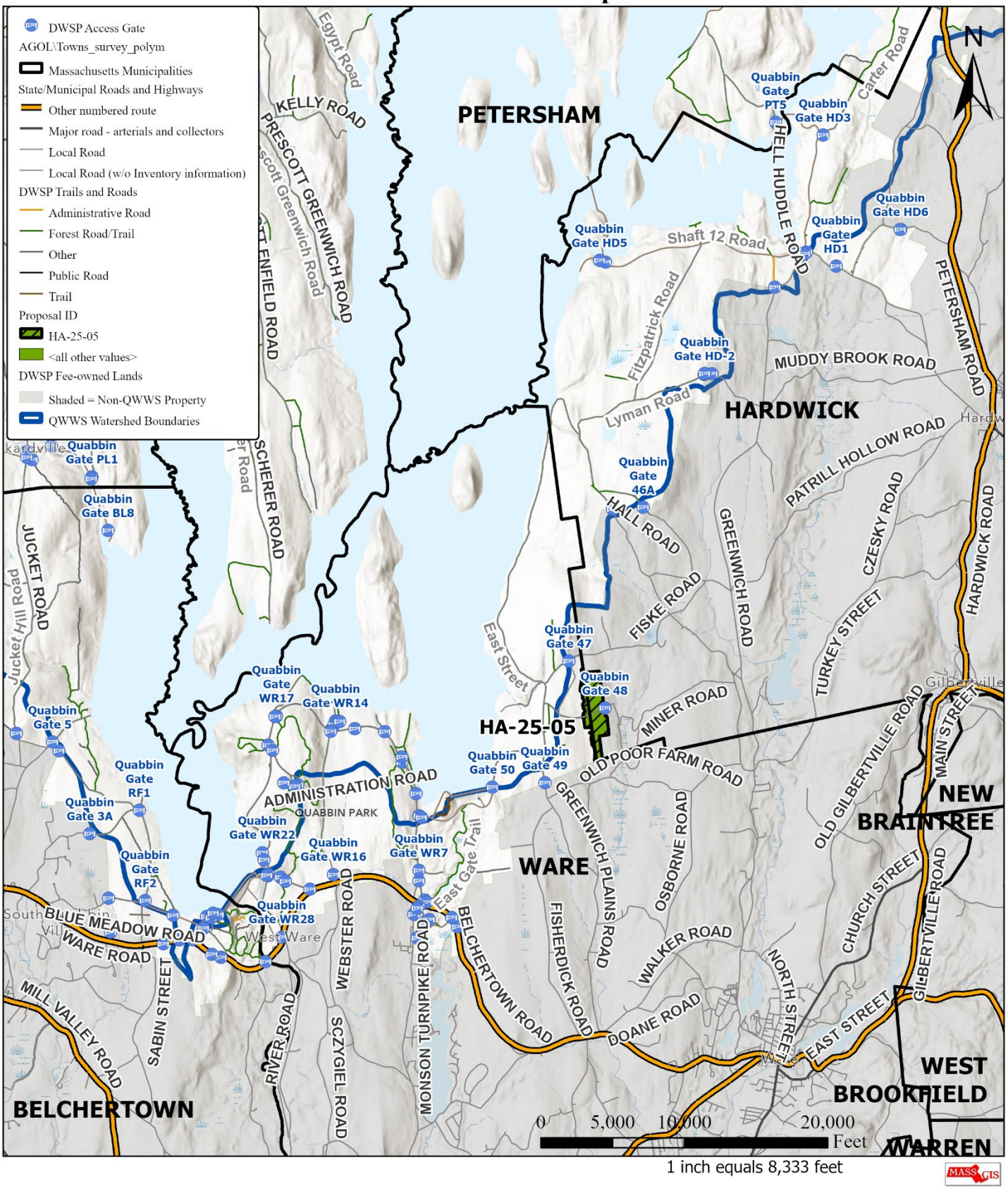
HA-25-05 -- Locus Map



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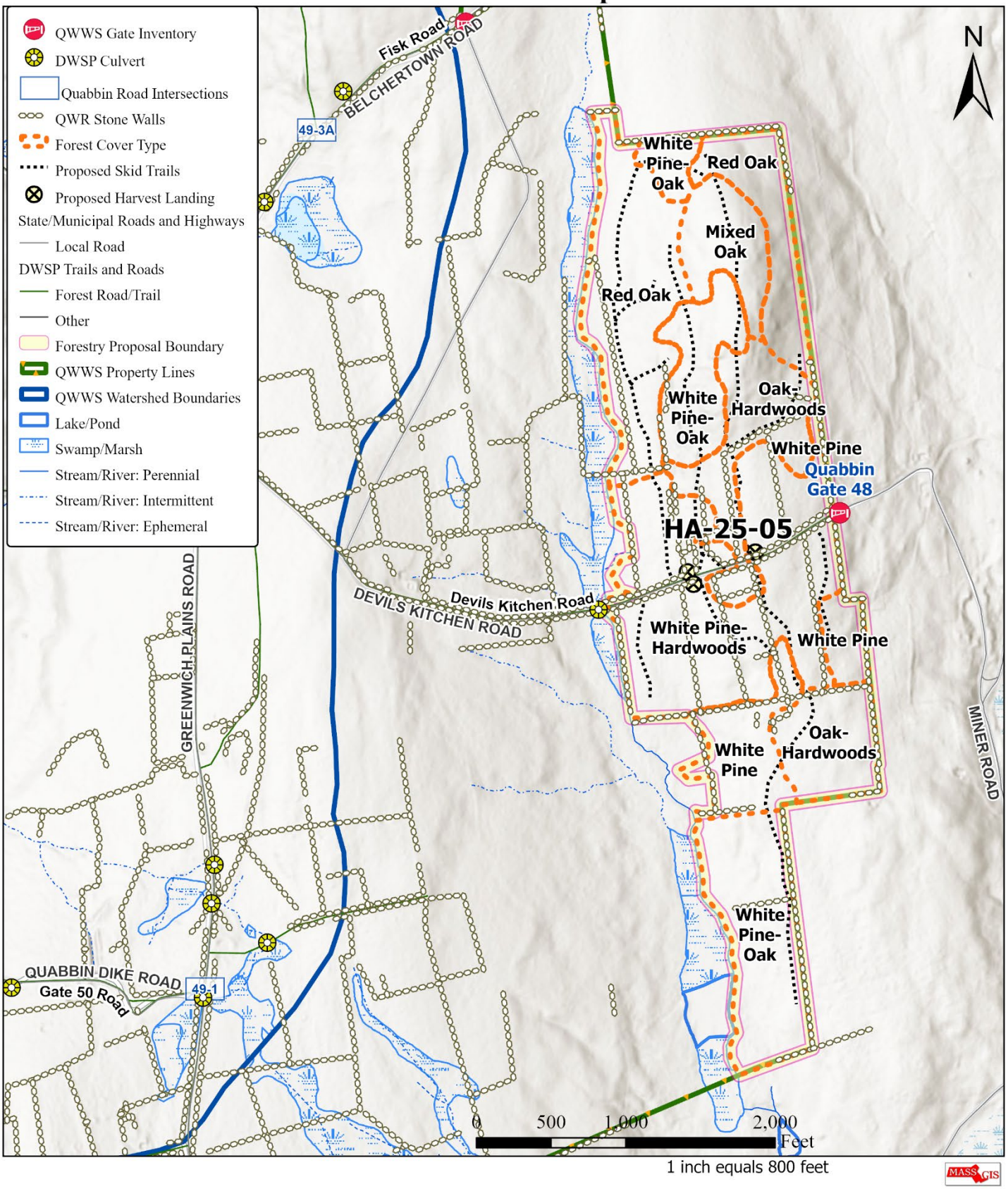
