Quabbin Harvest Proposal HA-23-13

Proposal Update, May 2024:

This forestry proposal was originally approved through the public process in 2022. At that time reference was made to salvaging or pre-salvaging planted red pines that were in decline due to fungal pathogens and/or red pine scale. DWSP wishes to clarify that all red pine plantation removals on Division lands comply with long standing DWSP management objectives to convert monoculture conifer plantations to diverse mixes of native tree species. 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 report issued from the CFC. 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

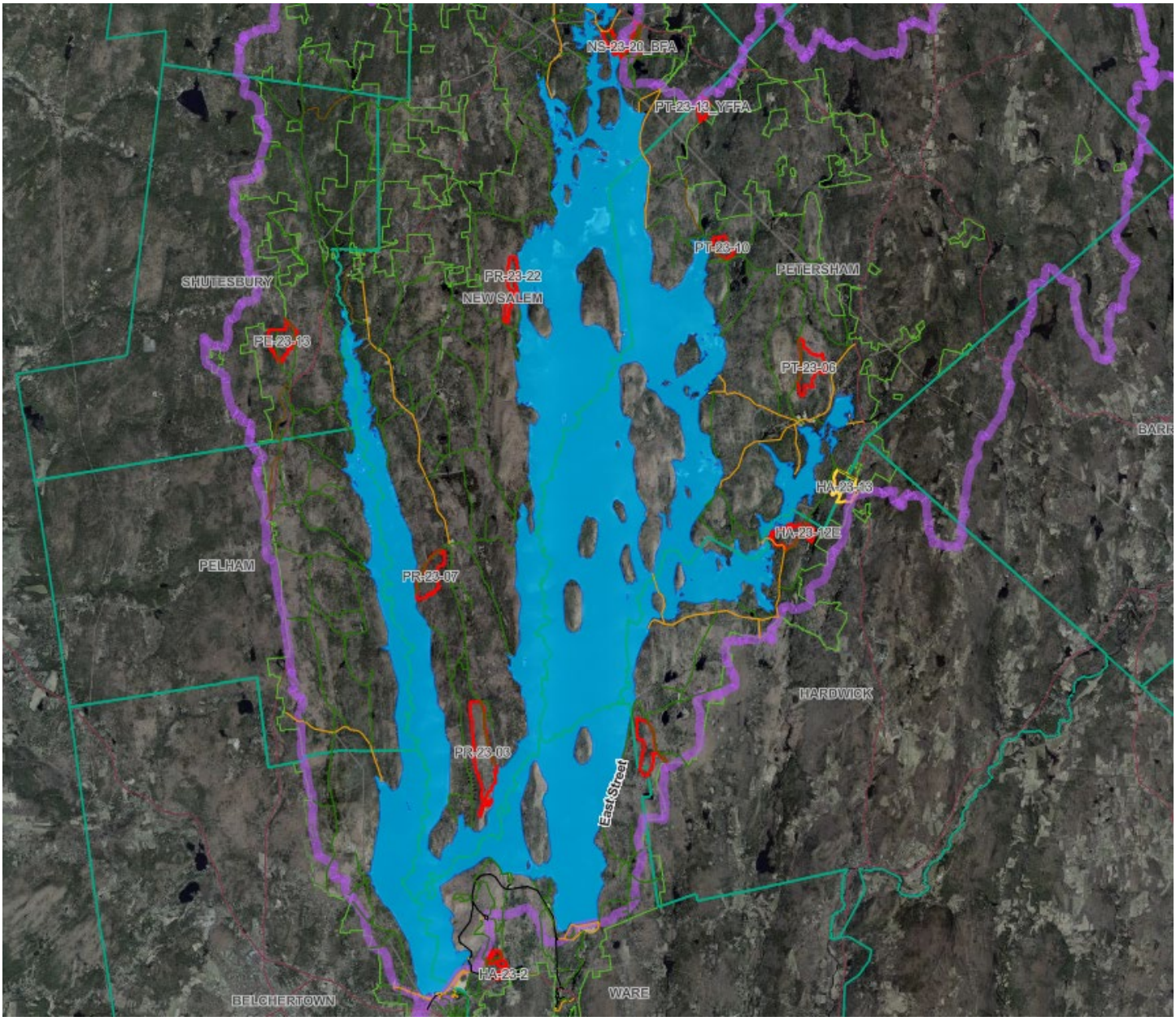
This proposal has two separate treatments. The first section is a red plantation which is infested with red pine scale and is declining and will be salvaged. The rest of the area is mainly white pine with a mixture of hardwoods which have had the regeneration process started by previous harvests. These existing openings will be expanded upon with new openings of 1/3-2 acres which will further diversify the age structure of this area while improving vigor and overall form of the retained trees.

Proposal Location

(Yellow highlighted polygon in the map) Portion of Compartment 13 west of Route 32A westerly to lot 1060 which is western edge of this proposal. See map.

Total Acres: 100

Figure 1. Watershed Locus, HA-23-13.



General Description

Overstory Type(s)	Acres
White pine	50
White pine – hardwoods	17
White pine – hemlock	7
Mixed hardwoods	14
Red Pine	10

	Understory Type(s)
Dominant	Tree seedlings/saplings dominate site
Secondary	Mesic site - cinnamon fern, mixed hardwood

Description of forest composition/condition:

The red pine plantations and the over stocked and/or poorly formed white pine and white pine/hardwood stands along with areas with hemlock are the stands that will be concentrated on. Addition work will be done in the adjoining sections of additional types as is deemed prudent.

The red pine plantations are declining, both have some mortality from red pine scale or root rot already. Past cutting intensity is variable and stocking levels range from low to fully stocked. Both have some white pine and hardwoods in the overstory and these will be favored for retention when they are healthy, well formed and vigorous. All stands have a dense understory, mainly composed of white pine but on some the black and occasionally white birch dominated and understory is now mainly sapling to pole sized birch. Where these are vigorous and well formed they will be protected as much as possible.

