

# Quabbin/Ware River Region FY19 Forest Harvest Proposals

**The Division of Water Supply Protection** [<https://www.mass.gov/orgs/dcr-division-of-water-supply-protection>] (DWSP) is mandated to protect our water resources for future generations. Forest cover provides unparalleled water quality. DWSP has determined that the most stable land cover comes from a vigorous, species-diverse, many-aged forest. The Division's long-term objective is to diversify today's mostly even-aged forest into a multi-aged forest. We are determined to do this while conserving biodiversity using sustainable forestry practices. This process will not be fully implemented for many decades because we are proceeding at a measured pace.

**DWSP Foresters** [<https://www.mass.gov/service-details/dcr-watershed-forestry-program>] design timber harvests that will regenerate about 1% of the managed forest every year so that gradually, over time, the managed forest will include a much broader range of age classes than is currently present. Each year DWSP Foresters propose areas to be harvested which are then reviewed by professionals in Natural Resources, Environmental Quality, and Watershed Management. Finally, these proposals are made available for public comment as presented here. **Details on how to make public comments can be found below.**

The overall purpose of this management is to restore the forest to more balanced proportions of young, mid-aged, and older trees comprised of the greatest possible variety of native species. DWSP's working hypothesis is that the new makeup of the forest will help ease the damage caused by inevitable future severe weather events, outbreaks of disease, and insect infestations.

**For full details on DWSP land management please see the 2017 Land Management Plan.**

[<https://www.mass.gov/files/documents/2018/02/05/dcrdwp2017landmanagementplan.pdf>]

**Public comment** on these proposals is welcome and can be **submitted online at this link.** [<https://www.mass.gov/forms/dcr-public-comments>] Comments may also be submitted by U.S. mail to

Department of Conservation and Recreation

Office of Public Outreach

251 Causeway St.

Boston, MA 02114

**These proposals were presented at the following public meetings:**

- **Ware River:** Ware River Watershed Advisory Committee, May 10th, 2018
- **Quabbin Reservoir:** Quabbin Watershed Advisory Committee, June 4th, 2018

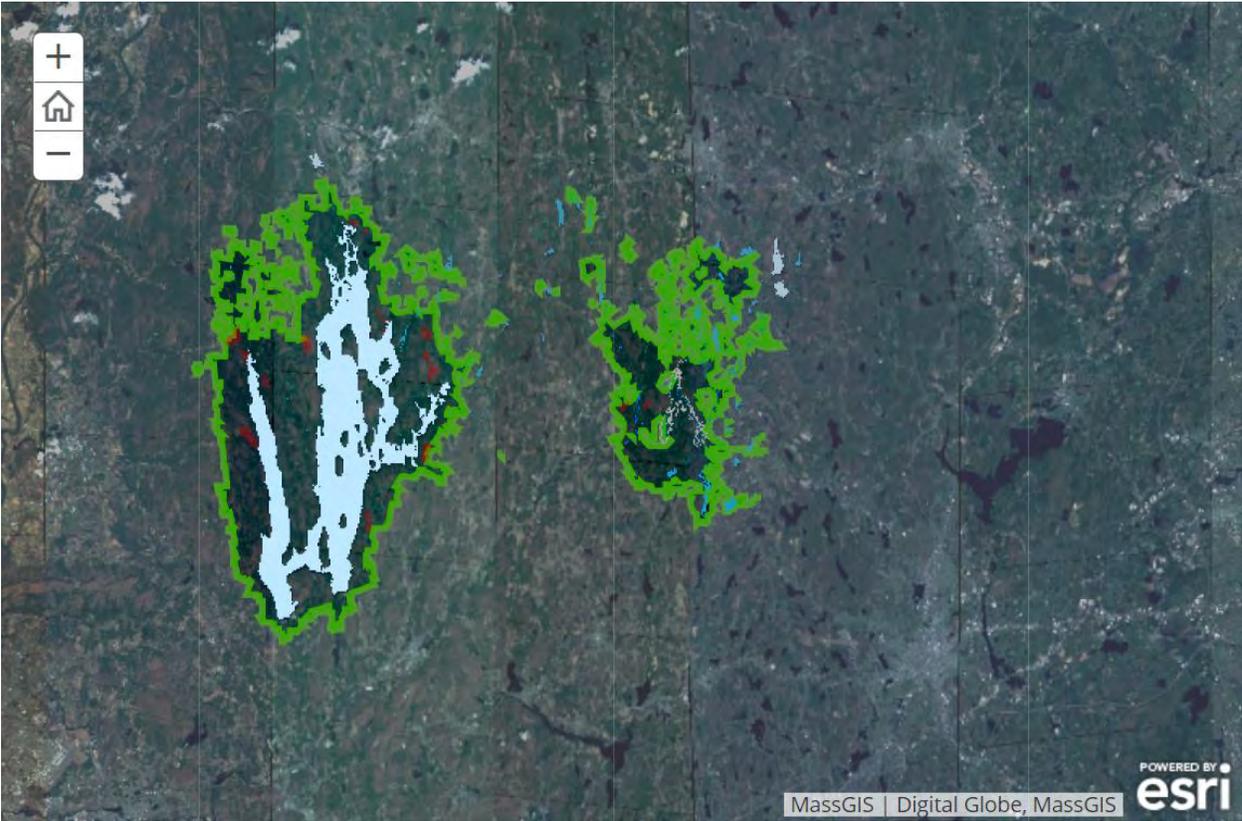
**Comments must be received by the close of business on Monday, July 23rd, 2018.**

If you have any questions, please contact Natural Resource Analyst Brian Keevan at [brian.keevan@state.ma.us](mailto:brian.keevan@state.ma.us) or at (413) 323-6921 x 551.

[[https://youtu.be/Wi23c6Fla\\_Q](https://youtu.be/Wi23c6Fla_Q)]



Figure 1: 2019 Quabbin/Ware River Forestry Proposal Locations



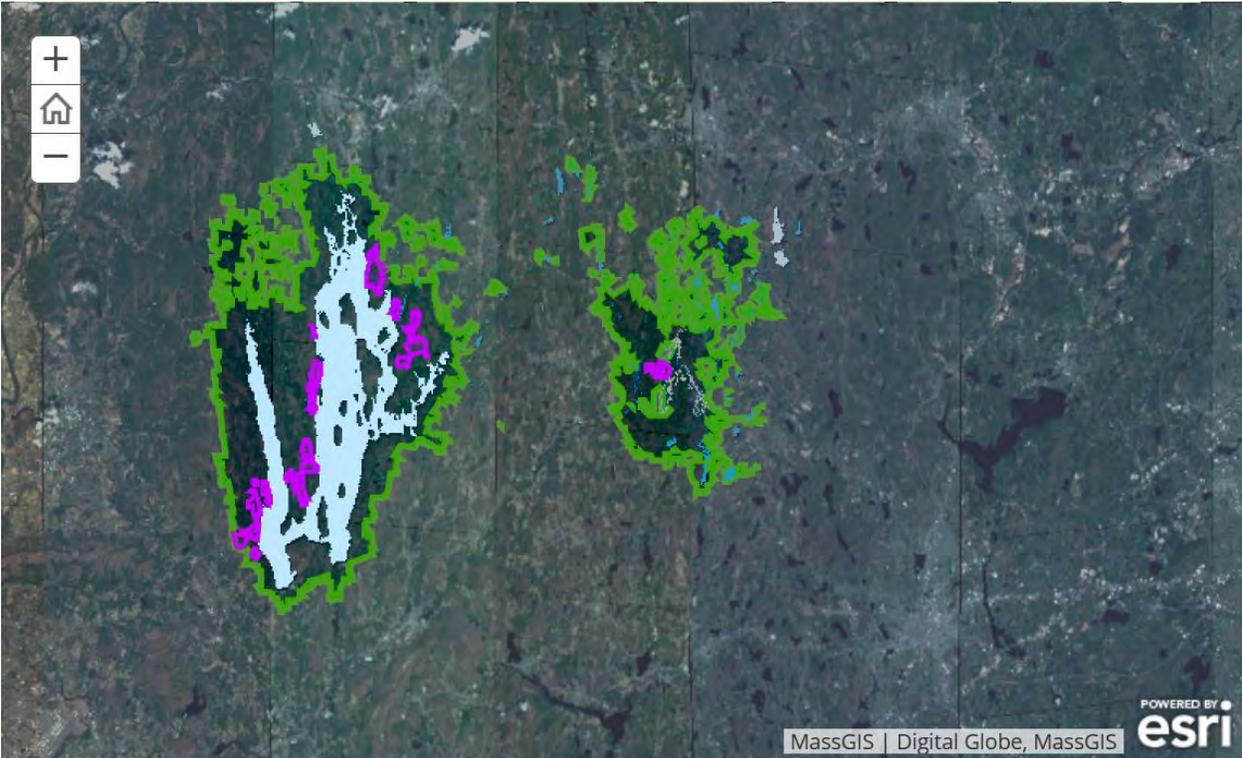
## FY19 Gypsy Moth Related Oak Salvage

A combination of stress from a multi-year drought along with repeated extreme gypsy moth defoliation events has resulted in widespread oak mortality throughout the Quabbin forest. The degree of damage varies from place to place, but there are unfortunately some significant areas with near complete mortality, often of very high-quality timber. While a large amount of the dead oak will remain in place to add to wildlife habitat and forest structural diversity, DWSP intends to recoup some portion of the valuable wood volume that otherwise would have been harvested through normal practices many years from now.

This map identifies approximate areas of special concern for oak salvage. These areas have been identified through a combination of satellite imagery analysis ([performed by Pasquarella, Bradley, & Woodcock, 2017](#)) and field survey by DWSP foresters. The locations mapped here do not represent all areas with concentrated oak mortality, but those areas with the best access and operability for the amount of oak present for salvage. With these criteria, DWSP can salvage the most value from the dying oak for the least cost and impact. Ultimately, the full extent of these mapped areas will not be salvaged due to restrictions on operations (terrain, extreme slope, streams, etc.) and limited time before tree decay. It should also be understood that within each of these mapped areas salvage work will reflect the level of mortality; there will likely be scattered removals, similar to a thinning operation, mixed with pockets of near complete removals similar to our typical regeneration patch cutting operations. Some pockets of high mortality and low species diversity may have widely scattered residual trees.

