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	**PE-25-14**
Fiscal Year	2025
Watershed	**Quabbin**
Town(s)	**Shutesbury**
Forester	Richard G MacLean
Total Acres	70
Block	Pelham
Compartment and/or Working Unit	14
Location and Boundary Description	This project is located between Town Farm Road and Prescott Road in Shutesbury. The area is bounded by streams and wetlands on the west and slope and type change to the east.
Previous Proposal?	
Project Goals and Summary Description	Forest regeneration challenges from animal browse pressure is common across the northeast. Researchers at Cornell have pioneered a relatively new silvicultural technique of constructing a wall of logging slash around a regeneration opening has at the Arnot Forest in New York since 2017. After promising regeneration results there, DWSP foresters collaborated with Yale researchers to establish a slash wall at the Ware River in 2021, which has had similarly promising results. Given the historic deer and moose browse pressure at Quabbin this proposal aims to establish a slash wall to further explore the efficacy of the technique on establishing diverse regeneration.

Forest Cover Types and Acreages

Overstory Forest Types	Acres
White pine – hardwood	45.3
Oak – hardwood	18
White pine	3.5
Black birch – hardwood	2.7

Understory Cover Types and Relative Importance

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

Understory Cover Type	**Relative area covered** (Dominant, Secondary, Minor, None)
Invasive shrubs/vines	
Other	

Forest Vegetation Description

Vegetation Topic	Description
General Description, Forest Composition, Stand History, and Harvest History	A majority of the proposed area is a white pine – hardwood stand covering forty five acres. This stand averages 129.5 (80-200) ft² per acre of dominant white pine, with a secondary hardwood component of canopy dominant northern red oak, and red maple and pockets of a second age class dominated by pole sized black birch. In the eastern portion of the stand on the second hilltop hemlock is present in the canopy. This stand is largely the top of slope for the proposed area. Past harvests were intermediate thinning treatments at different locations of the stand in 1973, 1979, 1982, and 1983. A red pine removal in harvest in 2002 opened some areas in the northwest edge of the stand. Most of the stone walls are in stand one. Stands two and three are 9.5 and 8.5 acre oak – hardwood stands on the slopes around the intermittent drainages and Cobb Brook. Stand two, in the northeast of the proposed area, is dominated by large canopy dominant northern red oak, with a second age class of suppressed to intermittent black birch established in harvests in harvest 327 in 1983. The basal area averages 96.7 (40-13) ft² per acre. Stand three averages 107 (60-160) ft² per acre basal area and has a similar composition with a second age class in small pole sized black birch, with some red maple. Stand three was harvested in 1976, likely when the second age class was established. Stand four is a 3.5 acre emergent white pine stand averaging 155 (100-190) ft² basal area per acre with a dense closed canopy. Portions of this stand may have been harvested in 1973, 1976, and 1982, but likely received little treatment in any of these harvests. Stand five is the result of a 2.7 acre red pine removal in 2002. The resulting stand is a black birch – hardwood stand averaging 75 ft² per acre (50-100) in large sapling to small pole size. The secondary hardwood component contains red maple, paper birch, and a few red oak individuals. This stand surrounds the old homestead site.