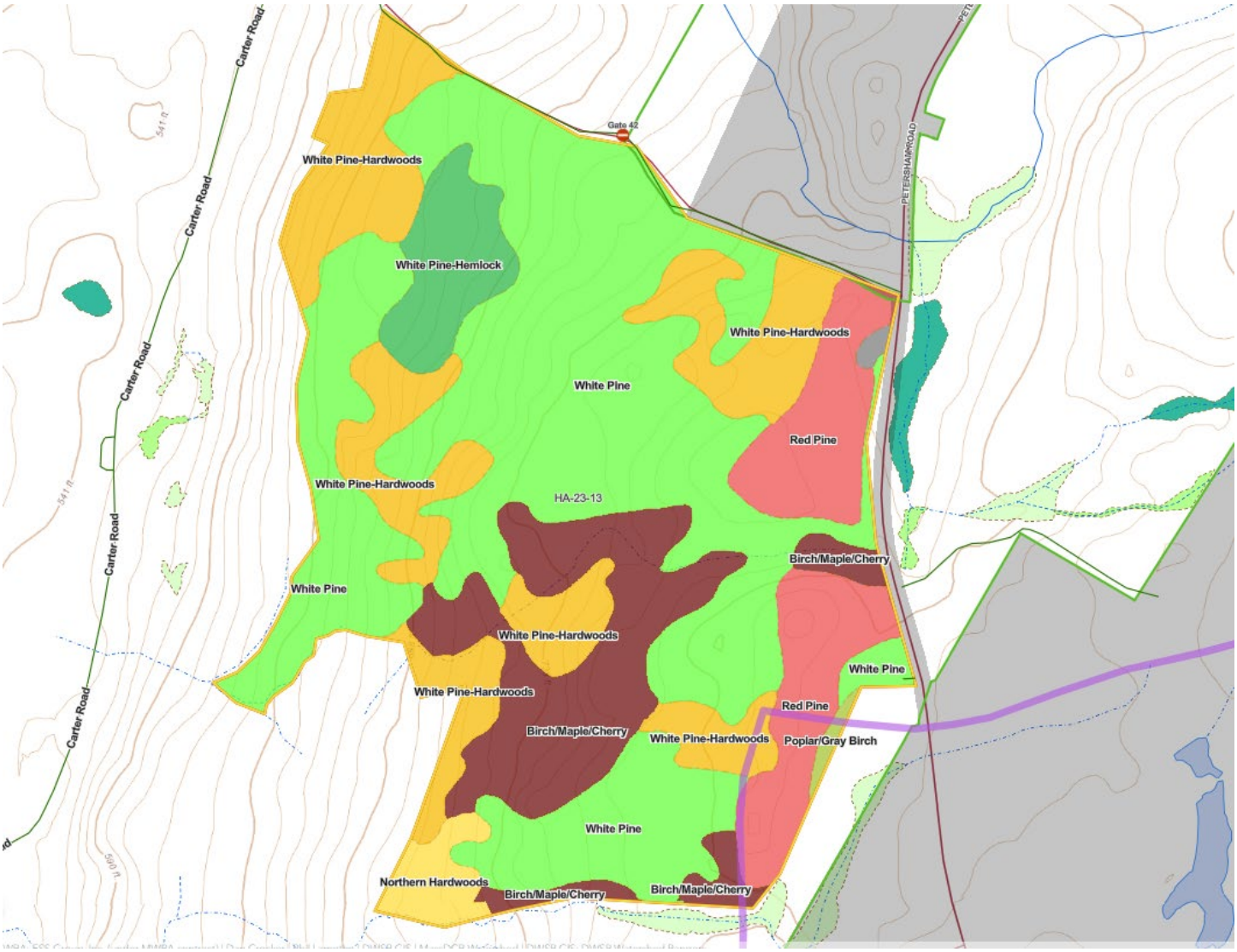
The white pine and white pine - hardwoods stands were cut last in 1999 and 2000. These cuts were group shelterwood harvests typical of the time. Some openings up to around an acre were created, but most were under ½ acre. Overstory here is mostly white pine with scattered red and sugar maple, mainly red but also white and black oak, ash, white and black birch, and occasional black cherry. Most of the red pine plantations graduated into a red and white pine mix but these were shown as white pine on the cover type map. On the richer soils the amount of hardwoods tends to increase and the form and vigor is generally average to good. It is expected these areas will regenerate to white pine/hardwoods but the hardwoods should express dominance, if not heavily browsed, resulting in a more diverse overstory in the future.

The areas with hemlock are typed as White Pine - Hemlock on the type map, but could be updated to White Pine or White Pine - Hardwoods as the white pine and hardwoods have out competed the hemlock which is now mainly in a suppressed or intermediate crown position. Hemlock woolly adelgid is present and presumably hemlock scale as well. Hemlock and oak were impacted by the spongy moth outbreak from 2016-2020. Other species present in overstory are red oak, black and white oak, red maple and black birch.

Assessment of Terrestrial Invasive Species:

Invasives are present in multiple areas, mainly around old foundations and many of the landings. The southernmost landing on the west side of 32A is especially heavily infested but hopefully using that landing can be avoided. Honeysuckle, Japanese barberry, bittersweet and multiflora rose were all seen and the red pine stand west of that southern landing has a lot of winged Euonymus. Away from the foundations and heavily disturbed areas the invasives thin out fairly quickly although some barberry is found scattered around, especially near wetlands. Some widely scattered winged Euonymus and rose were also seen. These scattered patches are not expected to have much impact on regeneration. The heavier infestations around the landings are a concern but most of these areas are also where the red pine is and are going to be released when the red pine dies anyway. Control efforts including cutting or possibly pulling the smaller ones on the worst areas, particularly the bittersweet, in early spring should slow the spread and will at least lessen the seed dispersal. An effort was put into pulling the euonymus and bittersweet on about an acre two years ago. With the smaller ones there it seemed to be pretty effective control but very labor intensive; future monitoring may reveal a different story.

Figure 2. Forest cover types, HA-23-13.

