Wachusett Harvest Proposal WA-23-242

Proposal Update, May 2024:

This forestry proposal was originally approved through the public process in 2022. The project was 'paused' along with most other state lands forestry projects as part of the EEA Forests as Climate Solutions Initiative. Following the close of the work of the Climate Forestry Committee, DWSP determined the activities in this proposal align with EEA climate considerations developed from the recommendations in the CFC report. The proposal language and mapping below are preserved unchanged from that presented to the public in 2022 in ArcGIS Online Story Map format.

Proposal Goals

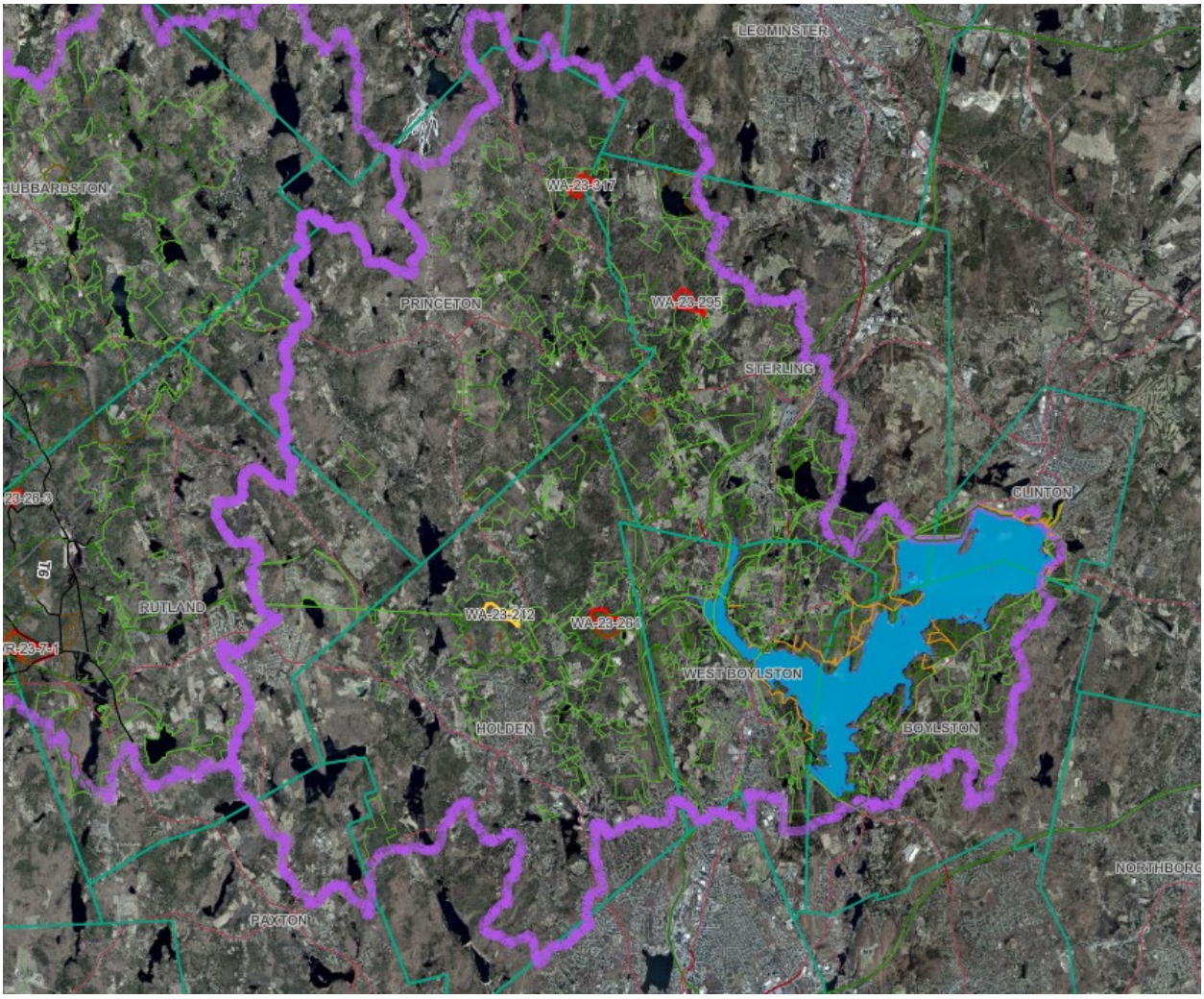
There is excellent advance regeneration throughout much of this area and so the creation of openings in the overstory to release this regeneration will be the primary goal. This will further the objective of promoting a healthy, diverse and resilient forest on Wachusett watershed property.

Proposal Location

(Yellow highlighted polygon in the map) The western side is bound by Bear Brook; the northern and eastern sides by the Quinapoxet River and the southern side is bound by property boundary line. There is a small stretch of frontage along Mill Street in the southeast corner of this area.

Total Acres: 52

Figure 1. Watershed Locus, WA-23-242.



General Description

Overstory Type(s)	Acres
White pine	12
Mixed oak	18
Northern Red oak	11
Other	11

	Understory Type(s)
Dominant	Tree seedlings/saplings dominate site
Secondary	Mountain laurel prevalent

Description of forest composition/condition:

This area is divided in two by a wetland that extends south from the Quinapoxet River. The larger western part is dominated by oaks. In the higher and drier parts, red oak, black oak, red maple and white oak predominate in the overstory with patches of mountain laurel, lowbush blueberry, hazelnut and witch-hazel in the understory. Where it's lower and a bit damper, red oak dominates the overstory with a witch-hazel, hazelnut, mountain laurel and maple-leaved viburnum shrub layer. In the mixed hardwood stand at the toe of the slope abutting the Quinapoxet River there is red oak, red maple and yellow birch in the overstory with scattered sugar maples. On the west-facing slope immediately adjacent to Bear Brook there are a few hemlocks and hobblebush and striped maple in the understory.