Vegetation Topic	Description
Advance Regeneration description	Regeneration in stand one is characterized by areas of sparse to no regeneration over 40 % of the stand with mountain laurel, witch hazel, no regeneration, black birch, beech, and hemlock. The second most common condition, a quarter of the stand area, regeneration is interfered by dense mountain laurel, or a witch hazel midstory. Another fifth of the stand is in monoculture regeneration, predominantly sapling sized black birch with a minor amount in monoculture hemlock in the east, and red maple in the north west corner of the stand. The minority remainder of the stand area is in unmanageable area, a smaller component of diverse regeneration (but still dominated by red maple), and areas of heavy browse dominated by striped maple. Browse and moose and deer scat is evident throughout the proposed area. Limited regeneration was still growing, but diversity is low and there was evidence of browse on species deer and moose in the area usually don't prefer. One third of stand two is characterized as interfered by dense mountain laurel. A fifth of the proposed area is in monoculture regen of American beech or black birch. Another fifth contains little to no woody stems and is dominated by witch hazel. Ten percent is unmanageable due to stream associated wetlands, and the last ten percent is in small pole sized black birch. Stand three is forty percent in small pole sized black birch – hardwood with witch hazel establishing underneath. Another third of the area regeneration is interfered by a witch hazel midstory. Fourteen percent of the stand has marginal regeneration of primarily American beech and scattered other hardwood regeneration. The remainder has little to no woody stems with white pine the dominant species. Three quarters of stand four has little to no woody stems and what few stems are present witch hazel and American beech dominate. The remainder of the stand has marginal regeneration dominated by hemlock. Stand five is in the early pole stage of stand development.
Terrestrial Invasive Plants description	Japanese barberry is present around the old foundation. The lot interior is absent of established invasive populations.

Description of Wetland Resources Present

Resource Type	Description of resources present
Wetlands	The proposal borders wetlands related to the beaver activity on Cobb Brook. In the eastern section there are small wetlands related to the intermittent streams draining to the north and south.
Streams	There are two intermittent streams which drain to the north and south in the eastern section of the proposed area. These streams serve as boundaries as the slope increases.
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	0	
Well-drained Thin	17	Chatfield-Hollis complex

Soil Hydric Classes	% of area	Soil series and any further comments
Well-drained thick	43	Three quarters Canton-Chatfield-Hollis complex, a quarter Montauk fine sandy loam
Moderately well-drained	20	Scituate fine sandy loam
Poorly to very poorly drained	21	Primarily Ridgebury gravelly fine sandy loam with a small amount of Swansea peat (this is likely overestimated due to differences in mapping scale of NRCS soil data and DWSP field mapping)

Proposed Silvicultural Activities

Topic	Description
Site Selection and Silvicultural Objectives	Regeneration challenges from browse pressure is common across the northeast. A relatively new silvicultural technique of constructing a slash wall around a regeneration opening has been pioneered by Cornell Researchers at the Arnot Forest in New York beginning in 2017. After promising regeneration results there DWSP foresters collaborated with Yale researchers to establish a slash wall at the Ware River in 2021. Given the historic deer and moose browse pressure at Quabbin this proposal aims to establish a slash wall to further explore the efficacy on establishing diverse regeneration.
Silviculture Prescription	Regeneration challenges from browse pressure is common across the northeast. A relatively new silvicultural technique of constructing a slash wall around a regeneration opening has been pioneered by Cornell Researchers at the Arnot Forest in New York beginning in 2017. After promising regeneration results there DWSP foresters collaborated with Yale researchers to establish a slash wall at the Ware River in 2021. Given the historic deer and moose browse pressure at Quabbin this proposal aims to establish a slash wall to further explore the efficacy on establishing diverse regeneration. If approved two, five acre openings will be established in stand one south of stand five. The opening further from the landing will be left open as a comparison to the closer opening, around which the loggers will be directed to establish a slash wall. The eastern portion of the stand will be treated with three quarter to two acre openings located adjacent to those established in previous harvests. Stand two be treated primarily with regeneration openings targeting emergent white pine and intermediate thinning to reduce the prominence of black birch in the intermittent and suppressed canopy positions. Much of stand three will fall into the filter strip for Cobb Brook, and the acreage adjacent to the southern intermittent will be difficult to manage. Treatment in this stand will focus on thinning the younger age class and pushing the composition evenness by focusing harvest on black birch. Stand four will host a single one to two acre opening located in the south/southeast of the stand to take advantage of the shorter height of the adjacent stand three. Stand five will be treated with opportunistic improvement thinning within a short distance of skid roads. This thinning is intended to manipulate the species composition of the stand and will target black birch for removal.