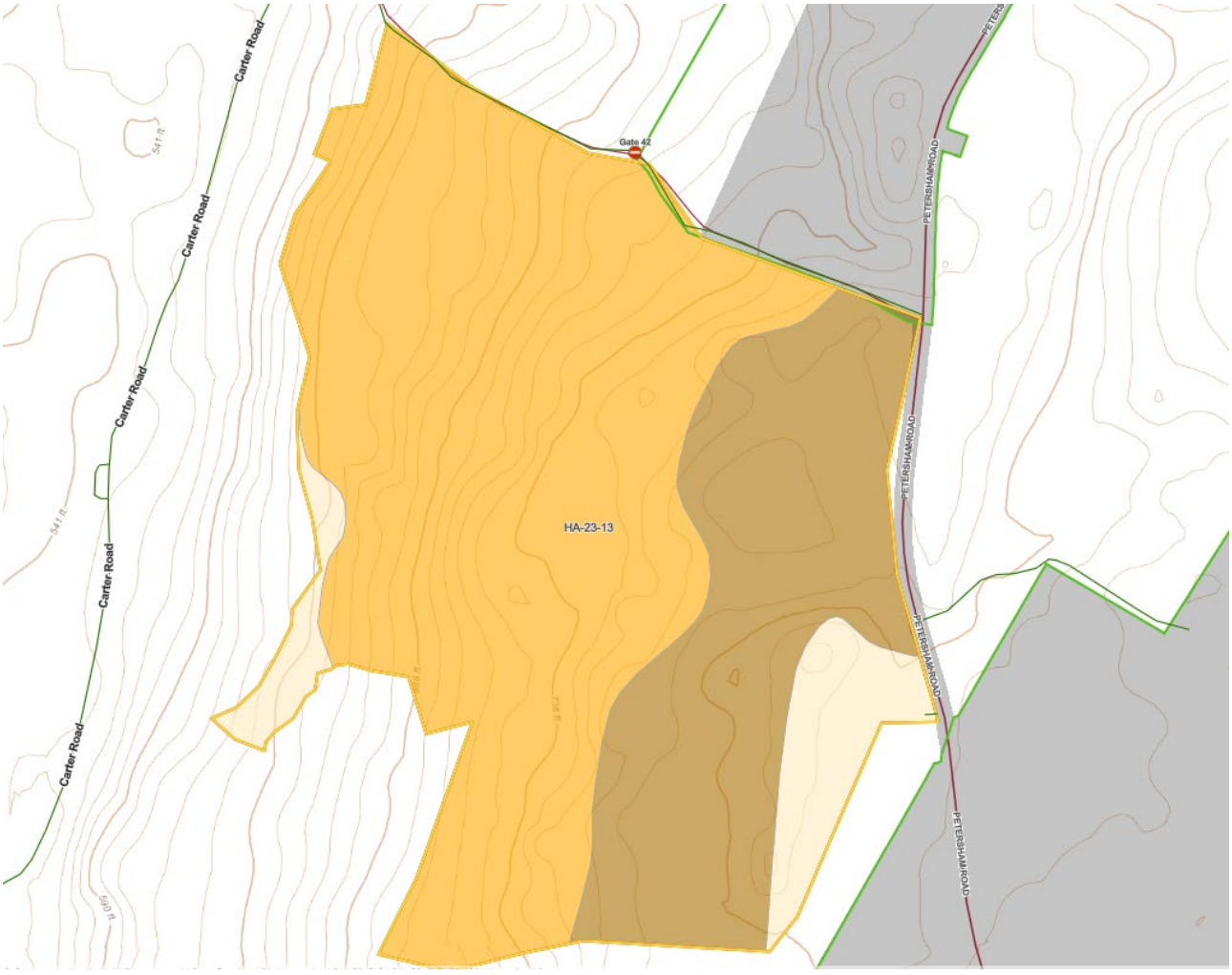


Soils

Drainage Class	%
Excessively Drained	8
Well Drained Thin	64
Well Drained Thick	28
Moderately Well Drained	0
Poorly to Very Poorly Drained	0

All the soils are classified as extremely stony or very rocky except for 8.1 acres which are classified as Hinckley loamy sand (253E,B). The majority (64.5 acres) are Charlton-Chatfield-Hollis association (925E,C) with an additional 28 acres of Charlton-Chatfield association (902E).

Figure 3. Soil classes, HA-23-13.