There is evidence of past logging only in the western half of this western portion which was purchased in 1997. There are very old stumps and multi-stemmed red maples only in the higher drier area adjacent to the aqueduct right-of-way. Otherwise, there are single-stemmed red oaks of good to excellent quality throughout this area. There are some very old looking white oaks at the top of a slope that have barbed wire in them.

The smaller eastern part of this sale area is dominated by white pines in the overstory that were planted in 1919. There's a group of large white oaks in the middle of this area that have an open-growth form indicating that they pre-date the planting of the pines. The understory shrub layer is comprised of hazelnut, witch-hazel, mountain laurel and maple-leaved viburnum. The mountain laurel is very thick on the west-facing slope near the wetland.

There is excellent advance regeneration throughout this entire sale area but particularly in the eastern portion under the white pine stand. It's almost entirely comprised of hardwood species especially red oak, red maple, white oak, yellow birch and black cherry. In the western part, it's made up of red maple, red oak, white pine and American chestnut.

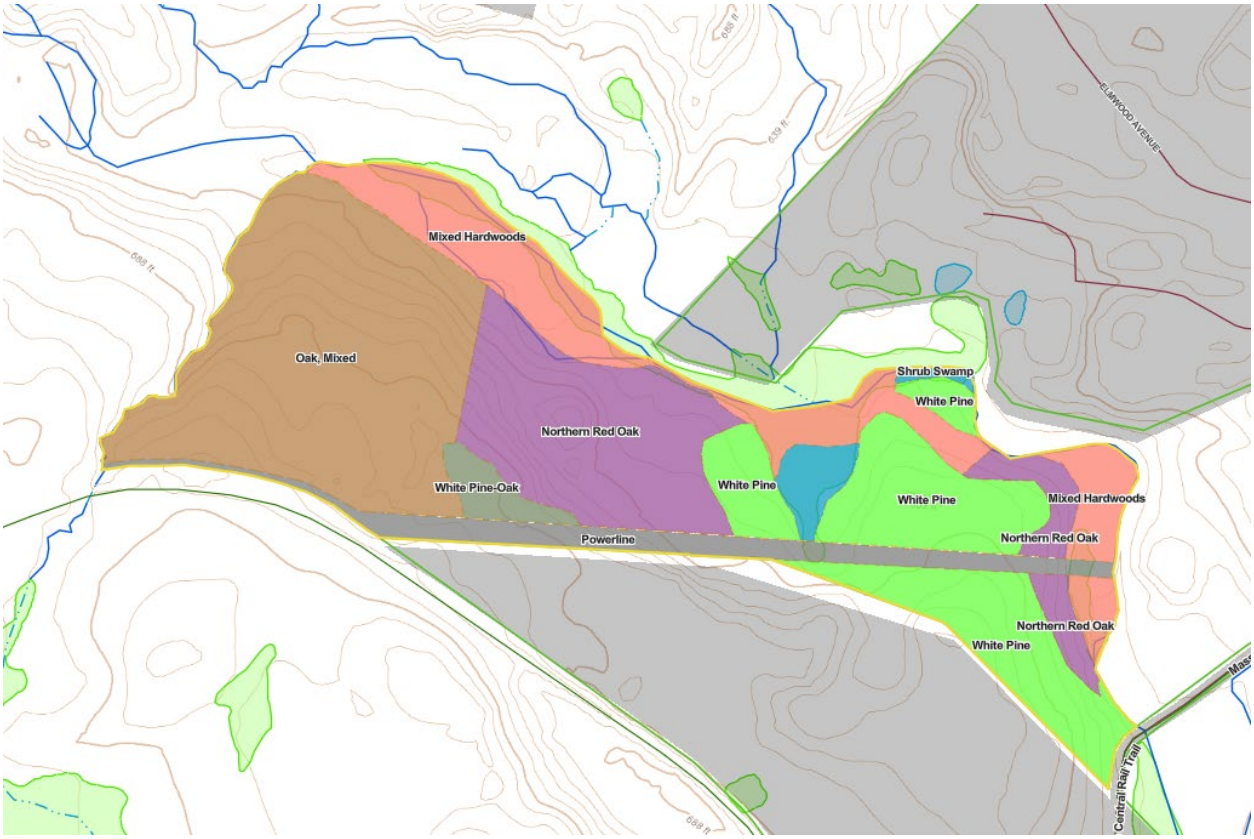
The age structure of this working unit is currently as follows: 0%, 0-20 years old; 0%, 21-40 years, 0%, 41-60 years; 9%, 61-80 years; 14%, 81-100 years and 77%, >100 years old. A narrow band of mixed oak forest near

the base of the hill at the confluence of Bear Brook and the Quinapoxet River originated in about 1880 making it about 142 years old.

Assessment of Terrestrial Invasive Species:

107 invasives species plots were taken. Only one plot near the Quinapoxet River had any invasives species, in this case, it was Japanese barberry.

Figure 2. Forest cover types, WA-23-242.