All of [DWSP's standard management policies](#) apply to these salvage operations. The DCR Commissioner will need to approve any salvage work that will create openings >5 acres, as is the case for other DWSP silvicultural operations. There will be an accelerated proposal and sale schedule of these areas. Each of the locations mapped here has been reviewed by DWSP Natural Resources and Environmental Quality staff and, is here, undergoing public review prior to sale

Figure 2 FY2019 Quabbin/Ware River Oak Mortality Locations for Potential Salvage



# Quabbin Harvest Proposal PT-19-05

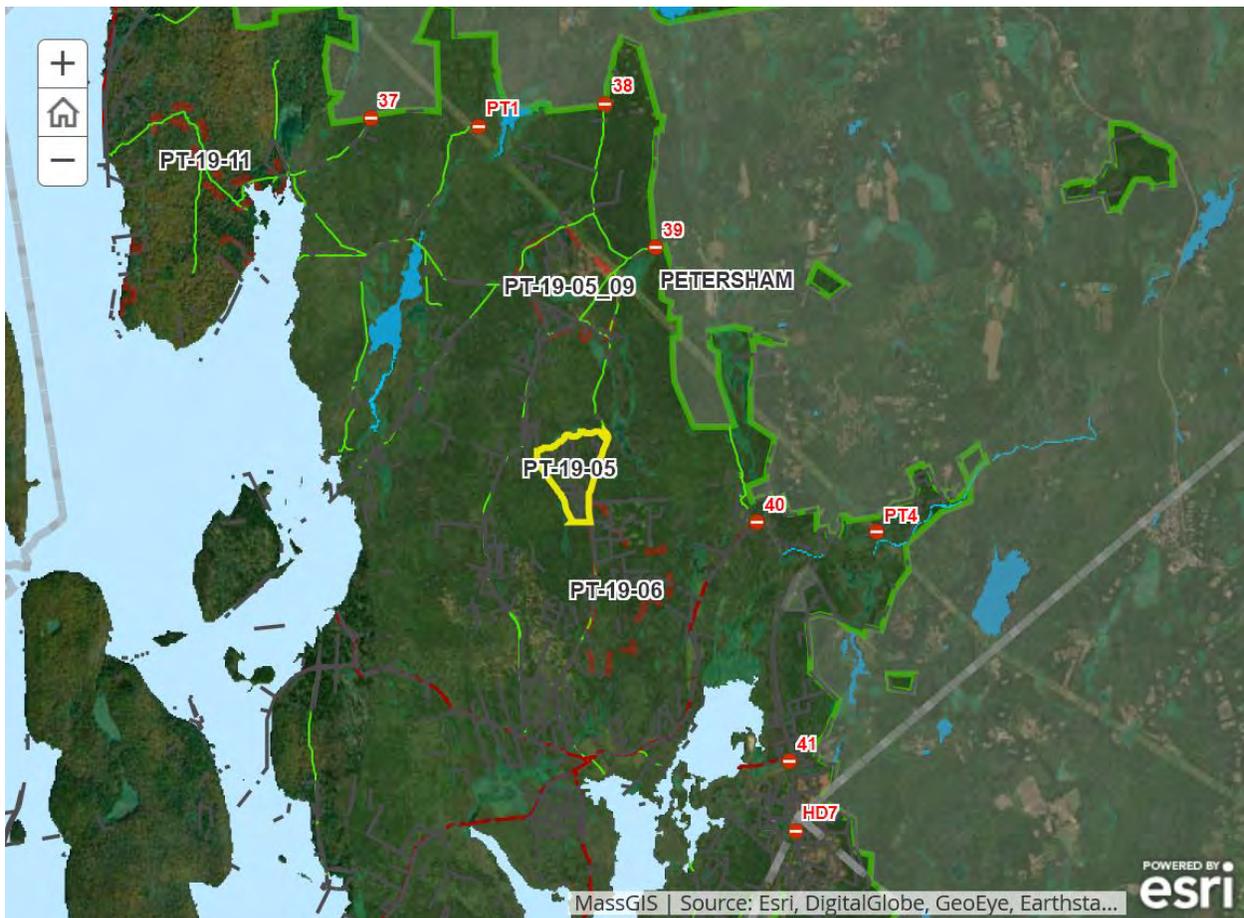
## Proposal Goals

The proposed area is dominated by low diversity, even-aged, poorly formed white pine overstory. Harvesting here will improve both age and species diversity of the forest.

## Proposal Location

This proposal is in Petersham, about half way up Mary Tamplin Road on the west side.

**Total Acres: 68**



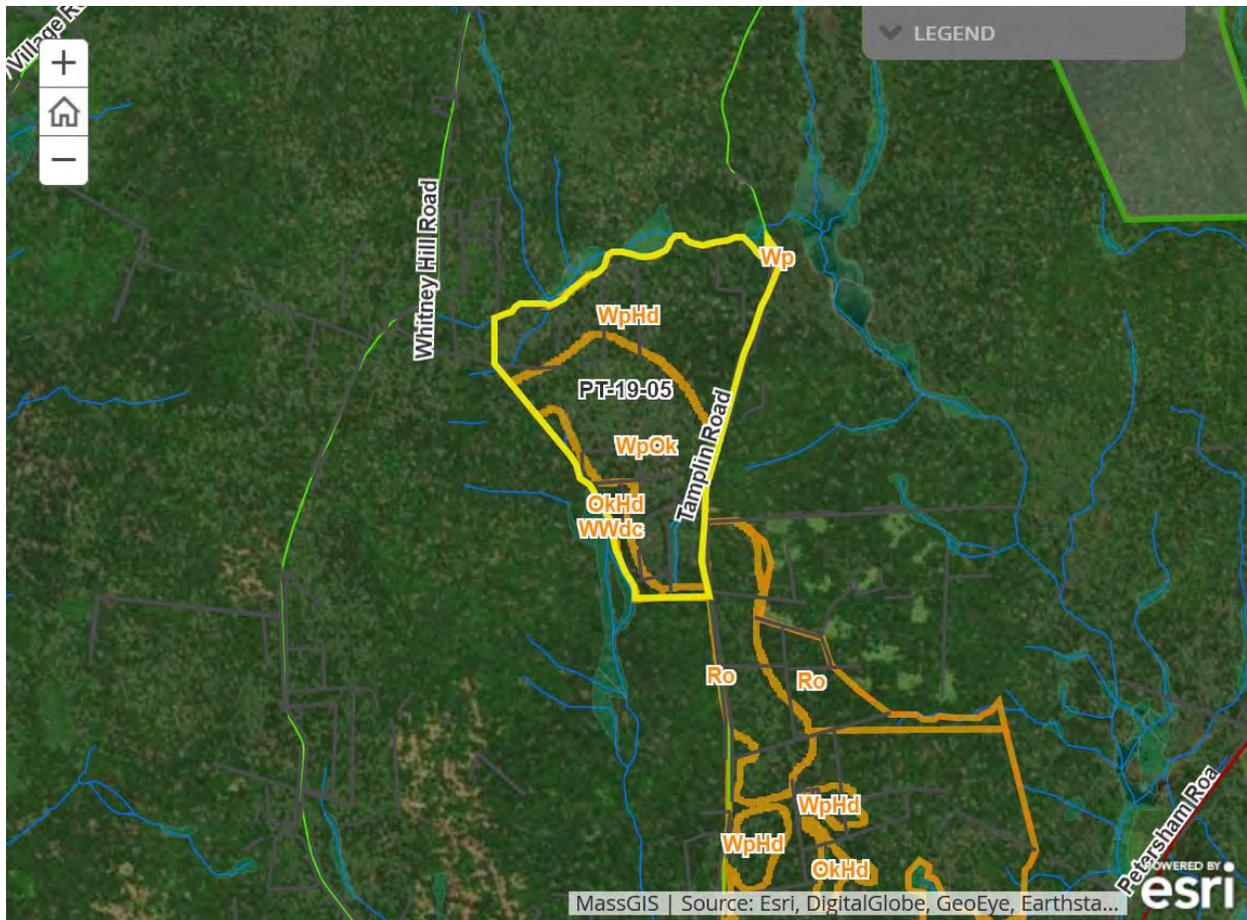
## General Description

	<b>Overstory Type(s)</b>	<b>Acres</b>
<b>Dominant</b>	White pine/hardwood	31.7
<b>Secondary</b>	White pine/oak	22.2
<b>Other</b>	White pine	8.7

	<b>Understory Type(s)</b>
<b>Dominant</b>	Tree seedlings/saplings dominate the site

### Description of forest composition/condition:

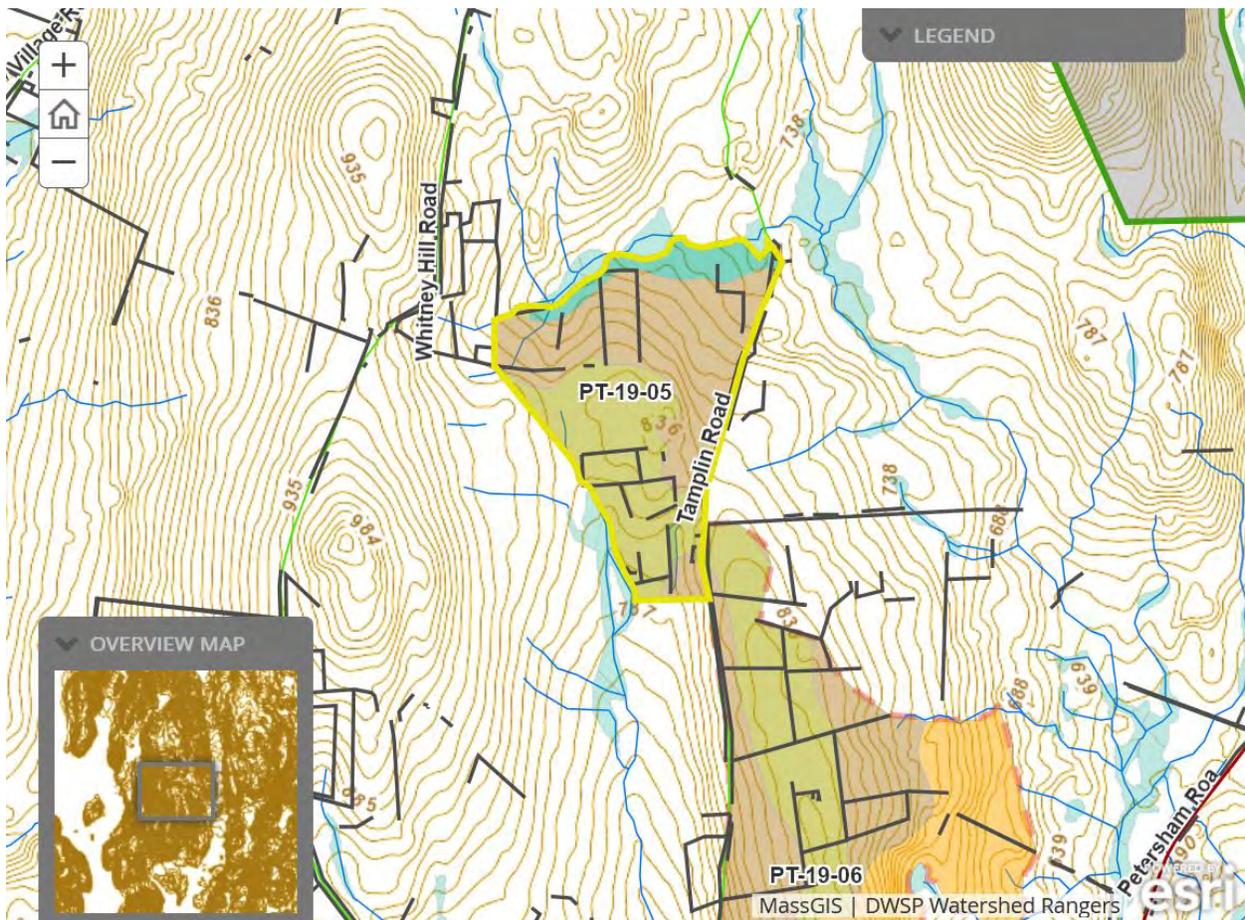
The only recorded harvest on this area was completed in January 1979 on the northeastern portion although there is evidence of thinning from around this time on most of the northern 2/3rds of the lot. White pine is by far the dominant species here and is generally not well formed especially on the northern edge and southern 1/3rd in the walled area. This latter area was probably pasture of some form in past and grew up in typical "old field" pine form. Around 8.5 acres in the south central part of this area now would be better typed as WP (currently typed WO). White pine is doing better than the oaks or hardwoods on most of the proposal and is becoming the dominant species. Oaks and some of the hardwoods were heavily impacted by gypsy moth in 2016, 2017 with all the oaks and most of the hardwoods 100% defoliated. Some oak mortality was noted last fall with 10-25% total mortality expected by end of this year. Fewer egg masses were noticed on bases of trees last year due mainly to fungus becoming active late in spring 2017. As long as that happens again this spring oak mortality should stay below 20%. Stand to the south contains old, larger red oak on a better site which was also heavily impacted and was originally proposed to be included but was withdraw by chief forester. Otherwise, the stands are healthy though most areas are overstocked. Other species present in overstory of WO type are red, black, scarlet and white oaks, red maple, black and white birch and scattered black cherry. WH type is generally wetter, with less oak and more of the other hardwood species. The western 1/2 of the central section north of the wall has more, and better formed, white pine and appears to be younger.



## Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	0
Well Drained Thick	50
Moderately Well Drained	40
Poorly to Very Poorly Drained	10

Soils are almost exclusively Montauk-Scituate-Canton association around half of which are classified as well drained and thick, other half moderately well drained. Along the wetland on the north is Ridgebury-Whitman association poorly drained, if these in fact exist as mapped they will be avoided. Some of the eastern edge, along Tamplin Rd, is seasonally wet and might be poorly drained soils, these will also be avoided.