HA-25-05 -- Stand Map



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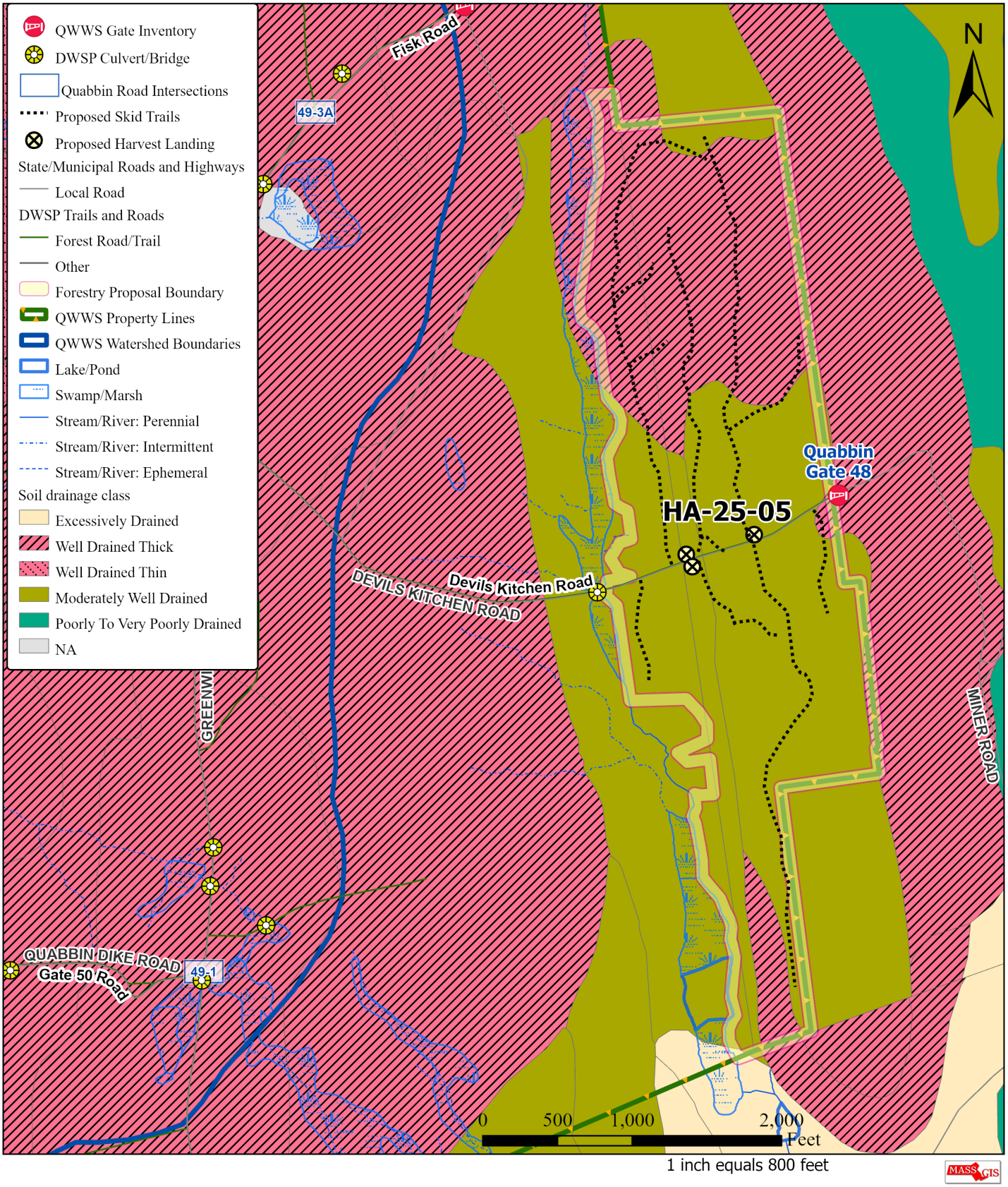