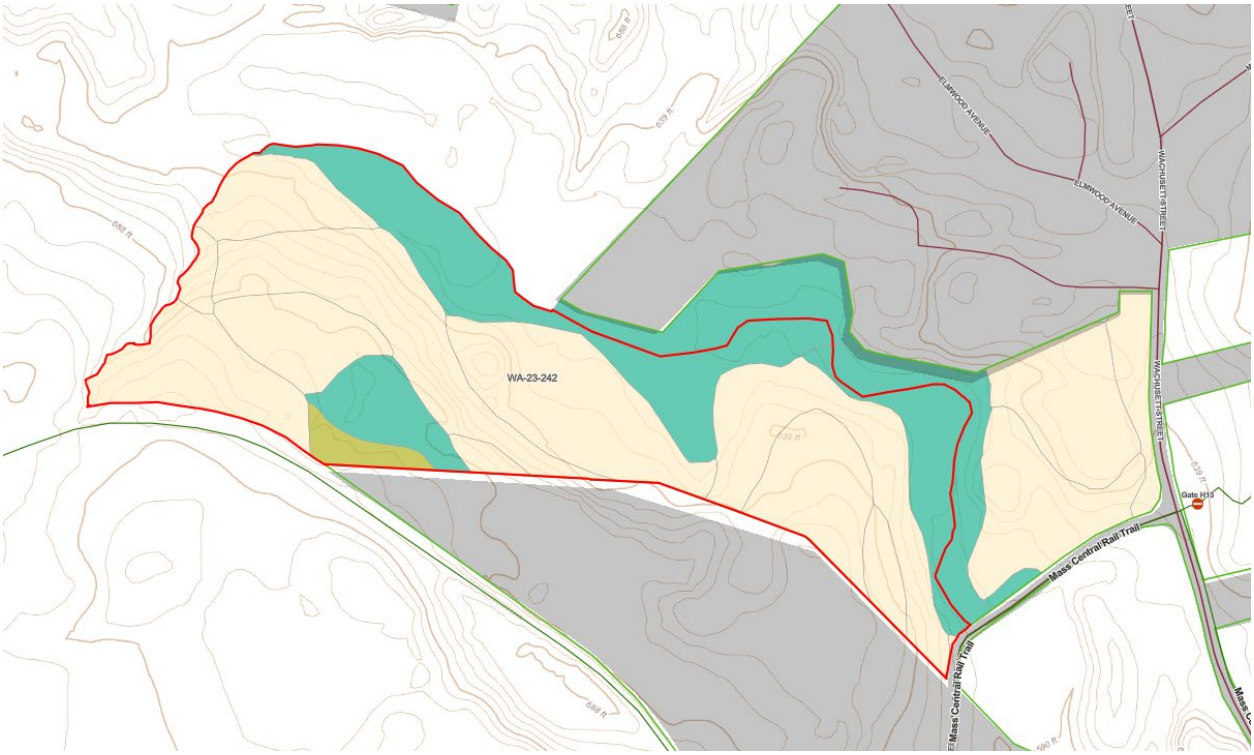


Soils

Drainage Class	%
Excessively Drained	79
Well Drained Thin	0
Well Drained Thick	0
Moderately Well Drained	0
Poorly to Very Poorly Drained	21

The excessively drained soil is primarily the Hinckley loamy sand along with some Merrimac loamy sand. The poorly and very poorly drained soils at the base of the slope nearer the Quinapoxet River are several different silt loams.

Figure 3. Soil classes, WA-23-242.