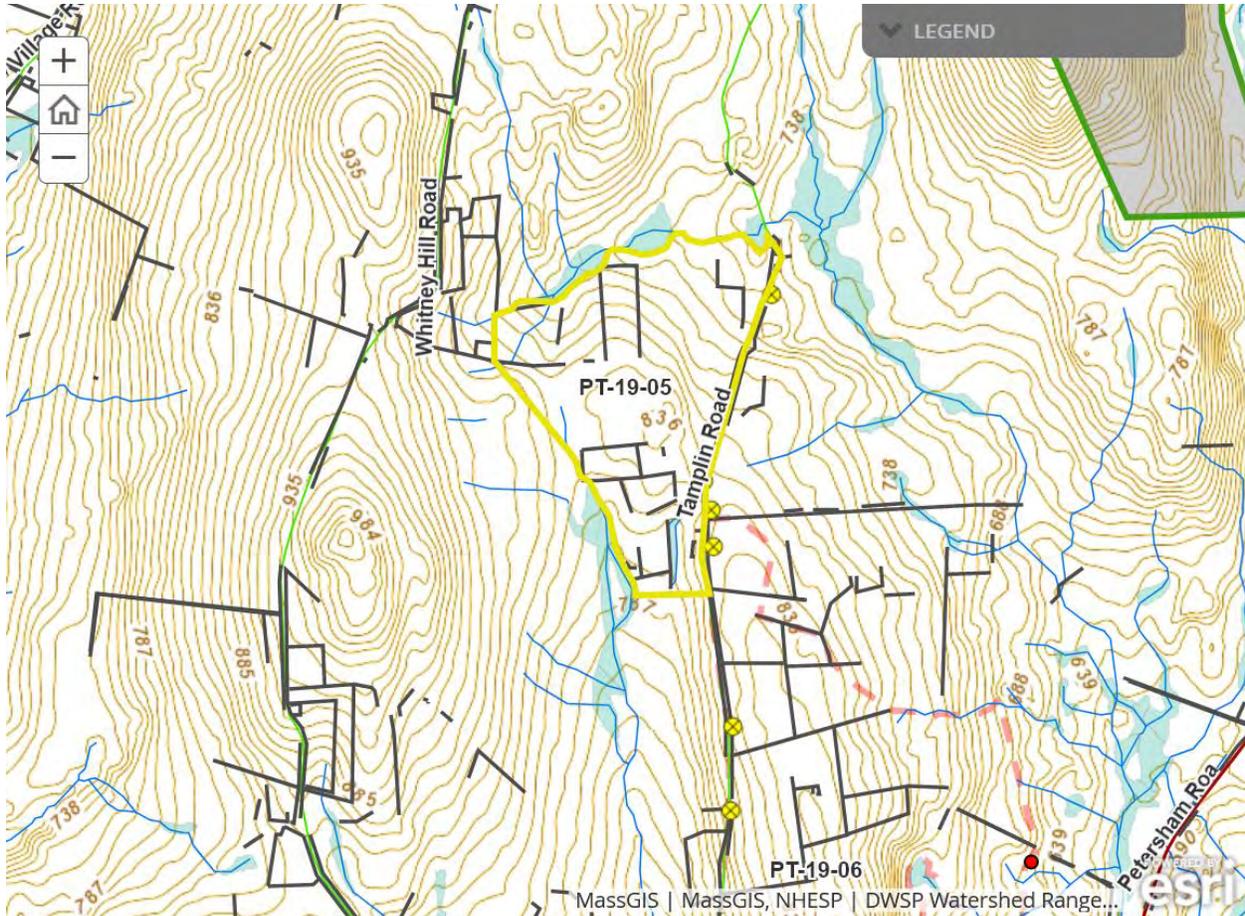


## Wetlands

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

**Further comments on wetlands:**

Proposal is bounded to north by a wetland/stream complex which drains east. Most of western edge is a small stream which drains south into a wetland.



## Silviculture

Acres in Intermediate cuts: **5**

Acres in prep/establishment cuts: **34**

Acres in Regeneration cuts: **17**

Average regen opening size: **1.5**

Maximum regen opening size: **5**

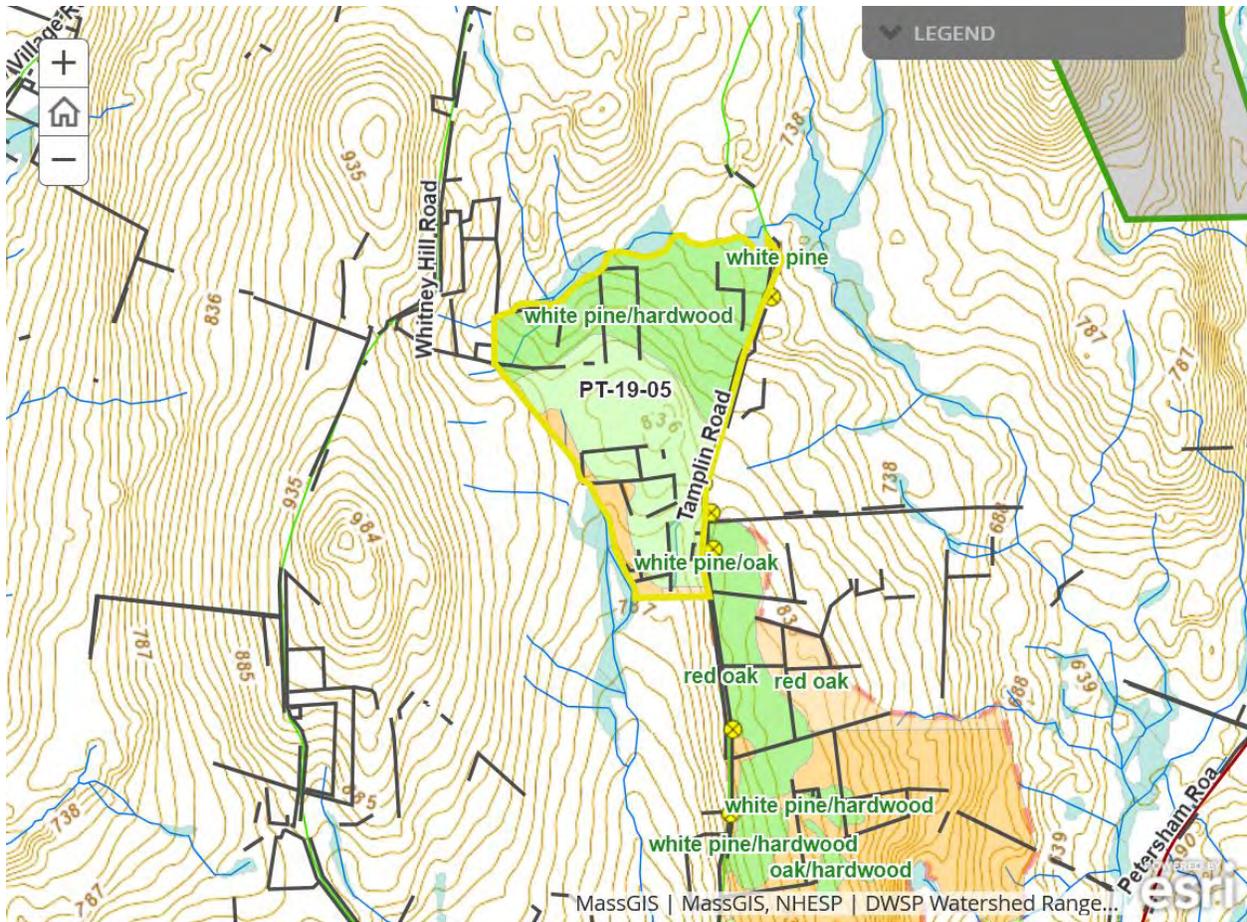
**Description of advance regeneration in proposal area:**

Moderate to thick white pine regeneration is present throughout but most is suppressed and stagnant. Many will be crushed during the whole tree operation anyway. Other species present are red maple, black birch, beech and scattered oak with some hemlock, mainly near the wet areas. Some of the poorly drained areas have mostly fern cover. Site should regenerate well but moose and deer will have an impact on the hardwoods. Also the bittersweet and upland areas with denser Japanese barberry need to be controlled before harvesting to avoid spreading them, a follow-up treatment will probably also be needed.

**General comments on silviculture proposed:**

Openings are planned on about  $\frac{1}{4}$  of the area concentrating on the areas of poorer formed WP mainly in the southern walled area and along the northern edge. Openings will range from  $\frac{1}{4}$ -2 acres with one larger opening of possibly 5 acres in the southern section. There is an unmapped intermittent stream and wetland there starting just south of walled lane and flowing south, bisecting the low quality pine area. This will limit the size of that opening, might not be able to fit one much larger than 3.5 acres. Intent here will be to remove as much of the poorly formed white pine as possible, leaving a few for seed and a couple of coarse legacy trees along with any active or potential den trees. There are very few hardwoods in this section but attempt will be made to retain some particularly RO, WO, hickory and WB. Edge of openings and skid trails will be thinned or have prep cuts to help establish additional regeneration while removing trees that would potentially damage regeneration during future harvests. Spacing and retained basal area will follow guidelines in current CLMP. Shape and size will be somewhat restricted due to abundant walls and considering filter strips.

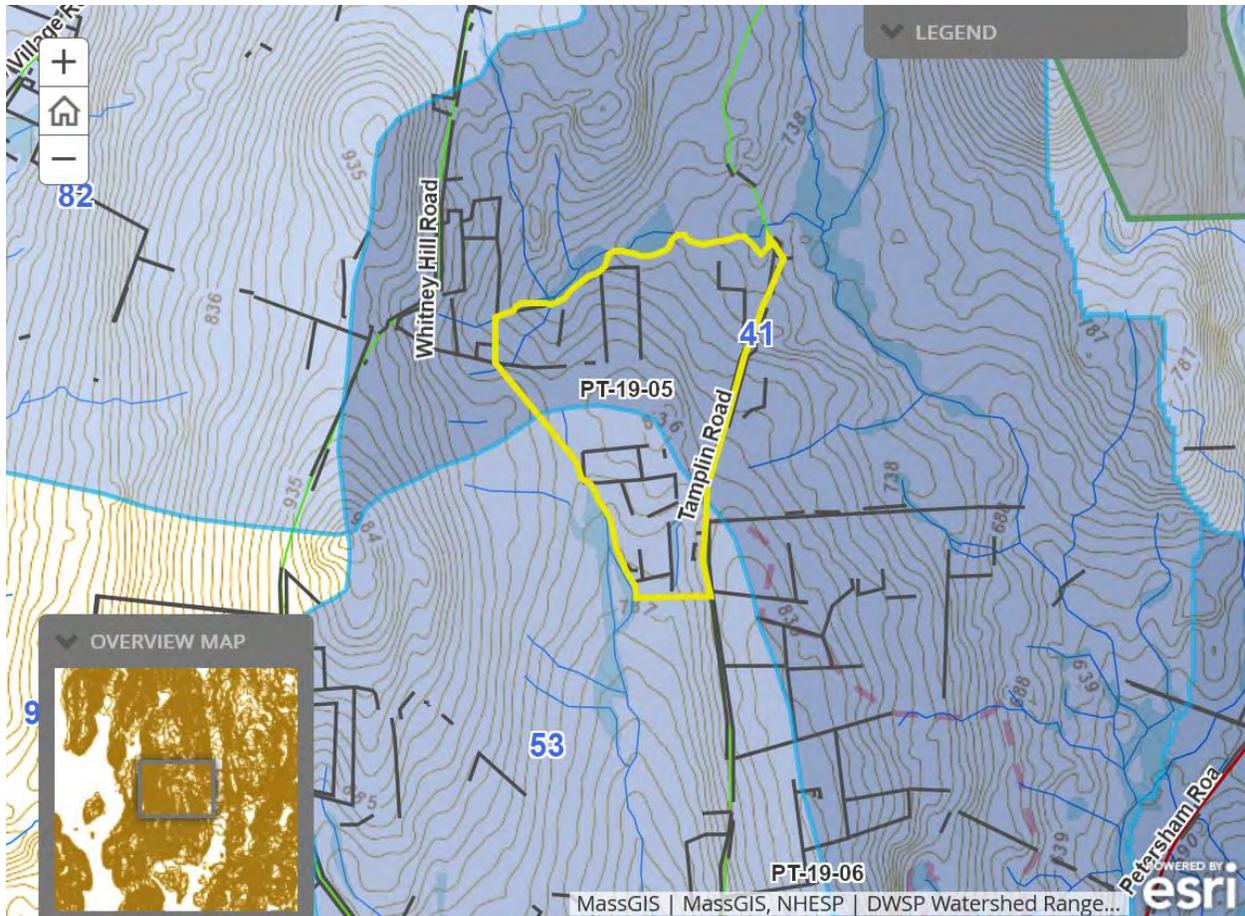
Central section has generally better formed white pine along with more red oak and some white oak and appears younger so is better suited to smaller openings and more of a prep shelterwood type cut. Openings here will be in the  $\frac{1}{4}$ - $\frac{3}{4}$  ac size range with more areas thinned. Whole tree skidding may be restricted in areas here to minimize damage to retained stems. Fortunately there are few walls and ground is level for part so a herring bone pattern to skid trails should be possible. Healthy, vigorous specimens of all species present will be retained for seed and diversity with WP, RO, WO, WB, HI and BC favored. Den and active wildlife trees will be retained where possible.