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 4, Silvicultural Prescription, patch regeneration openings in stands 1, 2, and 4*)**	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.
Diffuse overstory removal, partial cut, mid-rotation thinning. **(*see page 4, Silvicultural Prescription, intermediate thinning in stands 2, 3, and 5*)**	Classic thinnings are partial cuts implemented during the 'middle years' of stand development ('intermediate treatments') to **adjust species composition**, shift growth towards desirable and more vigorous trees, and maintain desired density and stocking levels. Stands may be thinned multiple times prior to initiating the regeneration phase near the end of a planned rotation. Time intervals between thinnings are generally considerations between rotation lengths and the response of the trees on the site. Climate-smart practices that agency foresters keep in mind when conducting thinnings include: • **Retaining higher residual densities** that maintain higher levels of carbon stocks on the landscape. • Retaining better-formed and more vigorous individuals which will improve **carbon sequestration capacity**. • Taking the opportunity to favor **desired species**, especially those species that are better adapted to **future climate scenarios**.
Additional Carbon and Climate Considerations	None.

Equipment and Access Constraints and Considerations

Constraint Topic	Description and Considerations
Proposed Equipment requirements	If construction of the slash wall is approved a forwarder will be required to facilitate construction.
Proposed wetland or stream crossings	None
Further wetland comments	
Vernal Pools	None known
Access improvements needed	Landing improvement
Other EQ issues	
In-kind Services	
Other Access Concerns (parking, trails, etc.)	

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
46: Cobb Brook	414	3	91	36
73: Gate 16 Brook	158	0	39	34

Additional comments on Subwatershed analysis: No comments.

Wildlife and Habitat Observations and Considerations

Wildlife/Habitat	Observations and Considerations
Natural Heritage Priority Habitats?	None mapped
State Listed species present:	None known
Rare Natural Communities:	None known
General Wildlife Comments	Evidence of browse is present throughout the proposed area. For example, a drainage in the northwest portion of the proposed area is dominated by striped maple, all of which is multi stemmed and browsed at a consistent 2-4 ft in height. Moose and deer scat is easily found, and signs of rubbing on large sapling red maple is abundant. The beaver pond on Cobb Brook to the west of the proposed area is active and the abutting portions of this proposal are actively harvested by the beaver. There are signs that this beaver family are expanding down Cobb Brook and the southwest portion of this proposal may become affected by beaver dam impoundment in the next few decades.