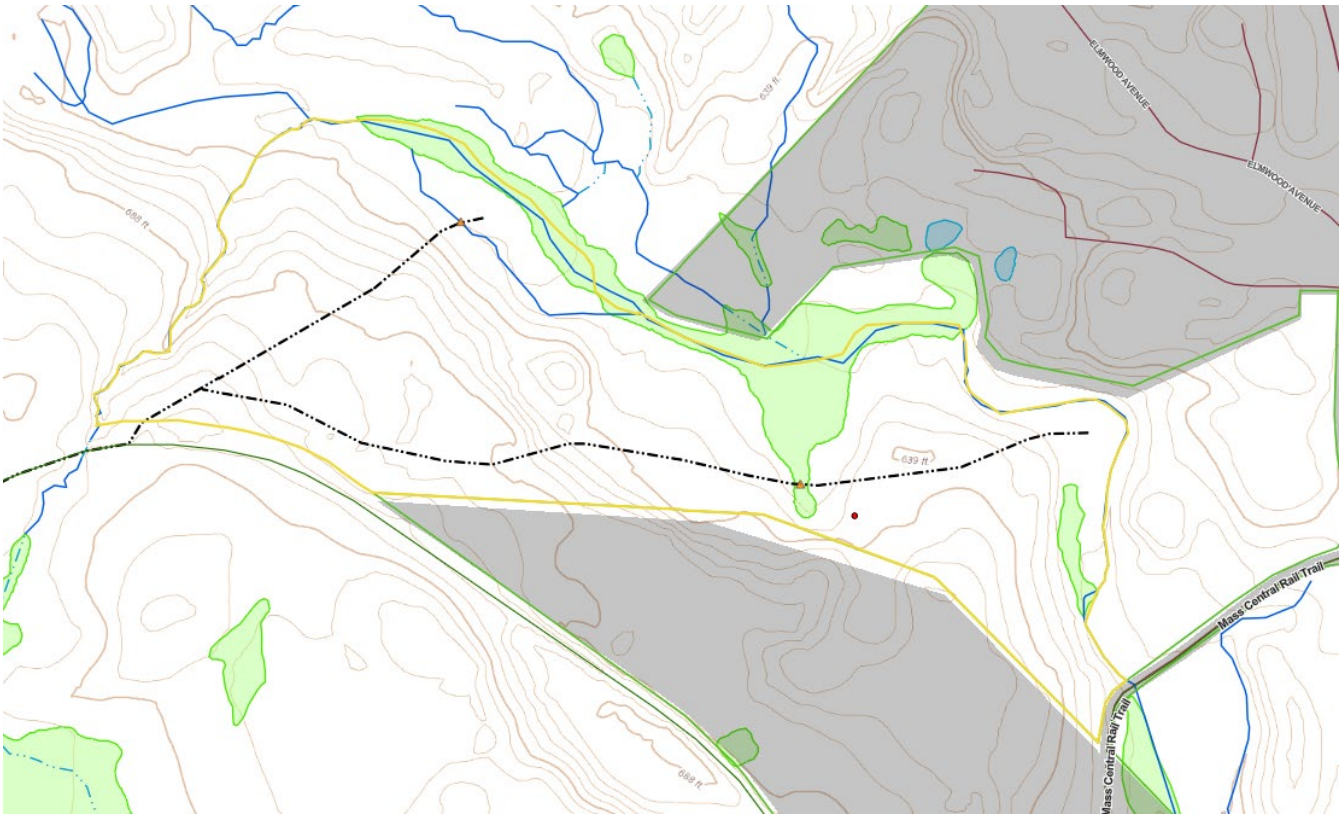


Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **Yes**
- Seeps present? - **None known**
- Are stream crossings required? - **Yes**
- Are wetland crossings required? - **Yes**
- Is logging in filter strips planned? - **Yes** **(Riparian Zone Mgt)**
- Is logging in wetlands planned? - **No**

A stream crossing will be necessary only if the decision is made to enter the 3 acres between the Quinapoxet River and a small intermittent stream at the base of the slope.
A wetland crossing will be necessary to access the eastern part of this sale area from the west. Just north of the aqueduct right-of-way, the wetland narrows to about 50’ across and the ground rises quickly but not too steeply on either side. Swamps mats or similar timber bridges will be required.
The verified vernal pool (#63) is located in the aqueduct right-of-way near the southern extent of the wetland that divides this area into two parts. There were also many isolated pockets of water present that were associated with the riparian area of the Quinapoxet River. Many of these small, clear pools had spotted salamander eggs masses in them (5-10 masses each). These pools were not mapped or logged in the VP database, but were active as vernal pools.

Figure 4. Wetland resources, WA-23-242.



Silviculture

Acres in Intermediate cuts: **10**
Acres in prep/establishment cuts: **0**
Acres in Regeneration cuts: **17**
Average regen opening size: **1**
Maximum regen opening size: **2**

Description of advance regeneration in proposal area:

There is an excellent understory of regeneration especially in the eastern portion under the white pine stand. Here, the almost exclusively hardwood regeneration is comprised of red oak, red maple, white oak, yellow birch and black cherry. In the larger western portion, the regeneration is less ubiquitous but still well distributed and is made up primarily of red maple, red oak, white pine and American chestnut.

Overall, sampling found that there is adequate advance regeneration in 40% of the plots taken with marginally adequate regeneration in another 17% of the plots. There is interfering levels of native shrubs in 25% of the plots. These are entirely due to witch-hazel and mountain laurel.

General comments on silviculture proposed:

With the excellent and diverse understory of saplings that are well suited to this site, a new age class will be created in this forest. This will be accomplished through the removal of the overstory in patches that range in size up to about 2 acres. Given the goal of establishing a new age class on about 1/3rd of the forest, the patches will total about 17 acres in this 52 acre working unit. Given the species composition of the regeneration, this new age class will have a similar diversity to the overstory although the relative amounts of each species will change especially with there being less white pine.

A limited acreage of thinning between the patches may occur on up to 10 acres, the primary function of which would be to removed trees of lower quality and vigor while benefitting specific trees or groups of trees such as the older groups of white oak.

Following the harvest, the age structure will be approximately as follows: 33%, 0-20 years old; 0%, 21-40 years; 0%, 41-60 years; 7%, 61-80 years; 11%, 81-100 years and 49%, >100 years old.

Climate Change considerations:

Typical silviculture in this proposal designed to sustain fundamental ecological processes, reduce the risks of impacts from severe disturbances, and enhance species and structural/habitat diversity.