### 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
41	745.9	5.7	180.8	46.7
53	1082.4	0	270.6	21.2

None of the sub-watersheds are approaching their 25% limit although 41 and 53 also are on one of this year's proposals (PT-19-6) which adjoins this lot to the southeast but is on the other side of Tamplin Rd. It is not expected that regeneration acreage will exceed 1/4 of lot acreage for either proposal (35 and 17 acres) so still, less than half of allowed acreage will be regenerated. On this proposal, openings will mainly be in the southern part and northern edge so mainly within s-ws53. On PT-19-6 openings will most likely be evenly spaced throughout.



## Harvesting Limitations

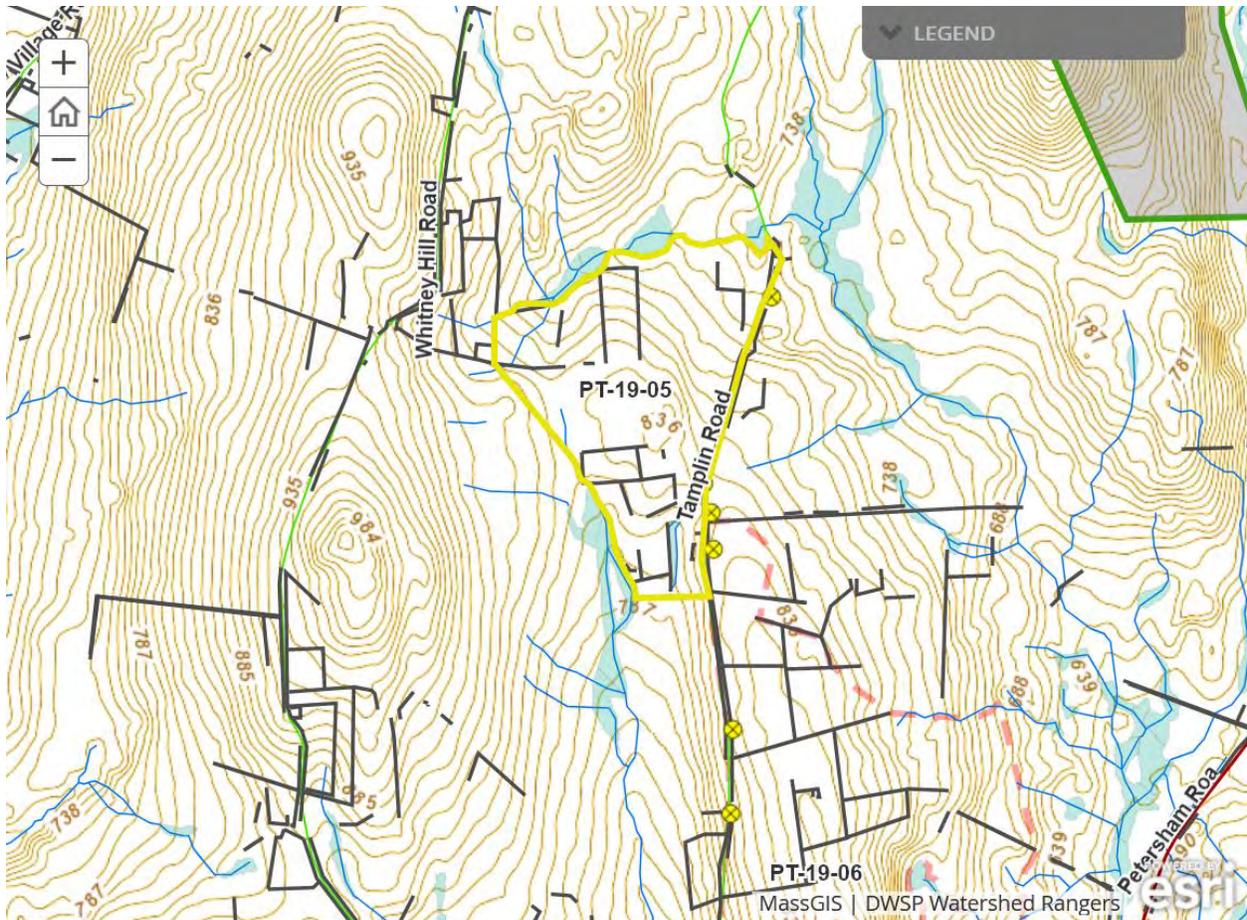
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

### Comments on harvesting limitations:

Much of the white pine is low quality so a chipper or very good pulp markets will be needed. Road improvements will need to be made to allow trailer access to make the timber sale of interest to anyone. Grapple skidders will be allowed.



## Cultural Resources

### Comments on Cultural Resources:

Stone walls exist throughout. Existing barways will be used where feasible and harvest layout will protect walls as much as possible. Wells and foundations will be flagged and avoided. If applicable DWSP will follow any additional recommendations from DCR's Archeologist regarding protection of sensitive sites.



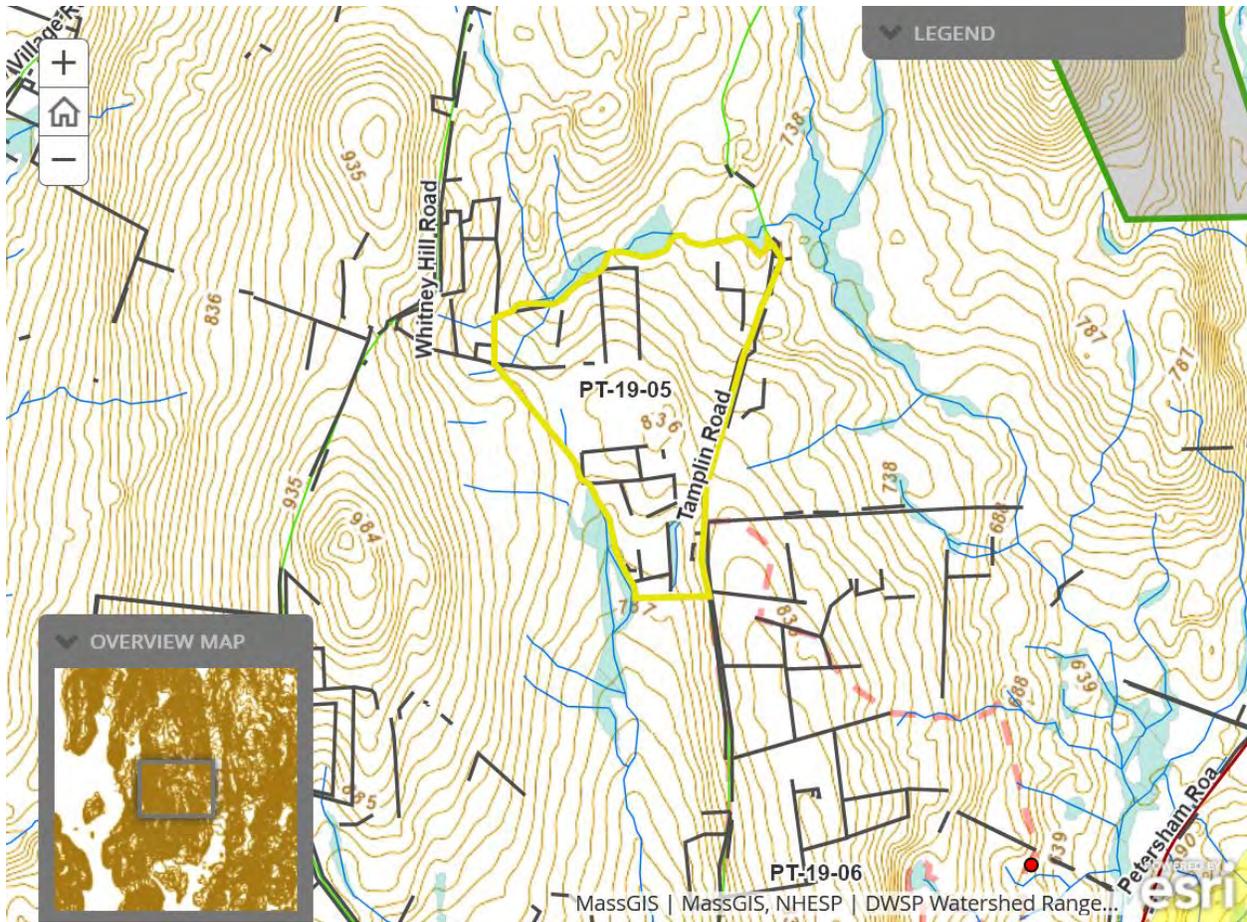
## Wildlife Resources & Rare and Endangered Species

### General Wildlife Comments:

Deer, moose, coyote and turkeys are known to frequent this area. Beavers have been active in past in wetland complex on the northern edge though no recent activity was noted.