Cultural Resources Description and proposed protection measures

Cultural Resource	Description and proposed protection measures
Historical features present; comments regarding protection	The landing is located adjacent to the former homestead site of a Bazyli Kuczma. Their six acre homestead has prominent stone walls, an old stone foundation, associated well, and related invasive plantings. These stone walls were altered in the post taking period of the Quabbin during reforestation planting efforts and again by past harvest. Existing barways and breaks will be utilized as much as possible and all efforts will be taken to map and protect remaining intact walls. Where alteration of walls is necessary, deconstruction will be limited and walls will not be rebuilt afterward as directed by the DCR Archeology office.
Description of site characteristics in relation to Ancient sites modeling or other verified evidence	Surface stone is relatively minor throughout the proposed area. Microtopography is mostly absent. At least the walled western portion of the proposed area is noted as being in sproutland at the time of the original taking, so it was only just reverting to forest from likely former agricultural use. Slope is predominantly hilltop to gentle slope. The northeastern portion has the steepest slopes but slope rarely exceeds 30 percent except in a few isolated areas of ledge or short steep slope. 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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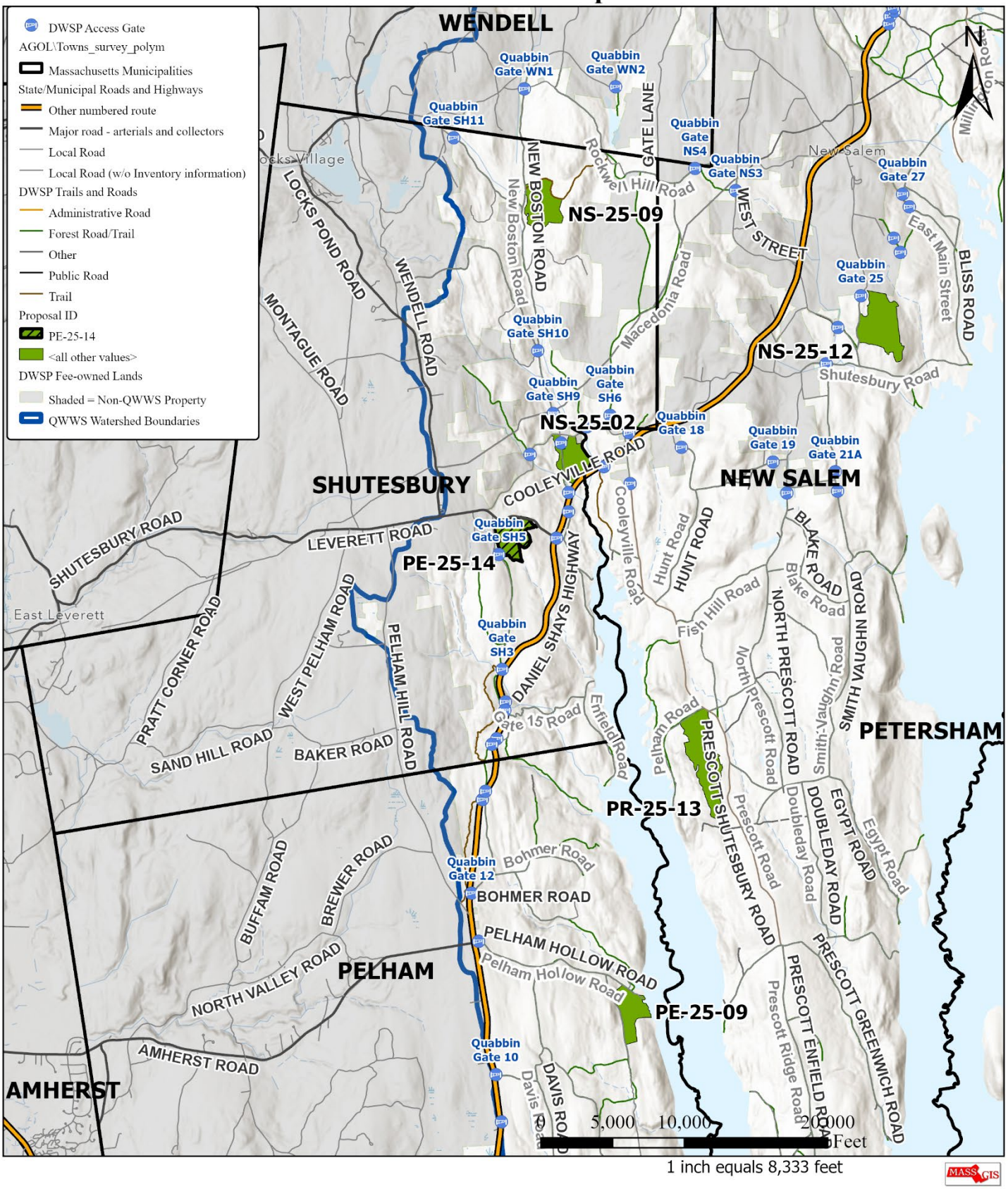
PE-25-14 -- Locus Map