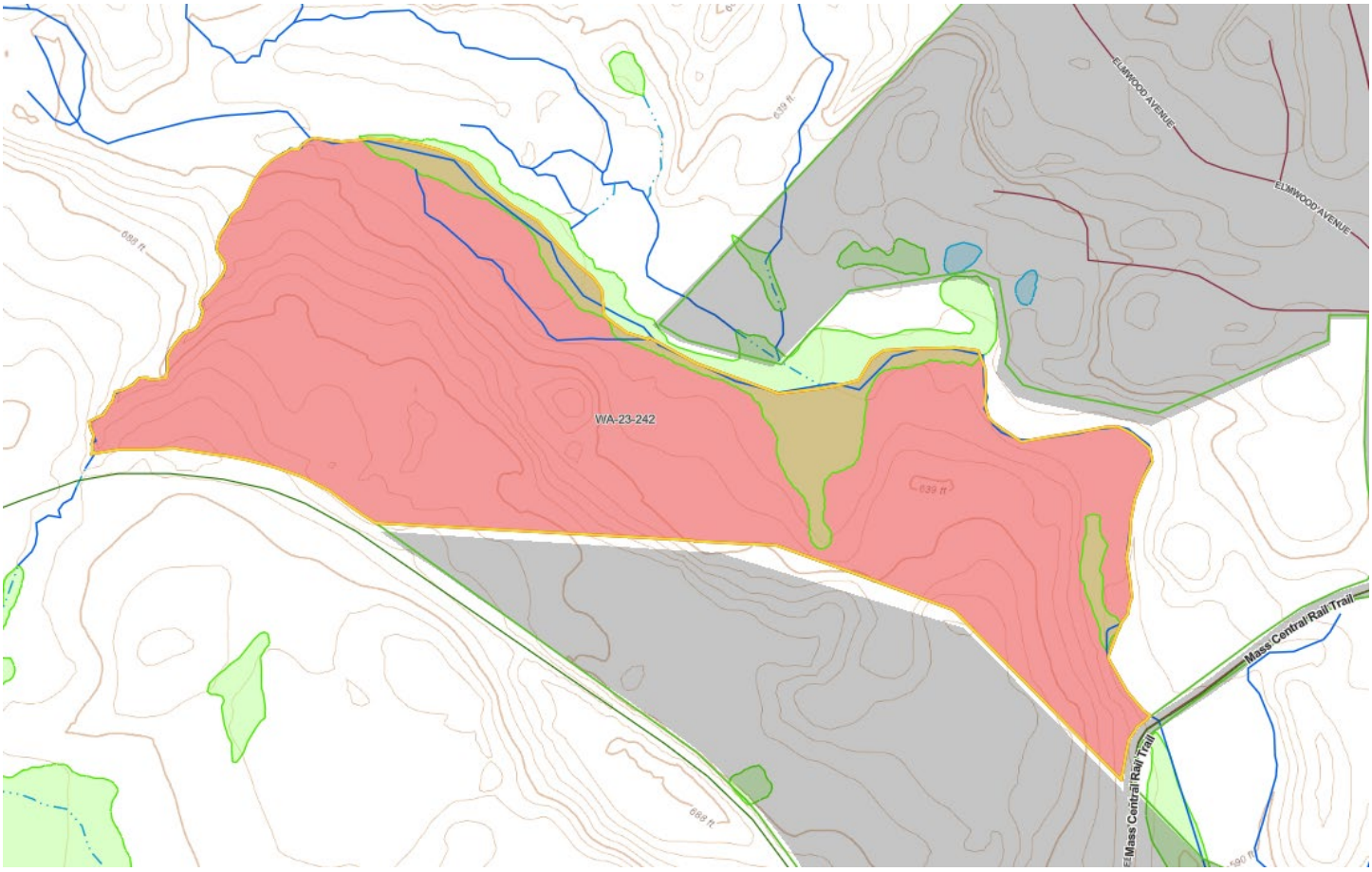
Figure 5. Orthophoto and cover types, WA-23-242.

Subwatershed Analysis

Sub-watershed number	Total DCR-owned Acres	Acres Regenerated on DCR Land in the last 10 years	Acres Remaining for Regenerating Up to the 25% / 10 Year	Acres part of this proposal
14 (Quinapoxet River)	1058	154	110	52

This proposal and proposal WA-23-265 are within sub-watershed #14. Assuming a thinning intensity of as much as 30% of the stocking being removed, this proposal would result in 20 equivalent acres of tree removal….(10 x 0.3 +17 = 20). WA-23-265 would result in 29.5 acres of equivalent acres of tree removal…(15 x 0.3 + 25= 29.5). The two lots combined would result in 49.5 acres which is well under the 110 total DCR-owned acres remaining for regeneration up to the 25%/10 year limit for this sub-watershed.

Figure 6. Subwatersheds, WA-23-242.