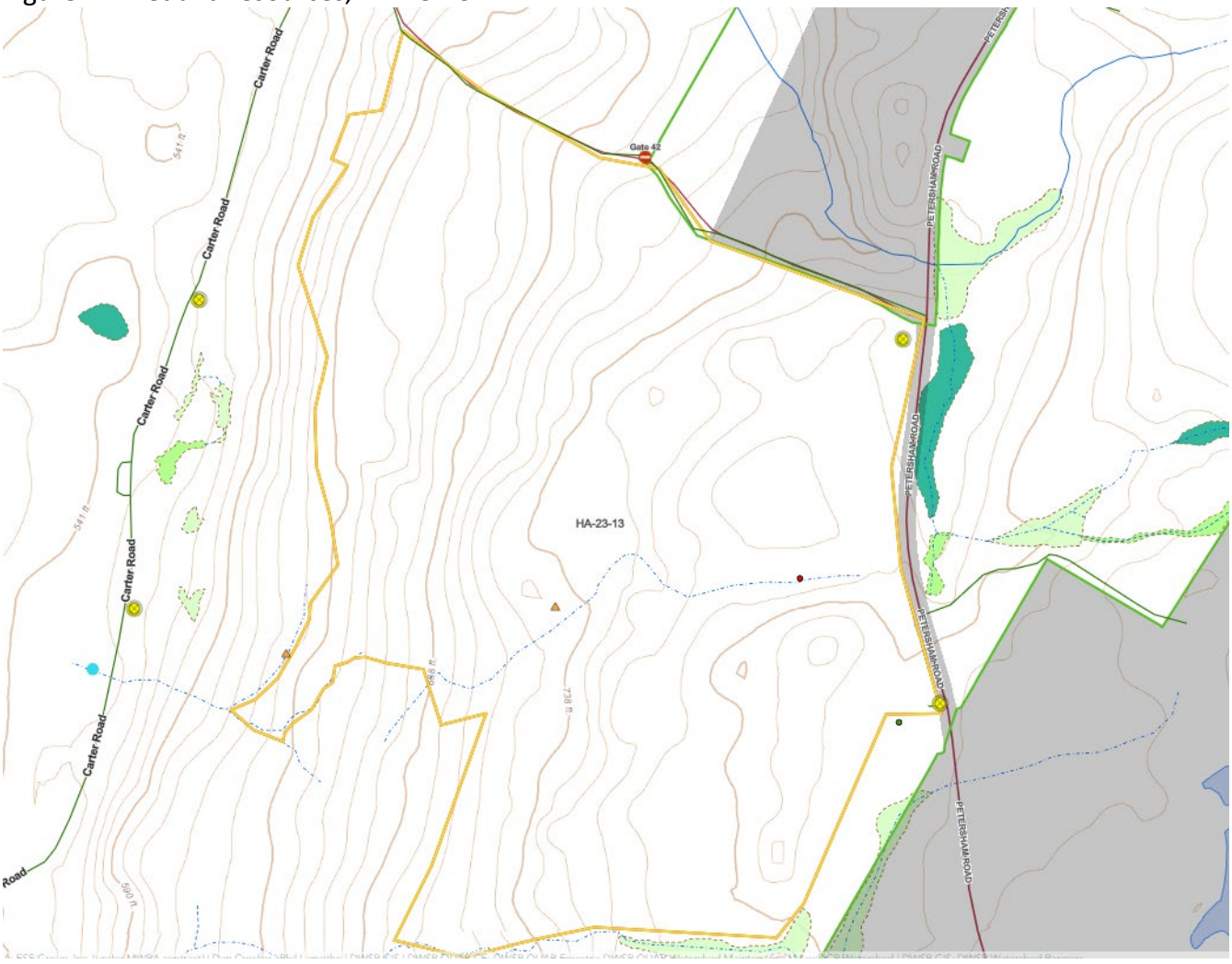
Wetlands

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

There is a potential crossing identified and a second if wood is taken out to Carter Road. All crossings have been previously used and none have sufficient flow to be sampled. Portable bridges will be required on the intermittent crossings if there is any flow or expected flow during the harvest. Additionally approaches that are wet or soft will be stabilized with corduroy. Crossings will be poled if a bridge is not needed. There is one wooded wetland in the south eastern corner that contains mainly red maple.

There is 1 Verified Vernal Pool (VVP) 921 in the east side of lot. Potential VP 77 is not a vernal pool.

Figure 4. Wetland resources, HA-23-13.



Silviculture

Acres in Intermediate cuts: **28**
Acres in prep/establishment cuts: **24**
Acres in Regeneration cuts: **39**
Average regen opening size: **1**
Maximum regen opening size: **5**

Description of advance regeneration in proposal area:

Advanced regeneration is sapling and pole sized black birch, with some white birch plus scattered individuals and pockets of mostly shorter suppressed white pine with some mixed hardwoods - mainly black birch, red maple and oak. These originated from cuts around 1970 and were partially released by additional cuts in mid to late 90's. Some of the non-tree species present in the understory are low and high bush blueberry, dogwood, hawthorn, princess pine, running cedar, common clubmoss, grapevine, witch hazel, poison ivy and a variety of ferns and forbs.

General comments on silviculture proposed:

Due to the presence of red pine scale and root rot most of the red pine outside of resource areas will be cut. Previous harvests ranged from shelterwood to large patches with groups retained. Most of the red pine stands have been cut twice before so there is already dense regeneration under these. Established acceptable regeneration will be protected as much as possible but some of this has gotten stagnant and some has been storm damaged or is so whippy that will be susceptible to future damage. These areas will be considered unacceptable regeneration. Best description is an overstory removal in an irregular shelterwood. Additional thinning will occur where appropriate.

The white pine, white pine - hardwood, and hardwood stands will be regenerated by the creation of openings mainly 1/3-2 acres in size. Openings will be irregularly shaped other than where a stone wall is an edge. 5-20 sq ft of basal area will be retained in openings over 0.5 ac. Most of the openings will have some thinning done around the edges. Most of the stands in these types have been previously cut. An effort will be made to place openings where groups of vigorous regeneration was established previously.

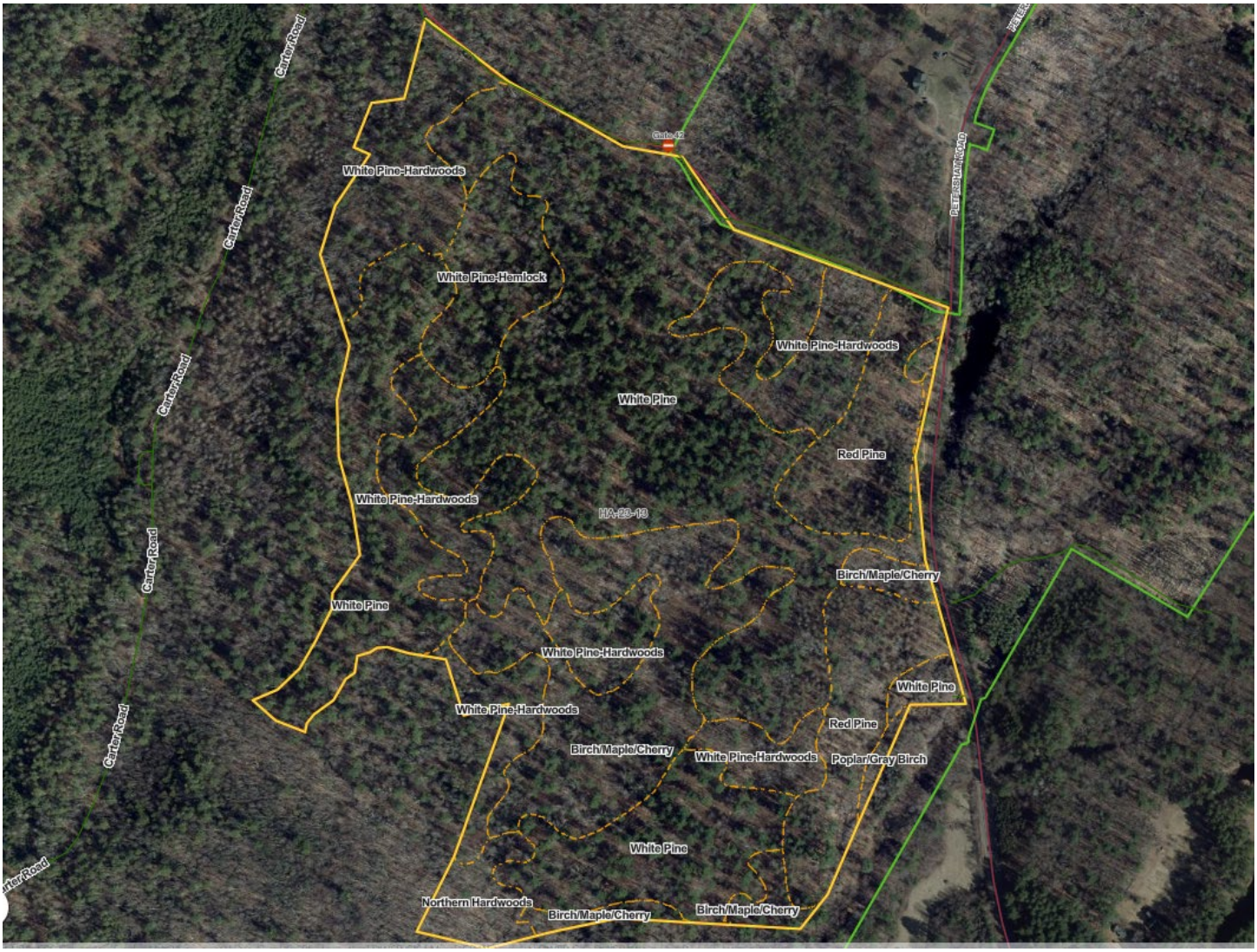
There are a couple of stands with hemlock, mainly sub-canopy. These will be treated by single tree selection and small opening up to 1/2 acre in an effort to promote the hemlock which appears to be mostly healthy but losing out to competition by mainly white pine.