### Comments on Rare Species/Habitats:

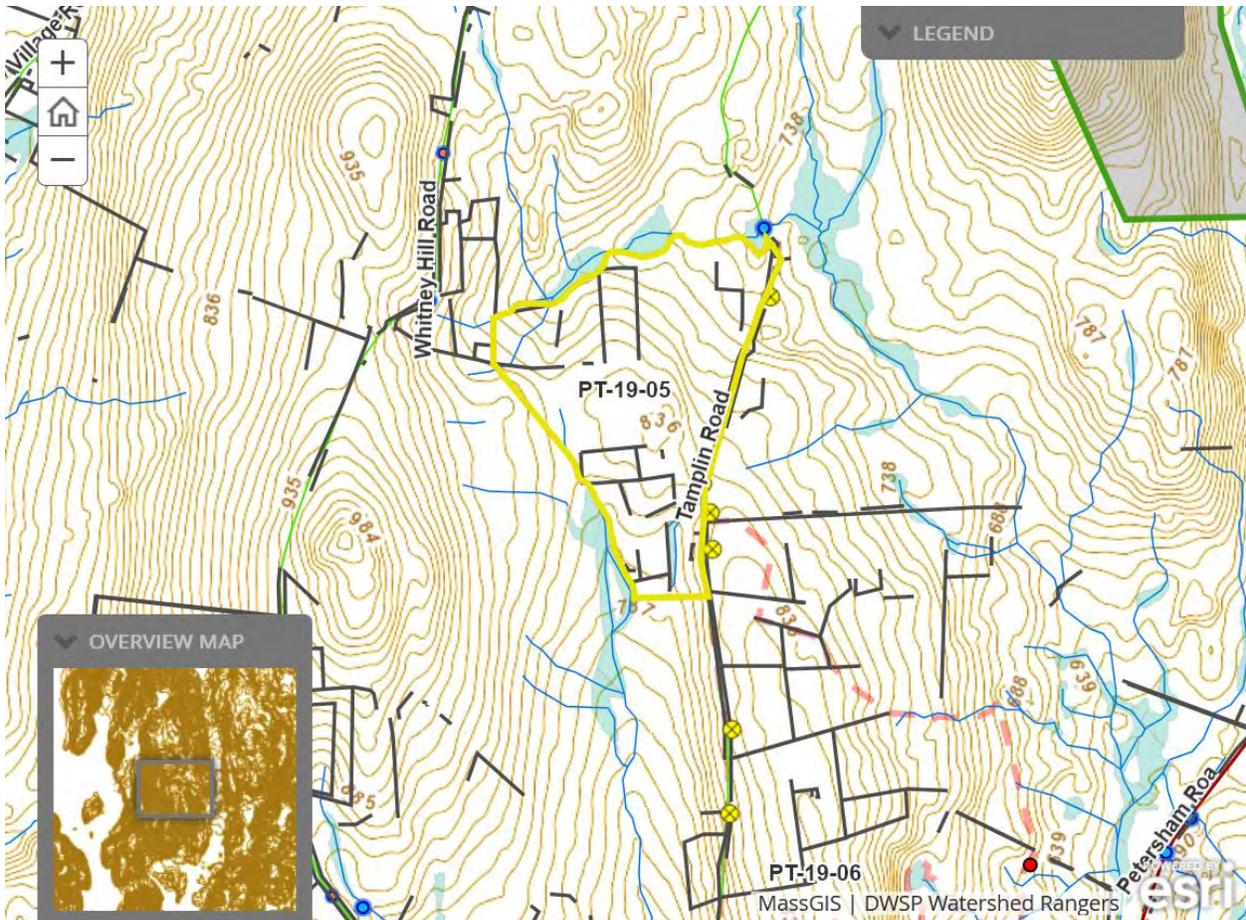
Cavity trees and potential/existing nest trees will be retained if possible. There are not any NHESP state-listed sensitive species or habitats within the lot proposal area. If any new information regarding sensitive species or habitats in the area is found DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed harvest.



## Environmental Quality Engineering

### Comments on EQ Issues:

There are no perennial stream crossings.



## Forest Access Engineering

**Gravel needed:** Yes

**Landing work needed:** Yes

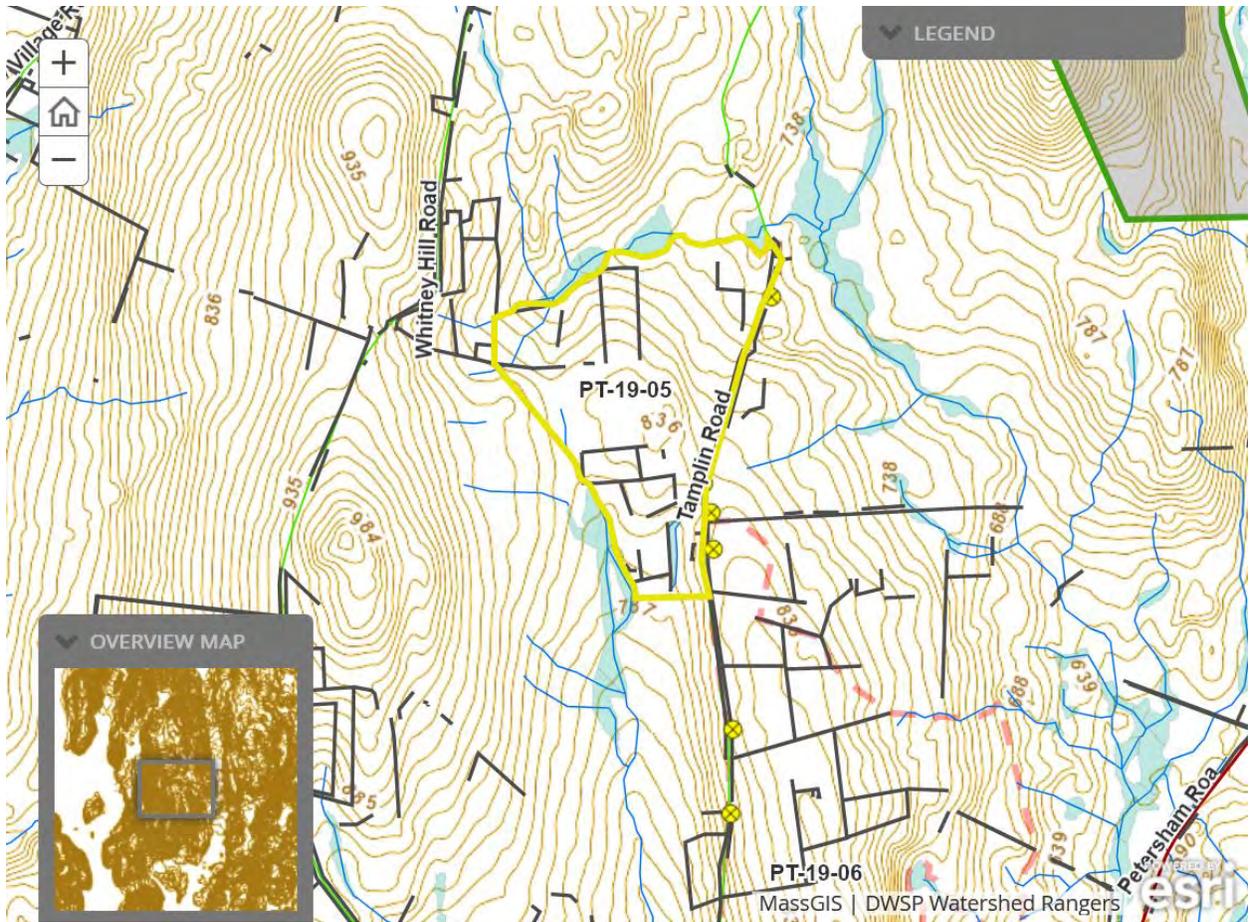
**Culverts needed:** Yes

**Work needed on permanent bridges:** No

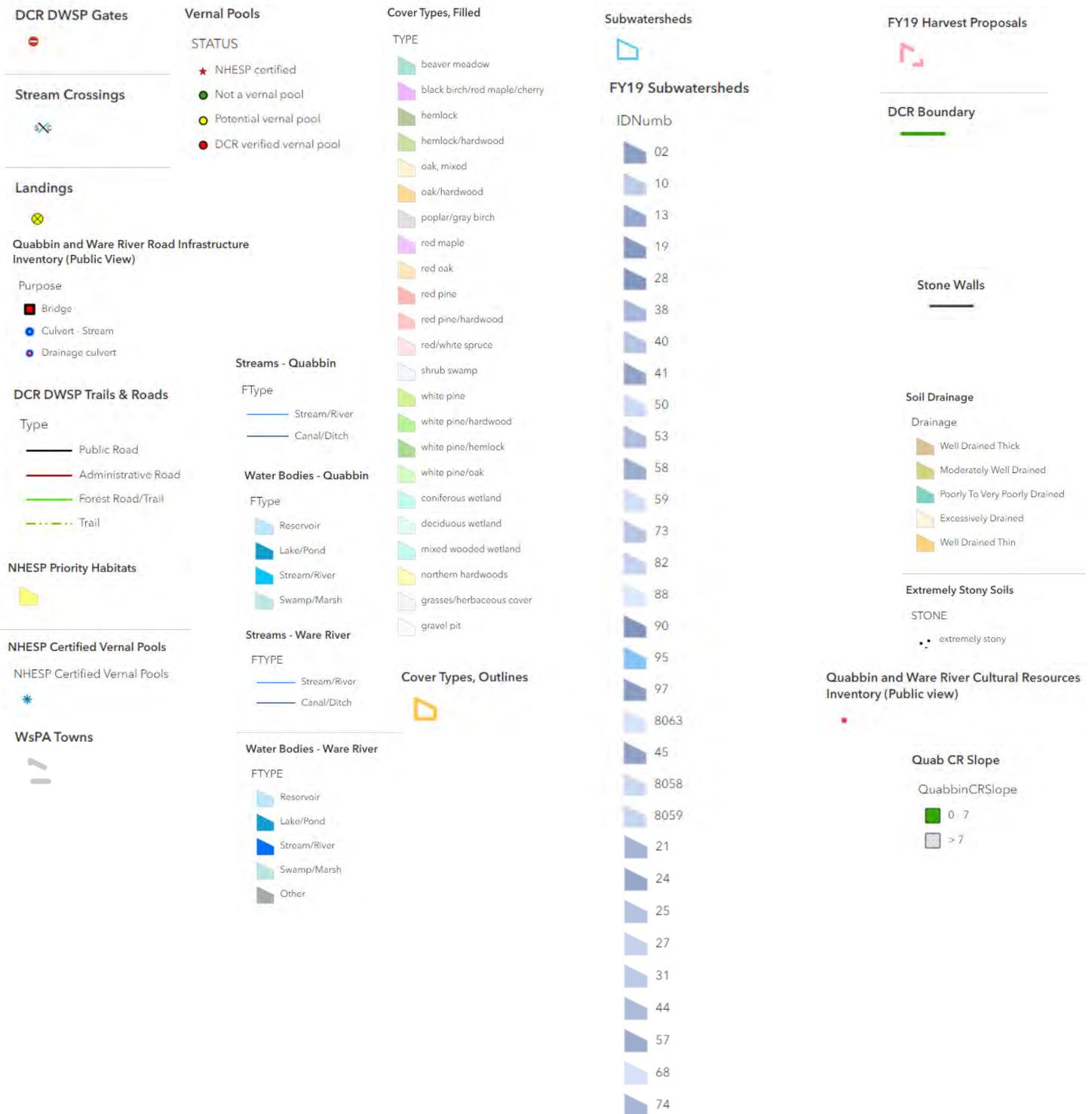
**Beaver issue:** No

### **Further comment on access needs:**

Road needs to be improved to allow trailer access to last landing proposed on west side. Trailer turn around needs to be created, probably in area Allards used for landing a few years ago. At least 3 culverts need to be replaced, one is partially blocked, others are degrading.



DWSP FY 2019 Quabbin and Ware River Forestry Proposals – Master Legend for story maps



# **Quabbin Harvest Proposal PT-19-05&09**

## **Proposal Goals**

This area contains several species that have been or are expected to be damaged or killed by destructive insects and diseases. These including red pine (under attack by red pine scale), white pine (white pine weevil and needle cast fungi), and hemlock (hemlock woolly adelgid, hemlock elongate scale, and other insects). These unhealthy trees will be removed in patches to create growing space for younger, healthier trees of diverse species.

## **Proposal Location**

This proposal is located ¼ mile inside Gate 39, on the southwest side of the powerline.

**Total Acres: 139.3**

**Previously reviewed as PT-07-09C**



## General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	White pine/hardwood	67.8
<b>Secondary</b>	Oak/hardwood	18.5
<b>Other</b>	Red Spruce	17.4

	Understory Type(s)
<b>Dominant</b>	Tree seedlings/saplings dominate the site
<b>Secondary</b>	Other

**Description of forest composition/condition:**

In addition to the types listed above, there are 14.6 acres of hemlock/hardwood, 3.3 acres of red pine, and 17.7 acres of beaver ponds, meadows, and wooded wetlands.

Oak is dominant in the triangle on the east side of the lot between Tamplin Road and Dugway Road (Compartment 5), with red, black and white sawtimber and poles. This area also contains a significant component of red pine, which is mixed in with the hardwoods. Also present are scattered red and sugar maple, white ash, black cherry, paper birch, beech and hickory, as well as hemlock and white pine.

A similar mix of hardwoods is present to the southwest along Dugway Road, but with a higher proportion of maples and other hardwoods as compared to oaks. Red pine is present but less more scattered, except in the 2.7 acre remnant of a red pine plantation.

Oak form and vigor is fair to good for red oak, fair to poor for white and black oak. There are many large, coarse hardwoods along the roads throughout this area. The maples are generally vigorous, but much of the red maple has poor form due to its derivation from stump sprouts, and borer injuries are common on sugar maple. The early successional species (white ash, black cherry, paper birch) are declining, except where there's ample light such as along roads. Beech is uncommon and typically infected with beech bark disease.