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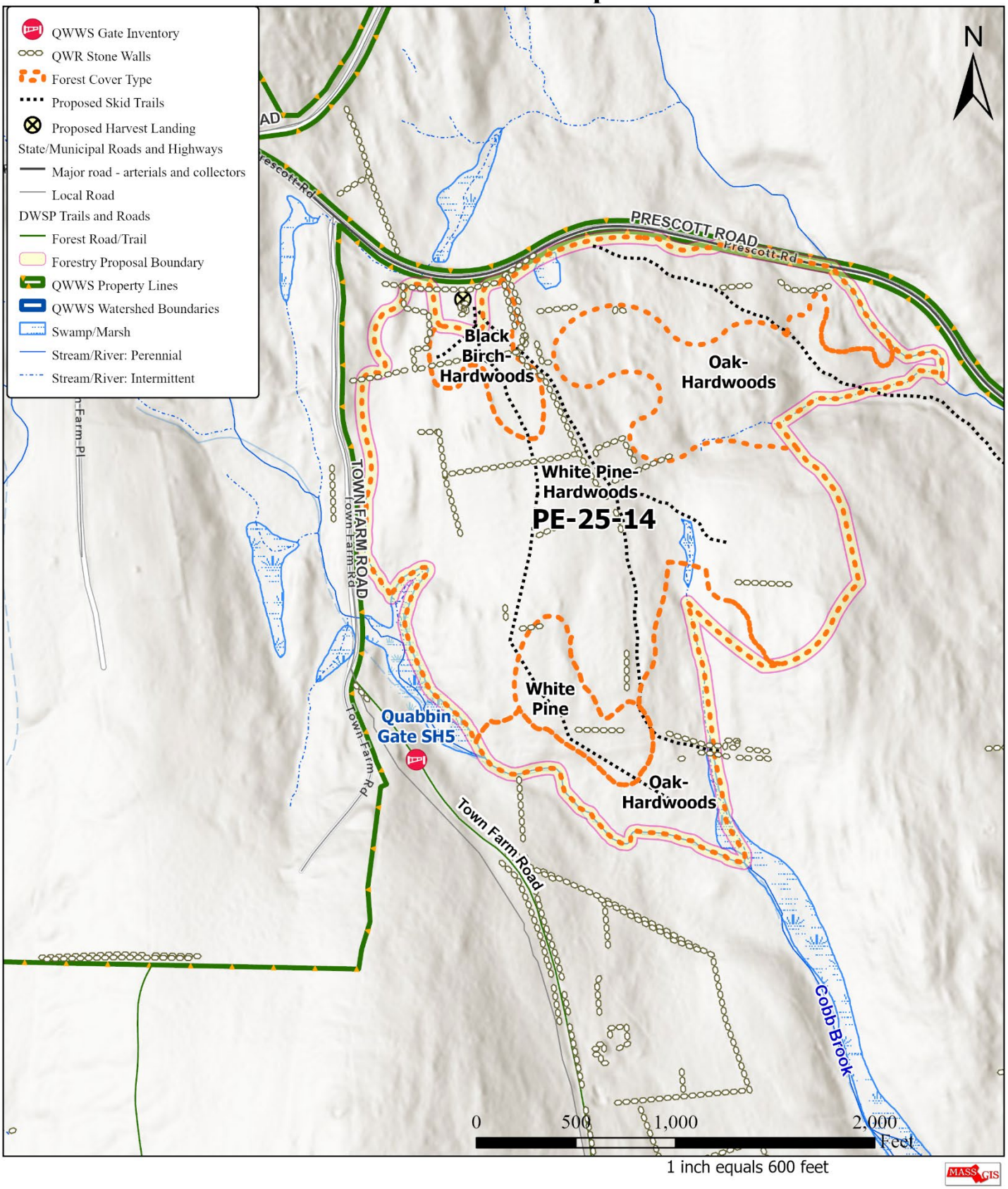
PE-25-14 -- Stand Map