HA-25-05 -- Soil Drainage Class



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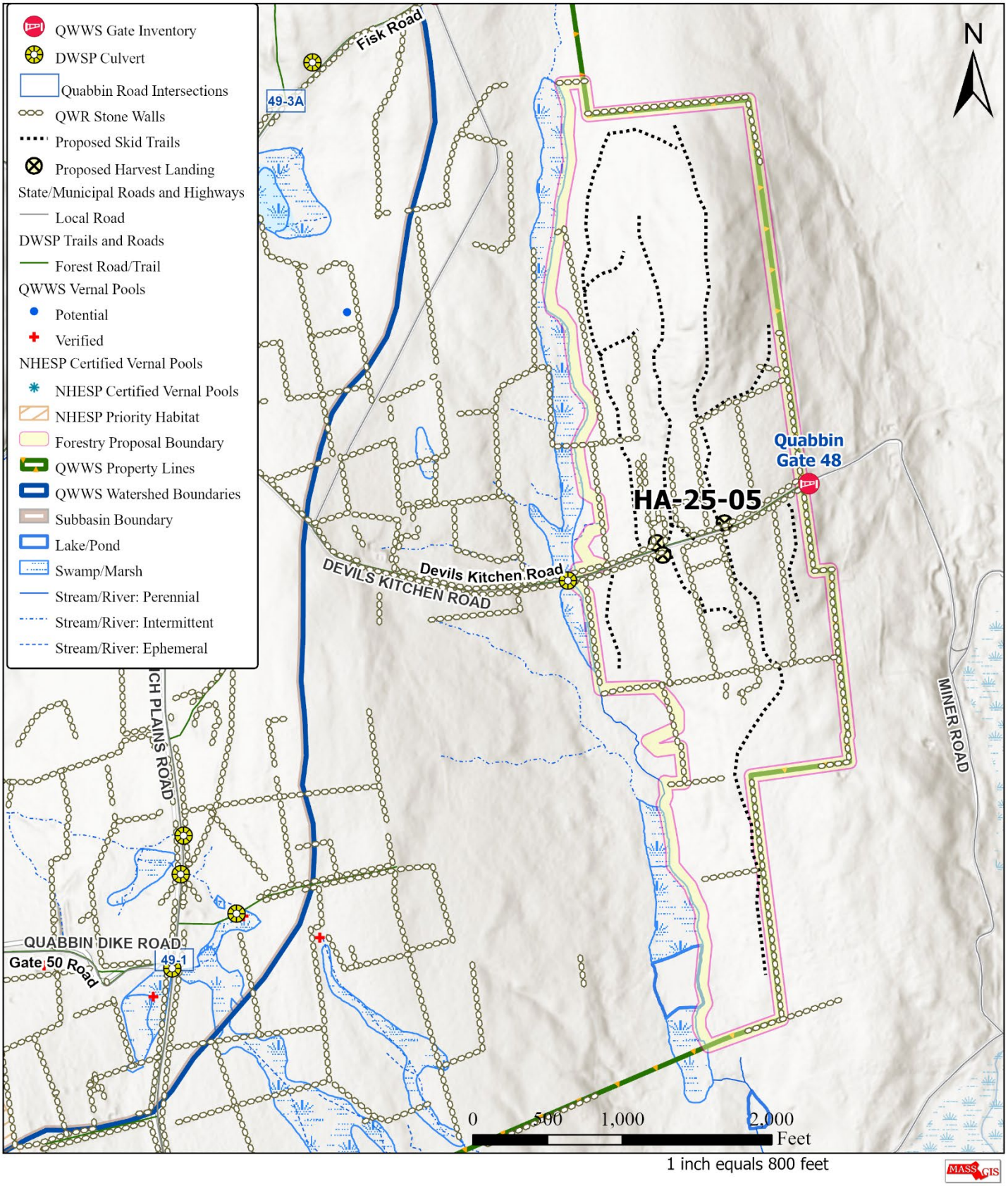
HA-25-05 -- Wetlands and Wildlife Resources



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HA-25-05 -- Cultural Resources and Landscape Characteristics