The red pine on this lot has some browning needles, probably due to red pine scale, but in most areas was still reasonably vigorous as of the stand exam in the December 2017.

White pine sawtimber is dominant along the power line, between Dugway Road and the northwestern beaver pond, as well as south of the access road between Tamplin and Dugway Roads. Form is variable, but much of it has large branches and/or weevil damage, and some individual trees are very coarse. White pine vigor is also variable, with crown classes ranging from emergent to suppressed.

Spruce is mostly located at the western edge of the proposed area between the two beaver ponds, with a narrow band wrapping around to the northwest corner of the lot. Hemlock is most

prevalent between the white pine and the oak- hardwoods areas, both east and west of the beaver meadow. Most of the hemlock has poor vigor as evidenced by this crowns, probably due to hemlock woolly adelgid and/or hemlock elongate scale.

The most common species of regeneration in this area are white pine and black birch. Regeneration of other overstory species is present but uncommon. Some areas have almost no tree regeneration, especially where hemlock is dominant.

The understory contains chestnut sprouts, huckleberry, low bush blueberry, wintergreen, partridgeberry, clubmoss and a limited amount of hay scented fern. On lower, wetter soils there is striped maple, wood fern, cinnamon fern and gold thread.

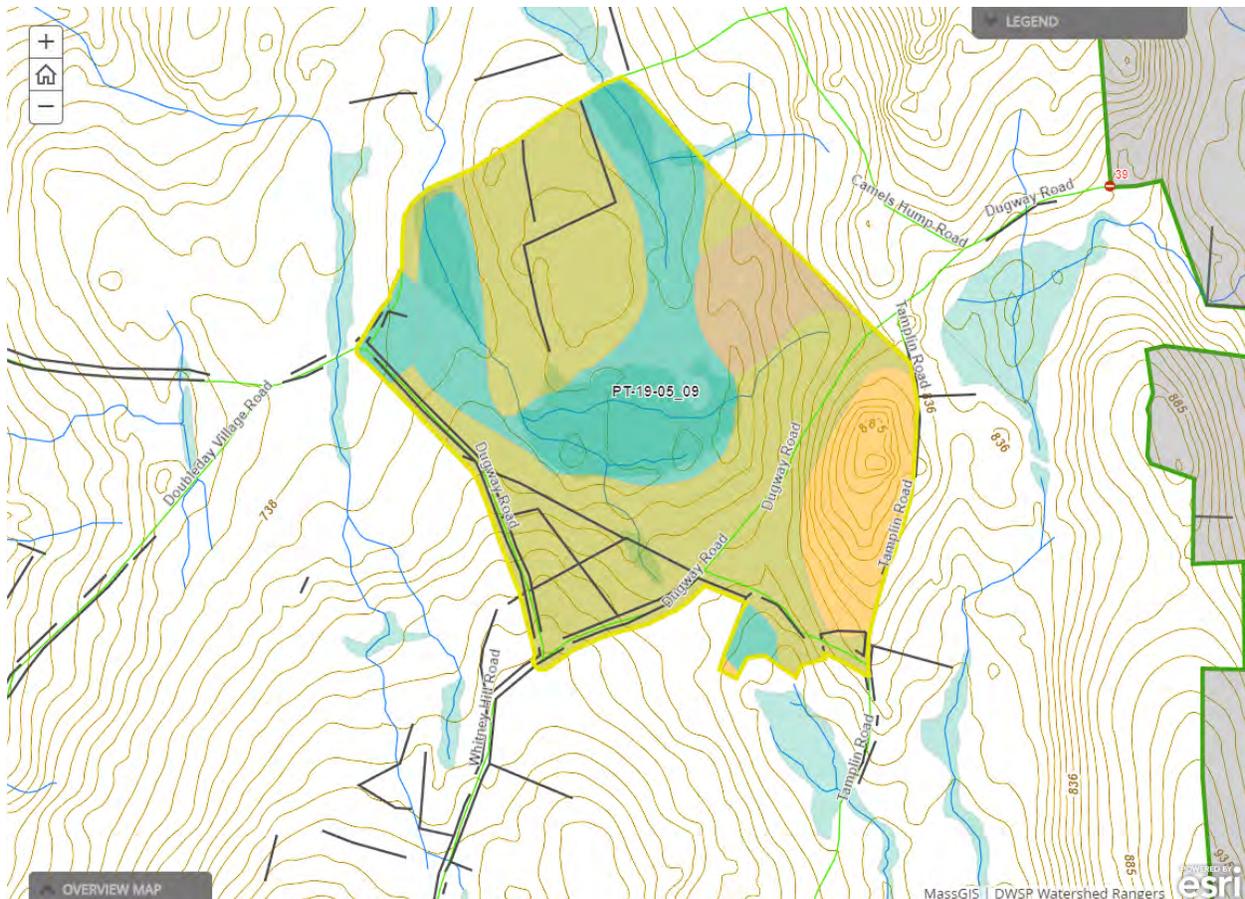
Past harvests include 23 acres of selection in the easternmost oak-hardwoods section in 2002, 7 acres of shelterwood establishment in the southernmost tip, focusing on red pine, completed in 2001 (Lot #853); a 4 acres of salvage clearcutting between the beaver ponds in 1996 (Salvage Sale 40); and a 19 acre shelterwood prep cut in the southeast and northwest completed in 1991 (Lot #583). Roughly 50 upland acres have received no treatment while under DWSP ownership.



## Soils

<b>Drainage Class</b>	<b>%</b>
<b>Excessively Drained</b>	0
<b>Well Drained Thin</b>	17
<b>Well Drained Thick</b>	54
<b>Moderately Well Drained</b>	0
<b>Poorly to Very Poorly Drained</b>	9

The upland soil types are Charlton-Chatfield-Hollis association, very rocky, and Charlton-Chatfield and Montauk-Scituate-Canton associations, both extremely stony. The wetland soil types are Bucksport and Wonsqueak mucks and Ridgebury-Whitman association. The latter encompass the beaver ponds and wetlands, where there will be no harvesting.

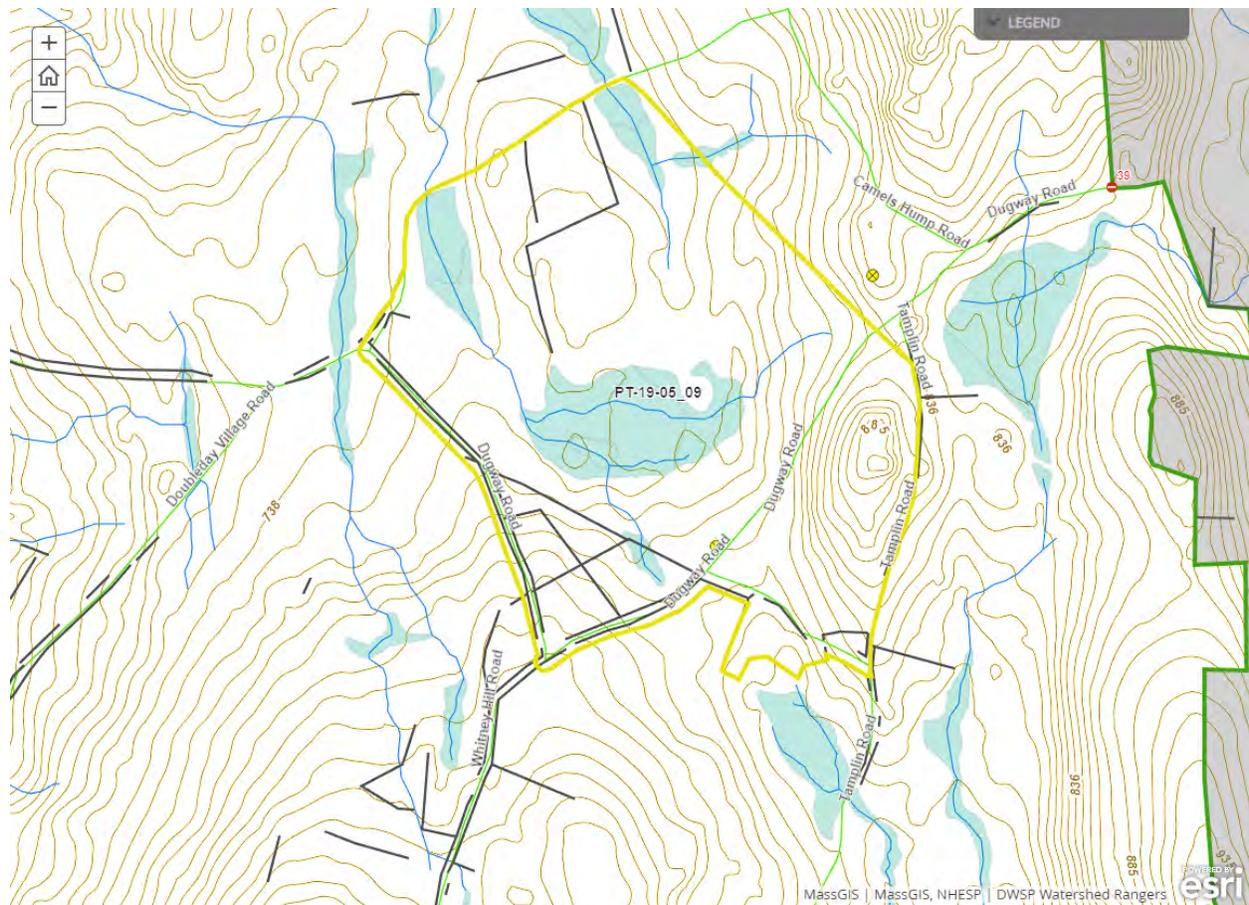


## Wetlands

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

**Further comments on wetlands:**

There are two beaver ponds along the northwest border of the lot. These have both flooded the adjacent seasonal access road, making it impassable in two locations at either end. A 8.4 acre wet meadow in the center of the lot, which was created by past beaver activity, drains in two directions to the two active beaver ponds. It will be necessary to cross one of these intermittent streams to get to the area between the two ponds and the meadow, if any harvesting is done in that area. There are smaller wooded wetlands to the south and east of the meadow, on both the north and south sides of Dugway Road. These are also connected by intermittent streams, one of which may need to be crossed.