Many of the dead snags and any trees with stick nests, dens or unusual wildlife habitat characteristics will be retained. For the most part areas to be thinned will be left fully stocked with residual basal area of 60-90 depending on amount of white pine (areas of mainly white pine will have the higher BA).

Climate Change considerations:

This is a salvage/sanitation cut to remove dying red pine and thus improve overall forest health and resiliency. Specifically calling out heavy invasive plant infestations for control efforts will help reduce the impact of these biological stressors. Releasing advance regeneration to develop a mosaic of diverse age groups reduces impact from anticipated natural wind disturbances.

Figure 5. Orthophoto and cover types, HA-23-13.

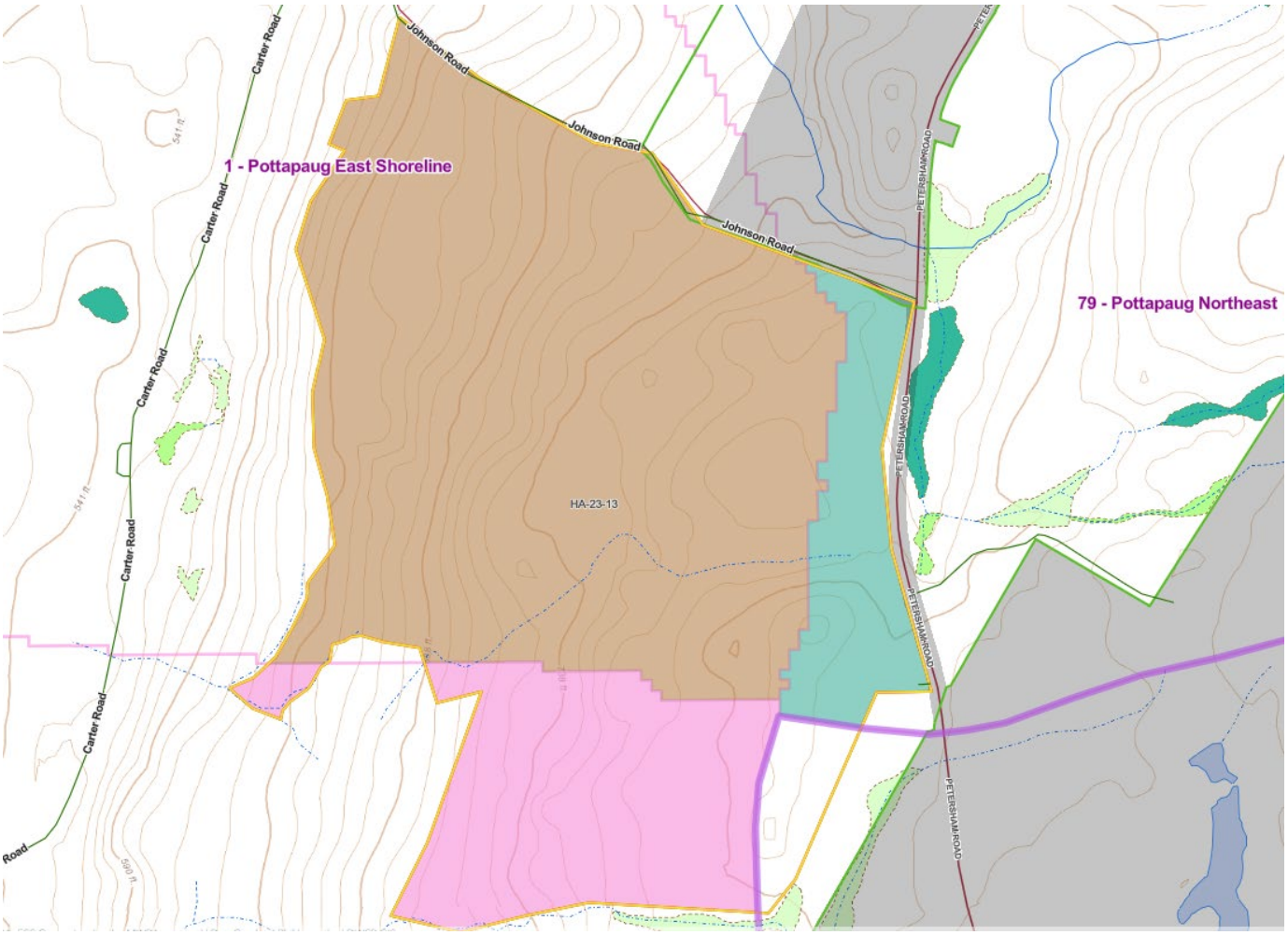


Subwatershed Analysis

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
1 (Pottapaug East Shoreline)	521	8	123	68
58 (Carter Road Drainage)	420	7	98	20
79 (Pottapaug Northeast)	184	7	39	9

The proposed harvesting levels will not exceed the 25% threshold.