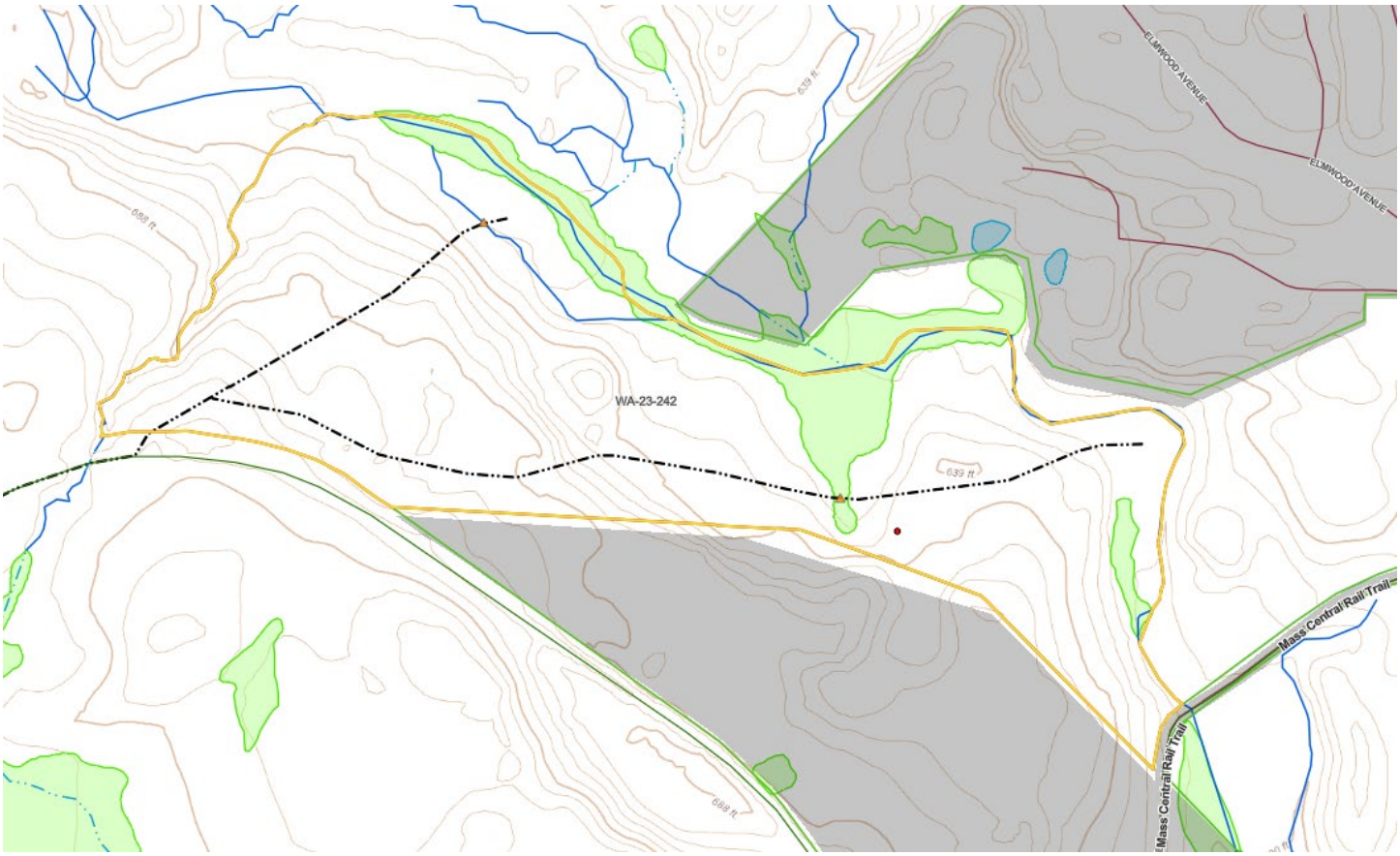
Equipment

Forwarder required: **Yes**
Feller/processor required: **Yes**
Steep slopes present: **No**

Comments on harvesting limitations:

With advance regeneration present and a desire to protect as much of it as possible during the harvest, a cut-to-length harvesting system will be employed.

Figure 7. Harvesting limitations, WA-23-242.