## Silviculture

Acres in Intermediate cuts: **30**

Acres in prep/establishment cuts: **0**

Acres in Regeneration cuts: **30**

Average regen opening size: **1**

Maximum regen opening size: **3**

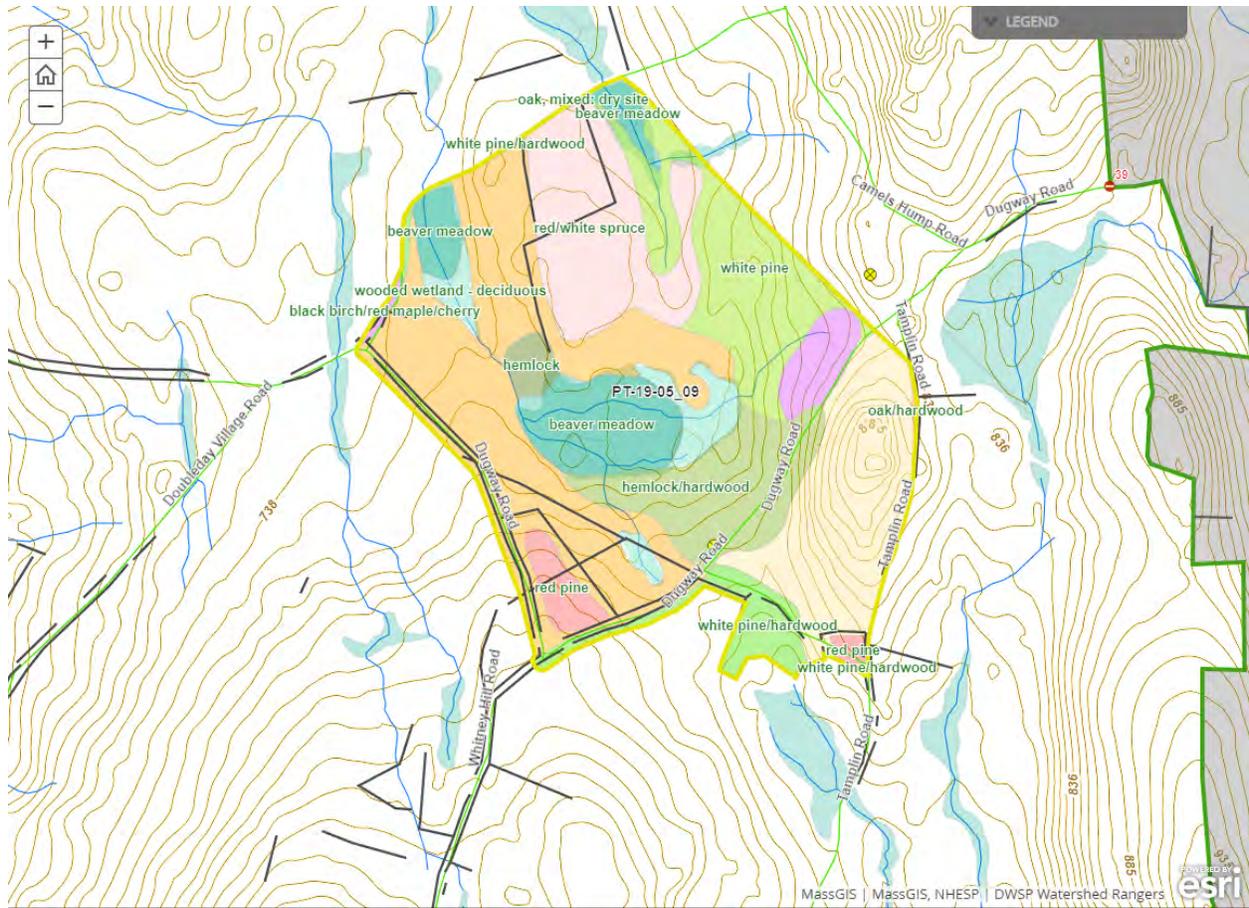
**Description of advance regeneration in proposal area:**

Black birch regeneration is present in dense patches in old skid roads and small gaps from past harvests, especially between Tamplin and Dugway Roads. Also present in this area but much less common are scattered oak and maple seedlings and saplings, and small patches of beech root sprouts. White pine seedlings are scattered unevenly throughout the area along the power line. Some areas have almost no regeneration, especially where hemlock is dominant.

**General comments on silviculture proposed:**

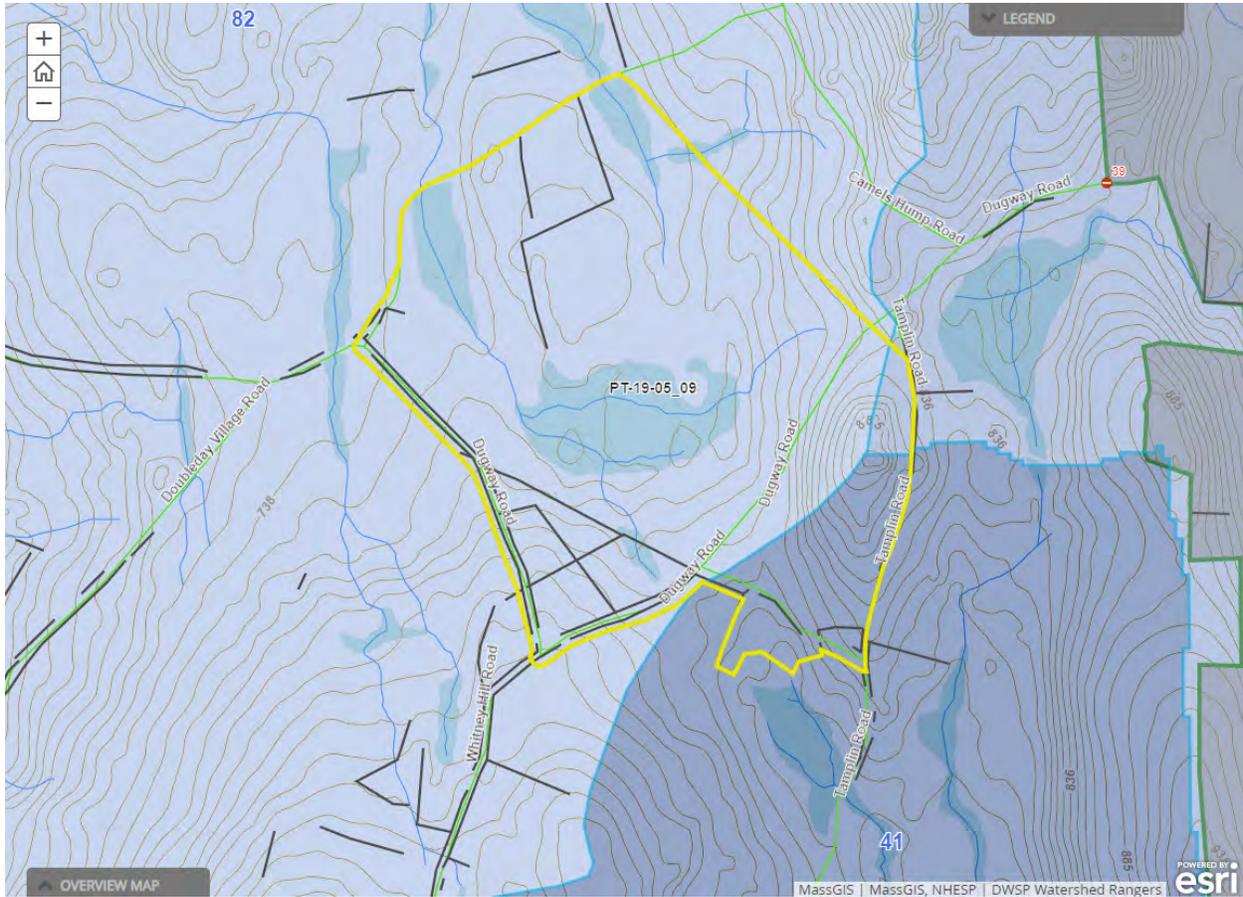
Small group/patch selection, with openings ranging widely in size, including a few over 2 acres in red pine and old field white pine. Openings will be irregular in shape, and will be located where there are clusters of trees that are diseased, declining, or have poor stem structure, and where there is advance regeneration of high quality (healthy, well formed, and suited to the site) that needs to be released. Five to ten square feet per acre of basal area of sawlog- and pole-sized trees will be retained in openings equal to ½ acre. Openings will not be in the areas with well formed, vigorous, oak stems.

Intermediate cutting will focus on removal of red pine where it is scattered among other species, and possibly in spruce if needed to improve vigor. Virtually all living red pine will be removed, unless it's inaccessible, such as due to terrain or filter strips. For all other species, the healthiest trees will be retained.



## 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
82	1945	24.6	1364.7	121
41	745.9	5.7	180.8	63.2
40	285.6	0	71.4	2.4



## Harvesting Limitations

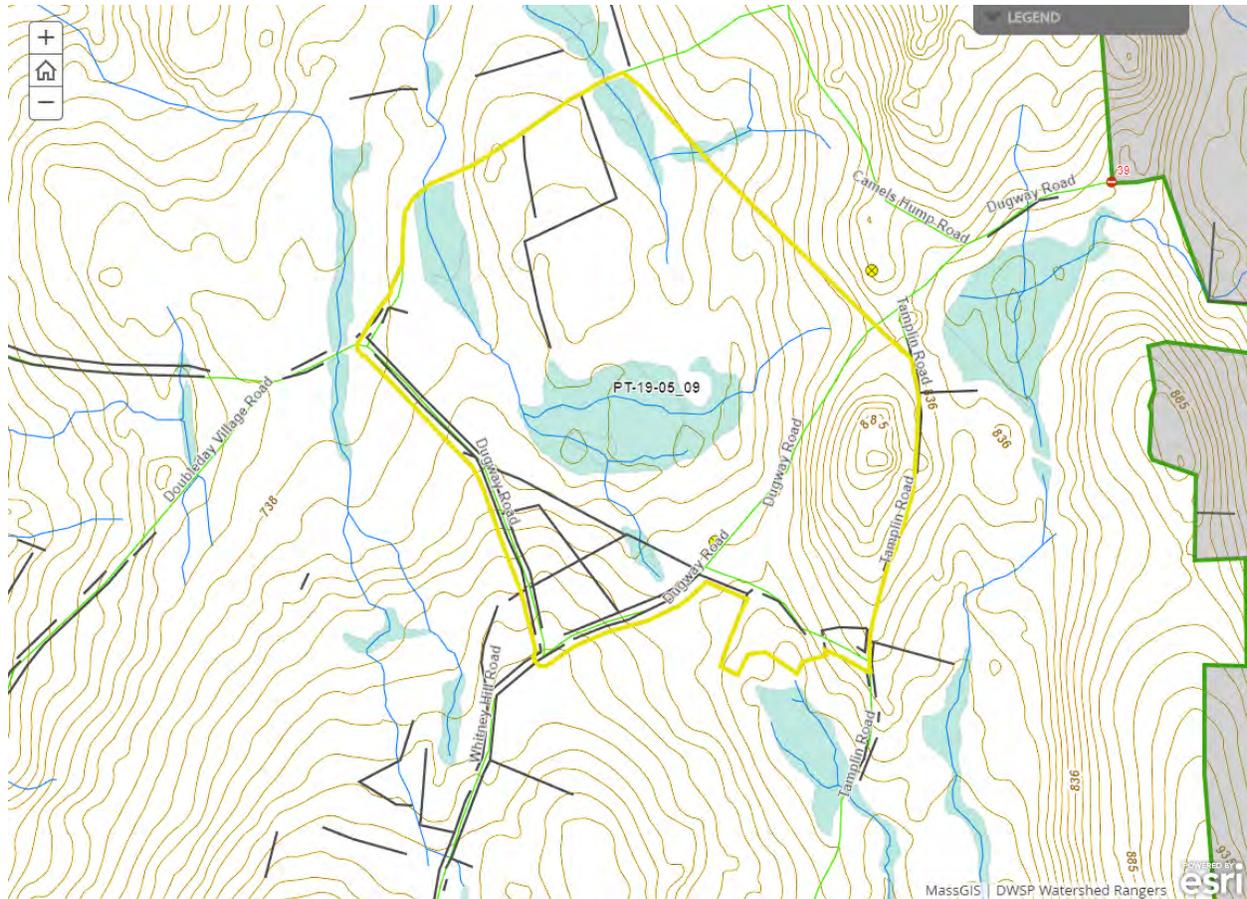
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

### Comments on harvesting limitations:

No harvesting limitations are proposed.