Figure 6. Subwatersheds, HA-23-13.



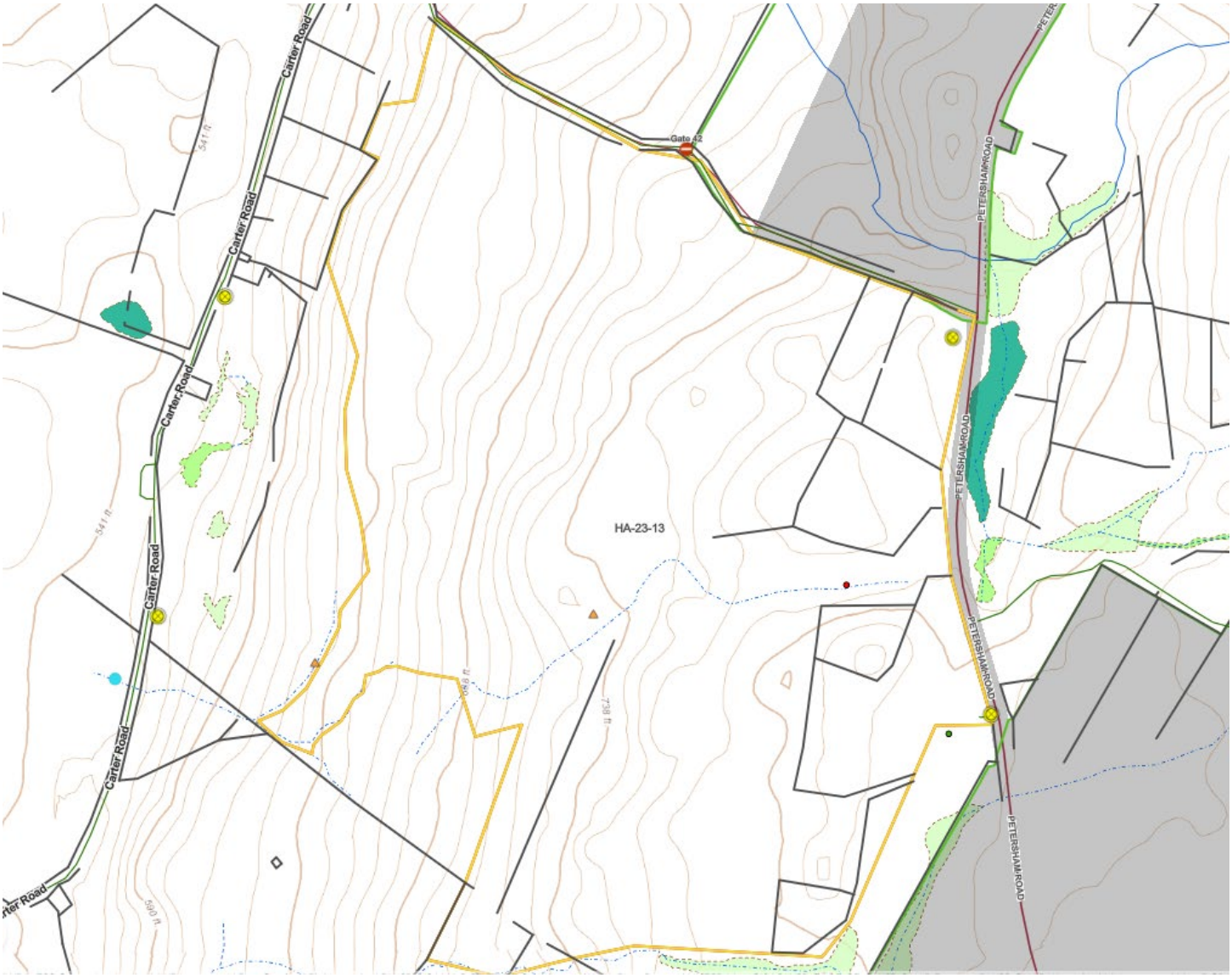
Equipment

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

Comments on harvesting limitations:

A couple of the landings are small and/or near wetlands so a forwarder may be required to minimize landing size and disturbance. Also there are numerous stone walls and cultural features to protect. These could require restriction to a forwarder or restrict whole tree skidding, depending on final skid trail layout and location of barways.

Figure 7. Harvesting limitations, HA-23-13.