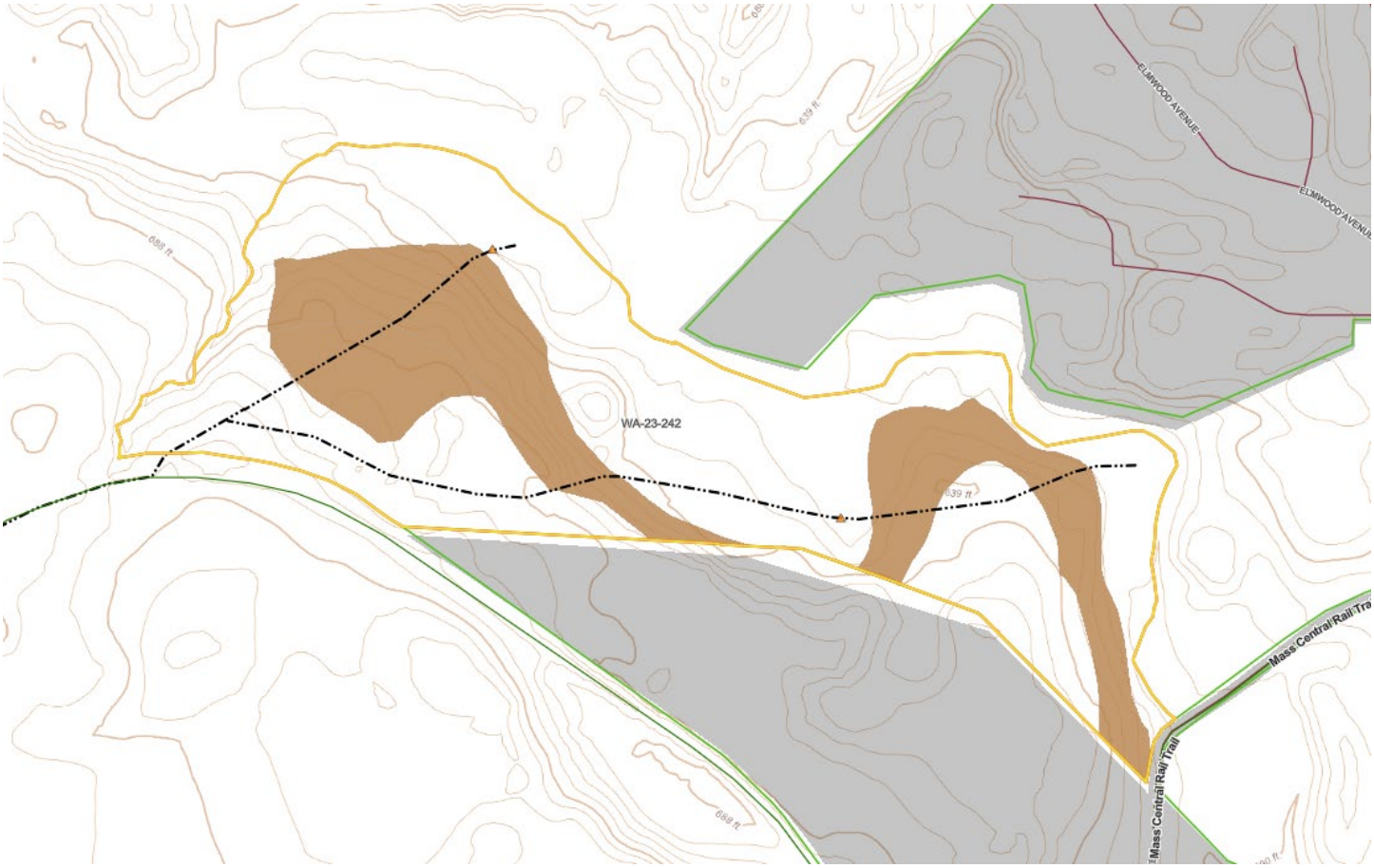


Cultural Resources

Comments on Cultural Resources:

The Quinapoxet Mills was located on the north side of Mill Street and it gave this former village of Holden the name Quinapoxet. This mill complex is located outside of the lot proposal area, however there is a borrow pit immediately adjacent to Mill Street just on the west side of the Quinapoxet River bridge that may be related and will be avoided. DCR will follow appropriate recommendations from the DCR archaeologist to minimize ground impacts on skid trails.

Figure 8. Stony and Extremely stony soils, WA-23-242.



Wildlife Resources & Rare and Endangered Species

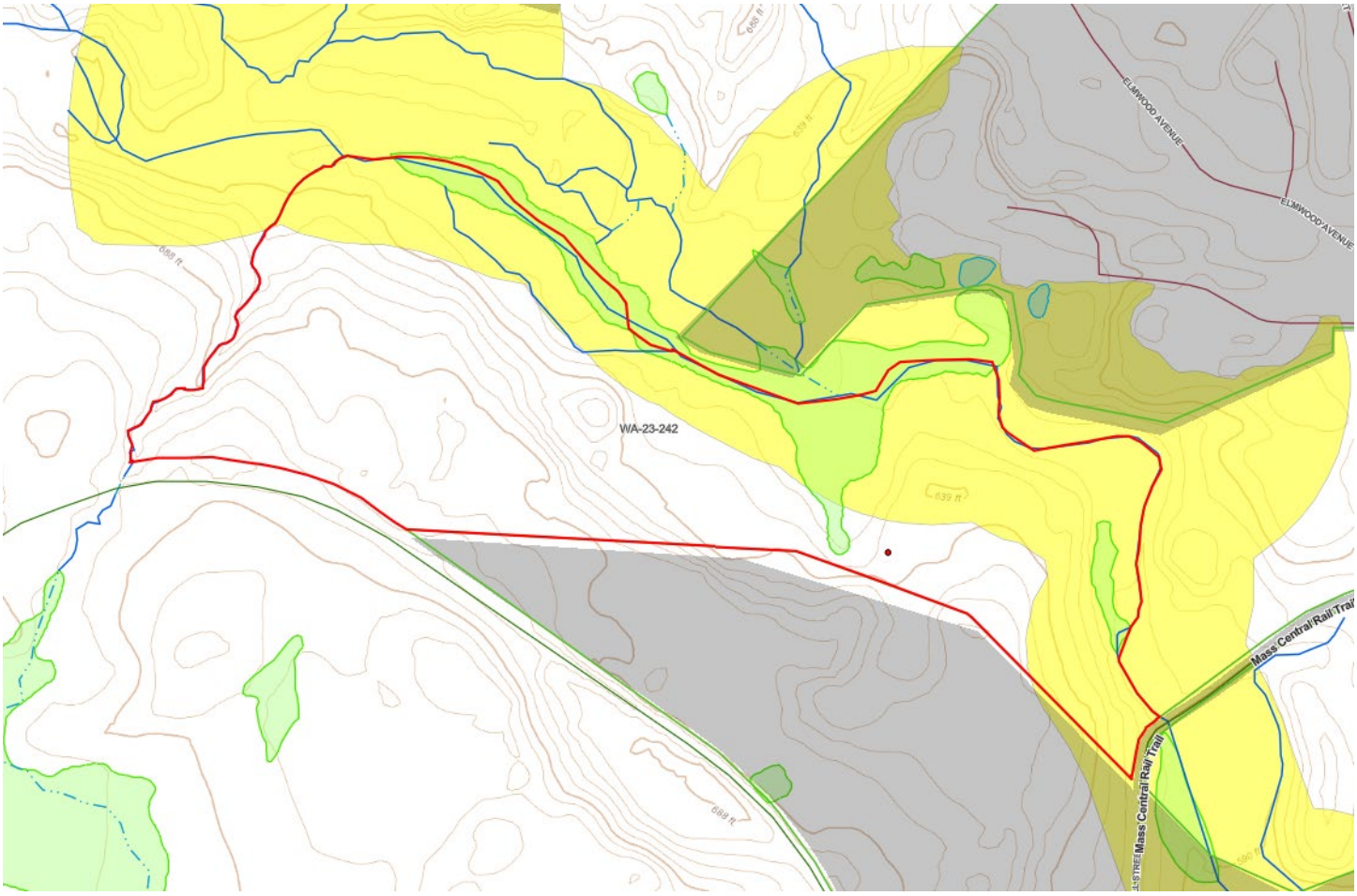
General Wildlife Comments:

A woodcock nest was found in the shrub swamp in the central area of the proposed lot. There were also many isolated pockets of water present that were associated with the riparian area of the Quinapoxet River. Many of these small, clear pools had spotted salamander eggs masses in them (5-10 masses each). These pools were not mapped or logged in the VP database, but were active as vernal pools. No other unusual wildlife sightings were recorded in mid-April by wildlife staff. Deer pellets were observed in scattered areas across the forest. Minor deer browse was observed. The presence of excellent tree regeneration indicate deer impact is relatively low in the lot therefore browse interference should not be detrimental to the future recruitment and growth of trees provided the deer population stays low with annual hunting. Moose appear to be absent but may pass through on occasion.

Comments on Rare Species/Habitats:

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.

Figure 9. NHESP Priority habitat overlay, WA-23-242.

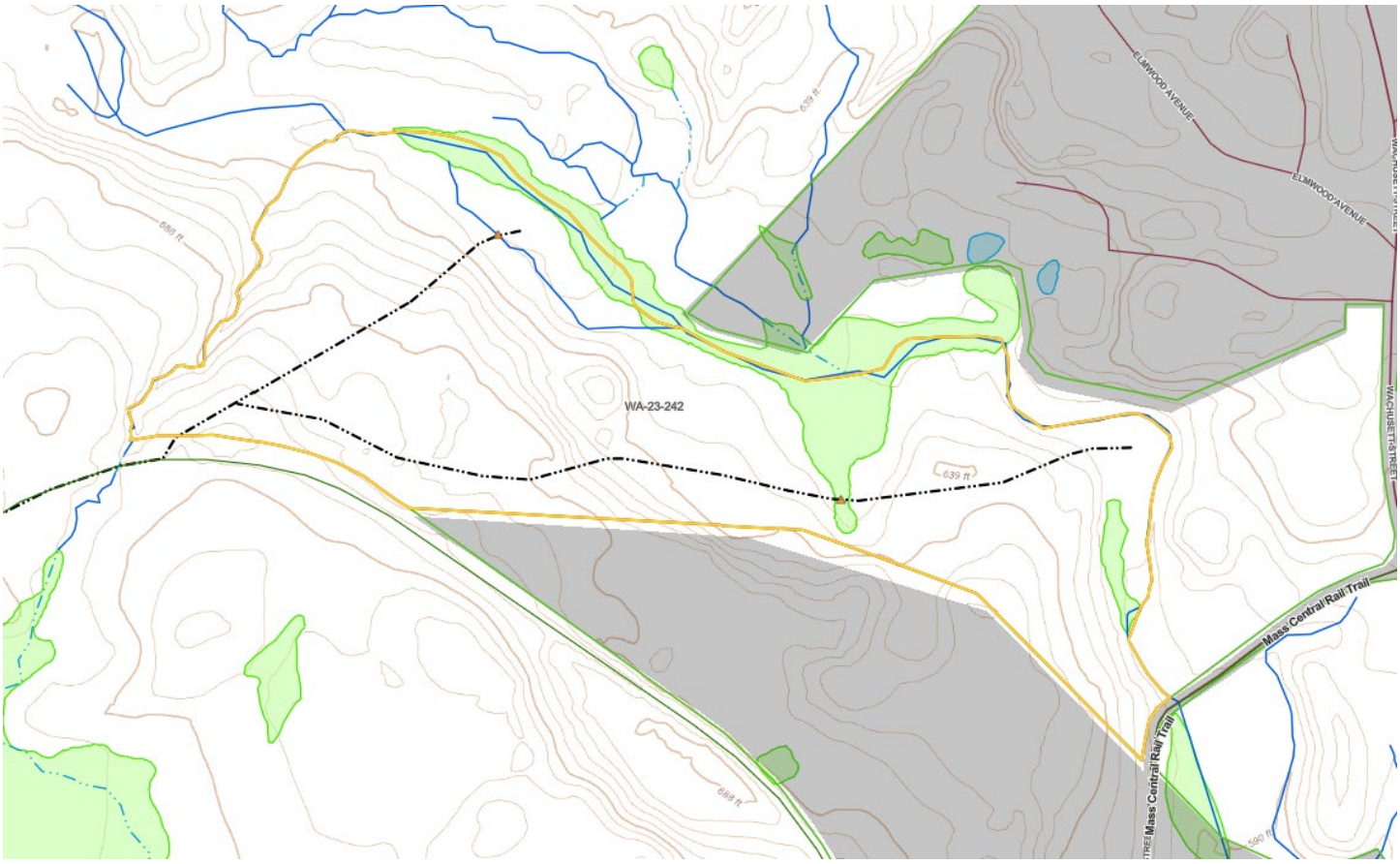


Environmental Quality Engineering

Comments on EQ Issues:

See Wetlands page for a description of proposed stream and wetland crossings. No concerns given the proposed mitigation measures.

Figure 10. Access planning, WA-23-242.



Forest Access Engineering

Gravel needed: No
Landing work needed: No
Culverts needed: No
Work needed on permanent bridges: No
Beaver issue: No

Further comment on access needs:

No access issues. The landing will be near Shaft 3 with access through gate H19 on Princeton Street.

Figure 11. DWSP FY 2023 Forestry Proposals – Master Legend for story maps