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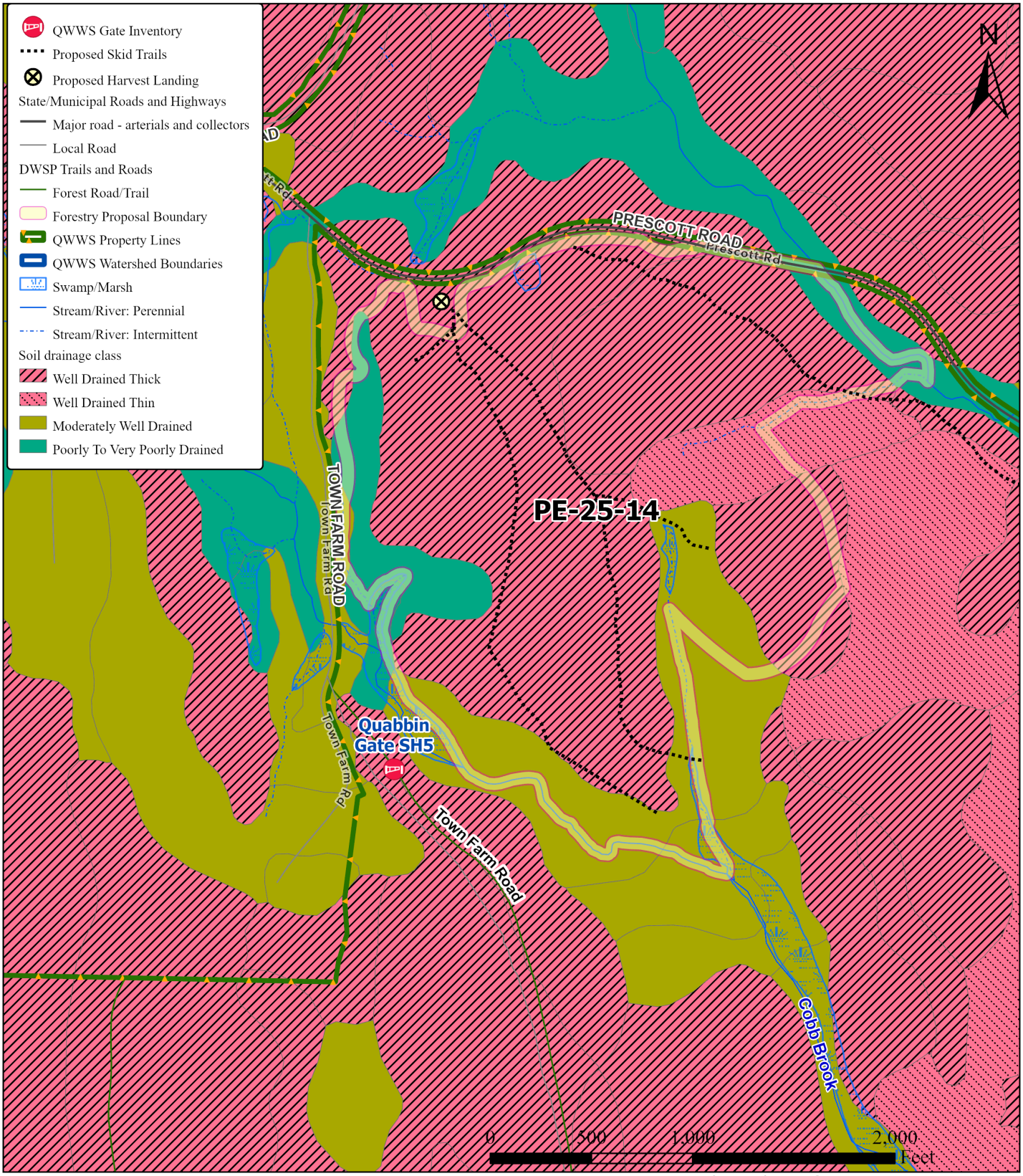
PE-25-14 -- Soil Drainage Class