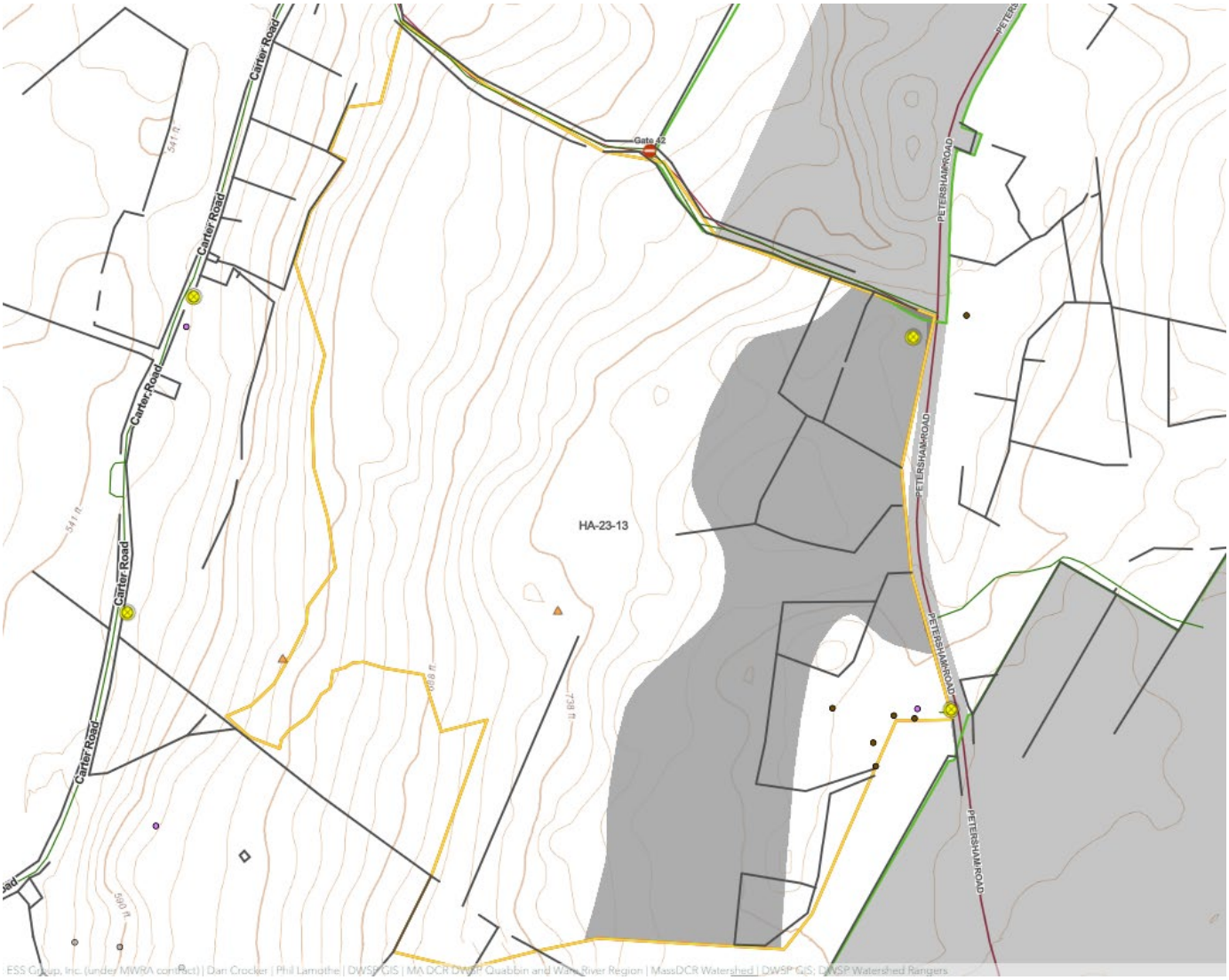
Cultural Resources

Comments on Cultural Resources:

There are numerous cellar holes, foundations, and stone walls. All will be avoided and protected as per current management plan. 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. In the event that such a barway doesn't exist the wall will be crossed where previously disturbed or at a section that is low and made of tossed stone.

The soil is mostly very stony with prevalent surface stone although the map isn't showing most of this.

Figure 8. Stony and Extremely stony soils, HA-23-13.



Wildlife Resources & Rare and Endangered Species

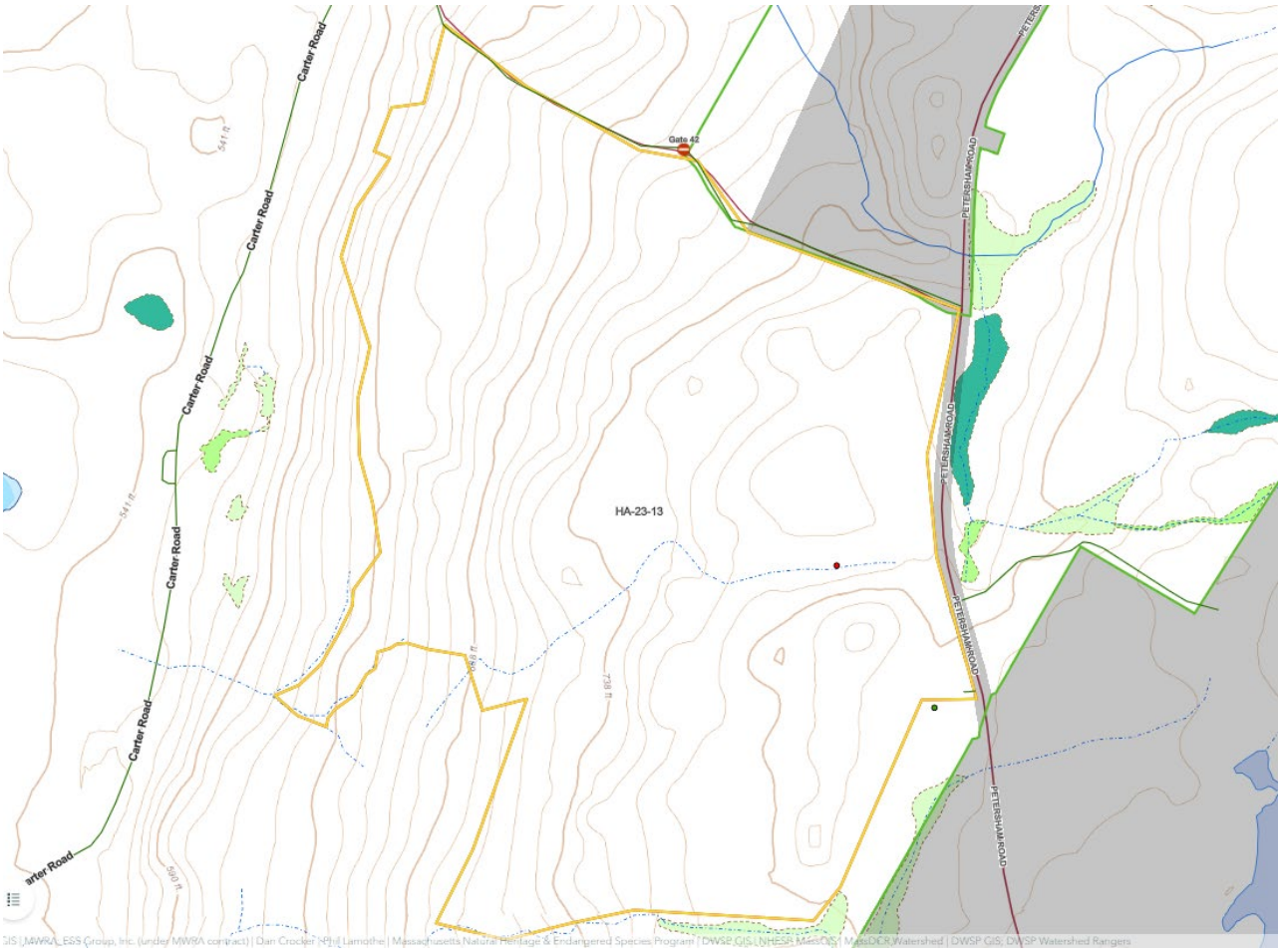
General Wildlife Comments:

Beavers are active in large wetland that the north end of Carter Road crosses. Culverts all were functioning as of 5/1/2022. Coyote, bear, deer, raccoon, turkey and moose are some of the species known to inhabit this area. There was lots of evidence of deer on both sides of 32A and one moose was seen on abutting lot 1060 as was a bear with 3 cubs (seen twice). Appears as if browsing has affected regeneration composition as it is mainly black birch with some white pine. With the larger openings and amount of already established understory it is believed that browsing won't have as big an impact on regeneration establishment though may still affect composition.

Comments on Rare Species/Habitats:

See Wetlands description for vernal pool information. No NHESP habitats within proposal area, and the only features of particular note are two boulder/ledgy sections mapped as difficult to operate along with a few scattered glacial erratics.

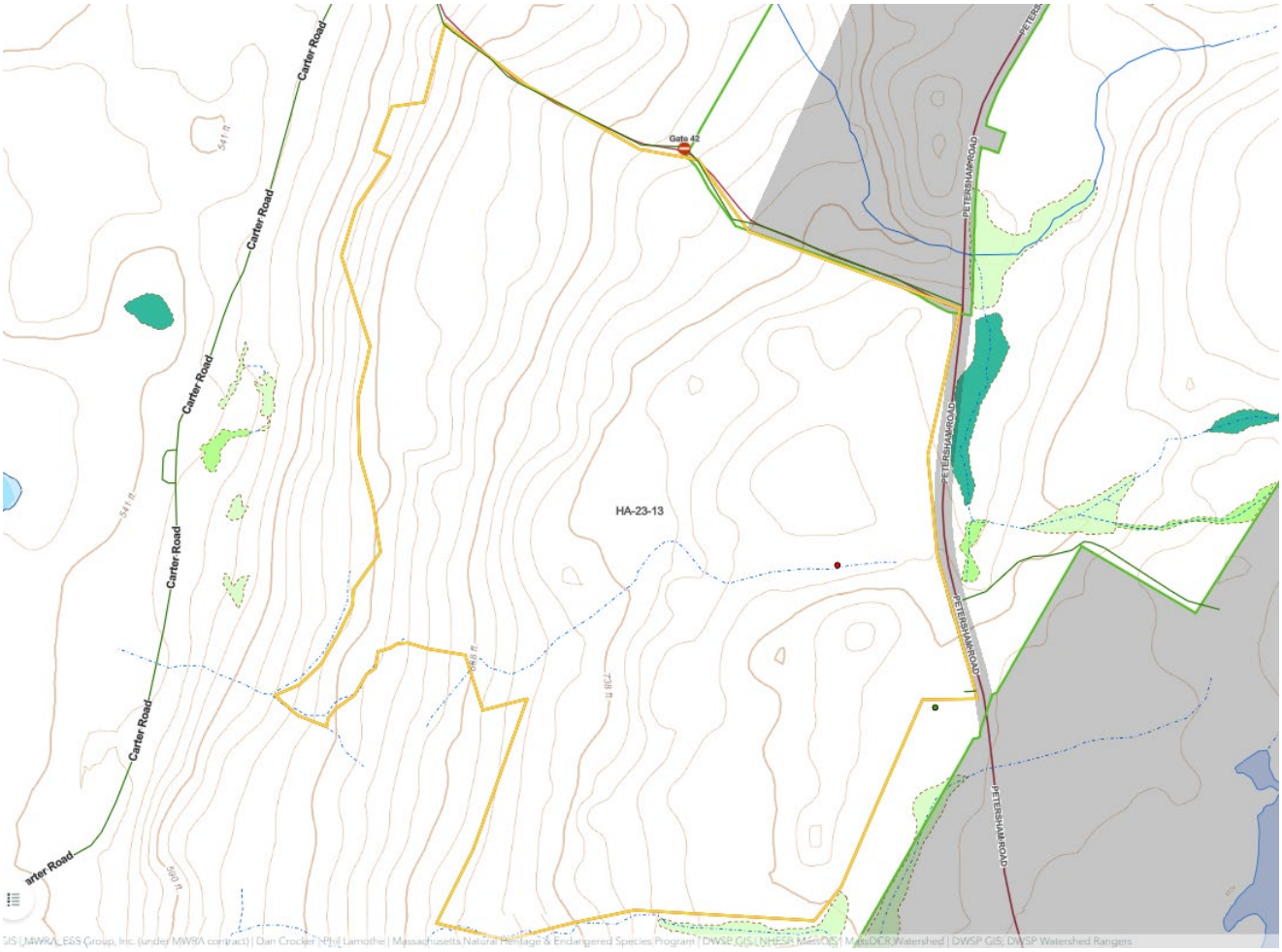
Figure 9. NHESP Priority habitat overlay, HA-23-13.



Environmental Quality Engineering

Comments on EQ Issues:
There are two potential stream crossings but probably neither will need to be used. Both are over intermittent streams and have been previously used. No EQ concerns.

Figure 10. Access planning, HA-23-13.



Forest Access Engineering

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

Further comment on access needs:

Some gravel may be needed to firm up the landing. Carter Road has been recently regraded and improved.

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