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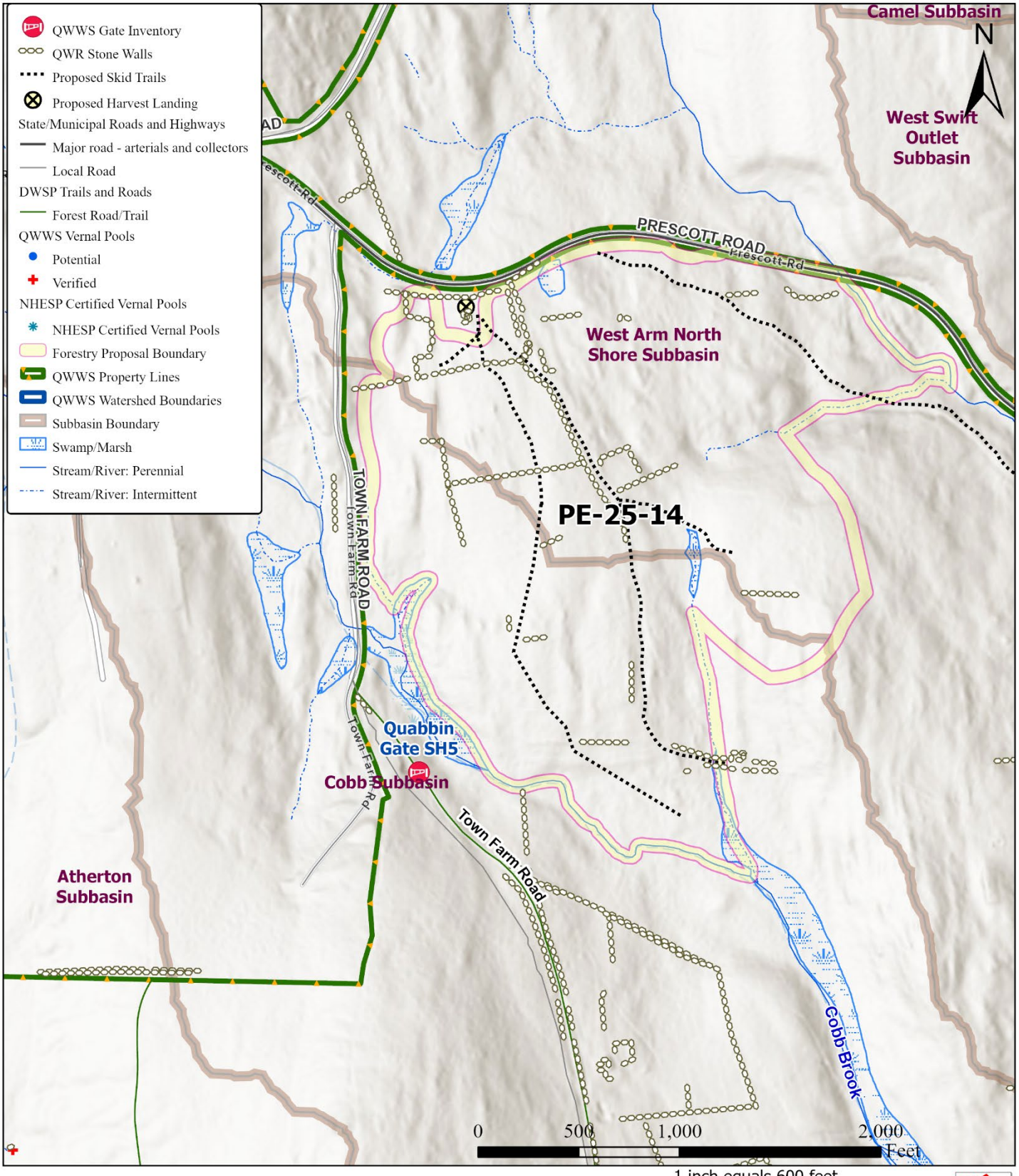
PE-25-14 -- Wetlands and Wildlife Resources



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PE-25-14 -- Cultural Resources and Landscape Characteristics