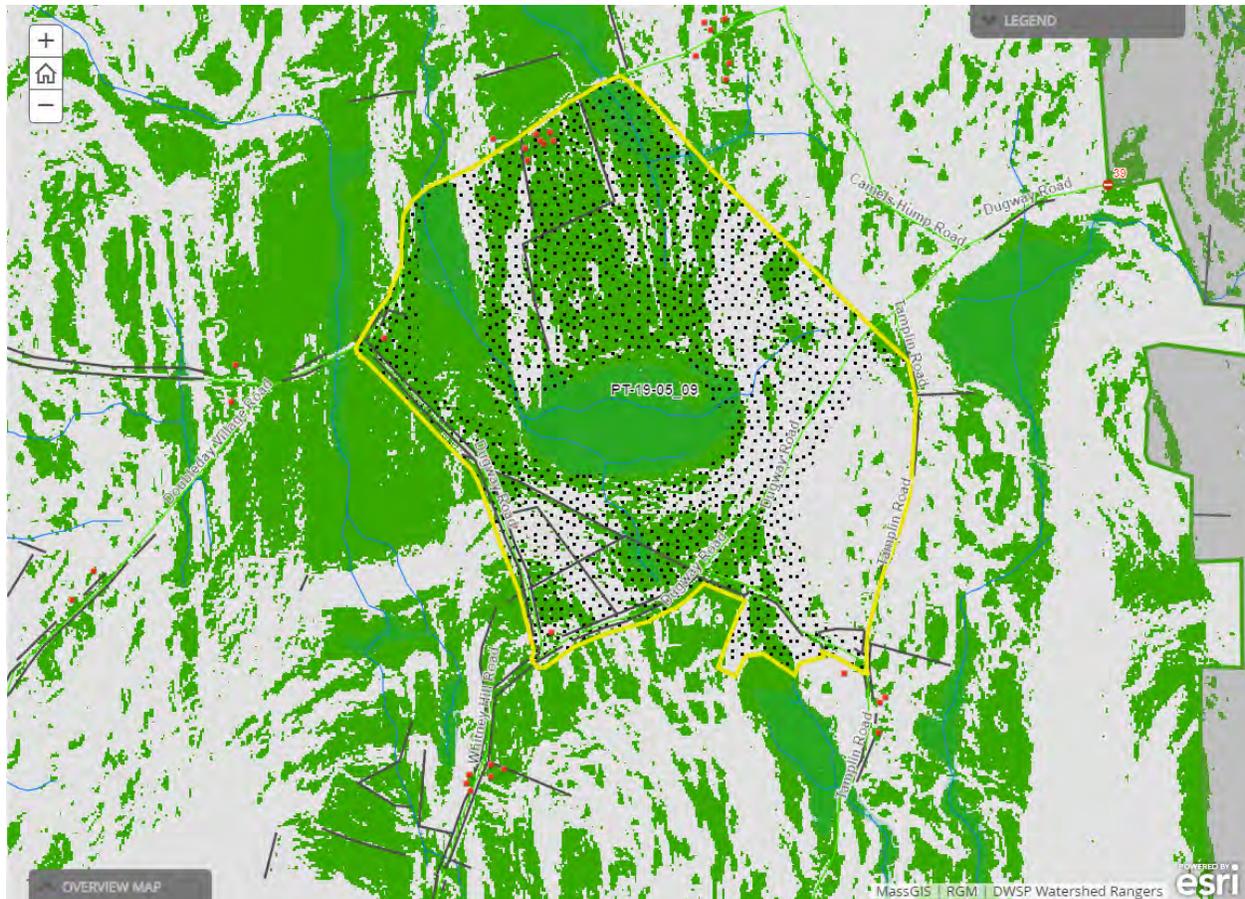


## Cultural Resources

### Comments on Cultural Resources:

There are numerous stone walls in this area, particularly in and around the red pine plantation in the southern corner of the lot. There are several cellar holes and an old school site along Dugway Road, and along the unnamed access road between the two beaver ponds.

Existing barways will be used where feasible and harvest layout will protect walls as much as possible. Wells and foundations will be flagged and avoided. If applicable DWSP will follow any additional recommendations from DCR's Archaeologist regarding protection of sensitive sites.



## Wildlife Resources & Rare and Endangered Species

### Comments on Unique or Unusual Sites or Habitat:

The 17 acre spruce stand offers thermal cover for wildlife, which is much needed as the hemlock in the area gradually dies or loses density due to hemlock woolly adelgid, hemlock elongate scale, and other pests.

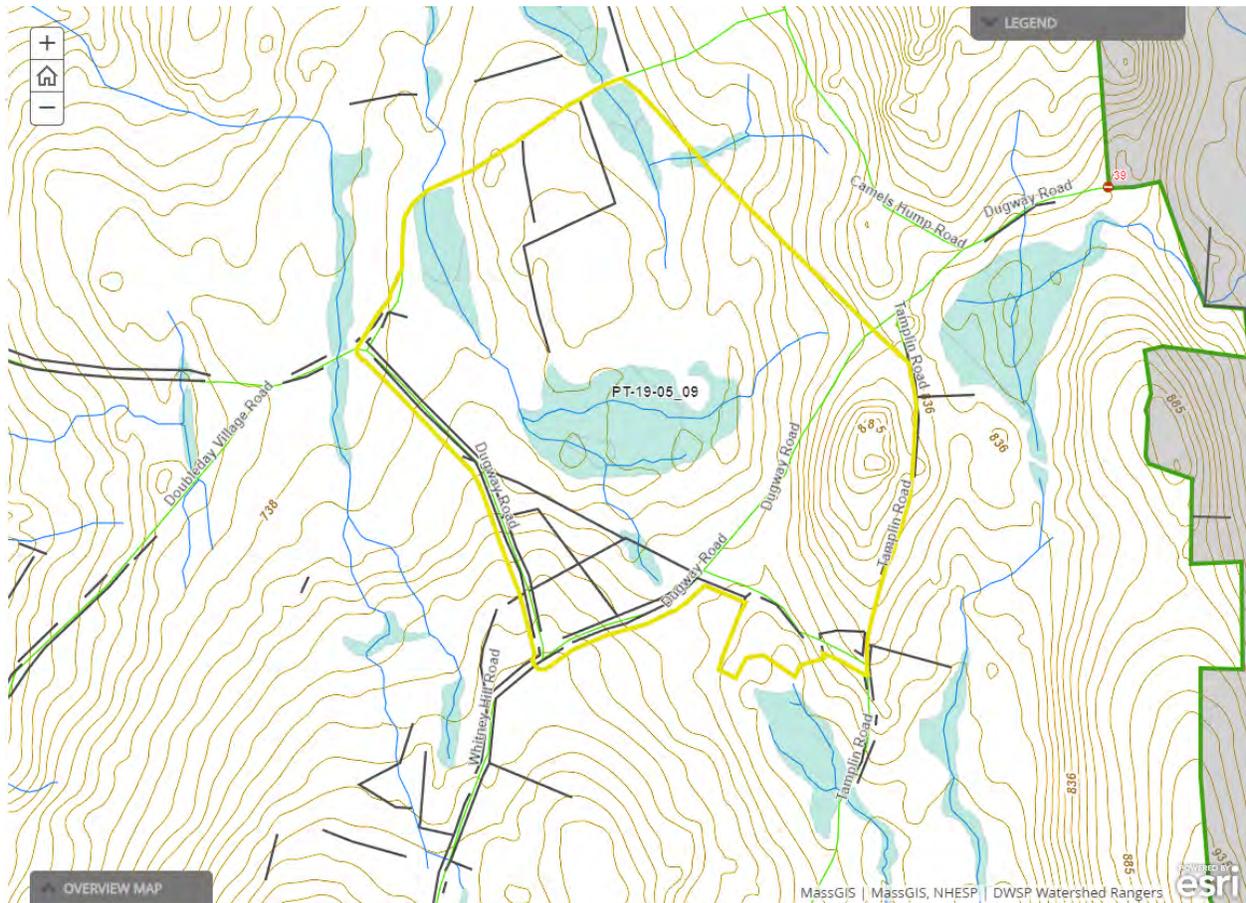
### General Wildlife Comments:

Deer and moose pellets and browse were observed, especially in low lying hardwood stands.

### Comments on Rare Species/Habitats:

Cavity trees and potential/existing nest trees will be retained if possible. There are not any NHESP state-listed sensitive species or habitats within the lot proposal area. If any new

information regarding sensitive species or habitats in the area is found DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed harvest.



## Environmental Quality Engineering

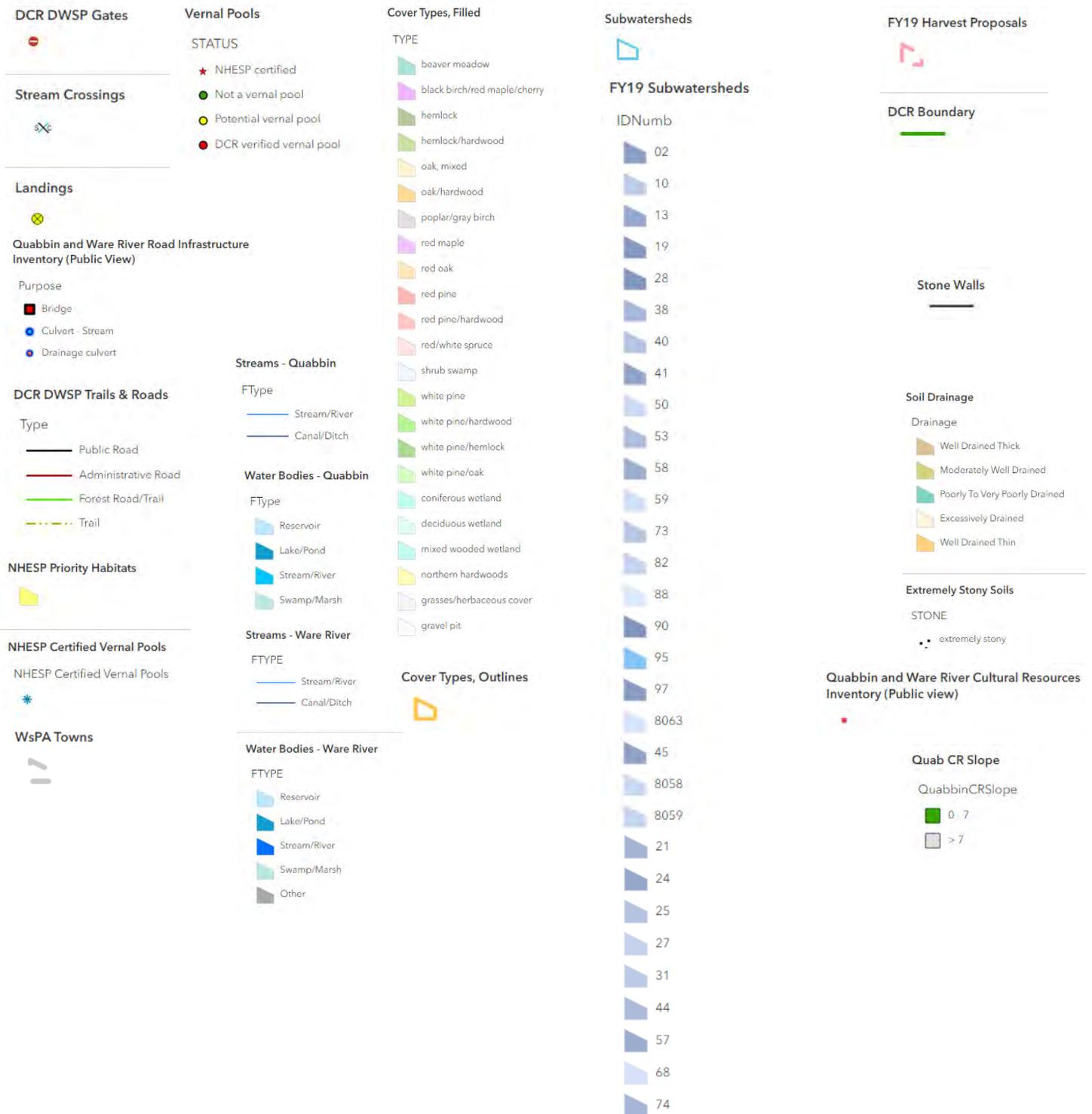
### Comments on EQ Issues:

There are no perennial stream crossings.





DWSP FY 2019 Quabbin and Ware River Forestry Proposals – Master Legend for story maps



# Quabbin Harvest Proposal PT-19-06

## Proposal Goals

The proposed harvest will further release healthy regeneration created by harvests in the 1980's, improve forest health (by treating gypsy moth related damage/mortality), and further diversify stand structure and species composition.

## Proposal Location

This proposal is in Petersham, on the eastern side of Mary Tamplin Rd.

**Total Acres: 141**



## General Description

	<b>Overstory Type(s)</b>	<b>Acres</b>
<b>Dominant</b>	Oak/hardwood	86
<b>Secondary</b>	White pine/oak	55

	<b>Understory Type(s)</b>
<b>Dominant</b>	Tree seedlings/saplings dominate the site
<b>Secondary</b>	Dry site - blueberry/huckleberry

### Description of forest composition/condition:

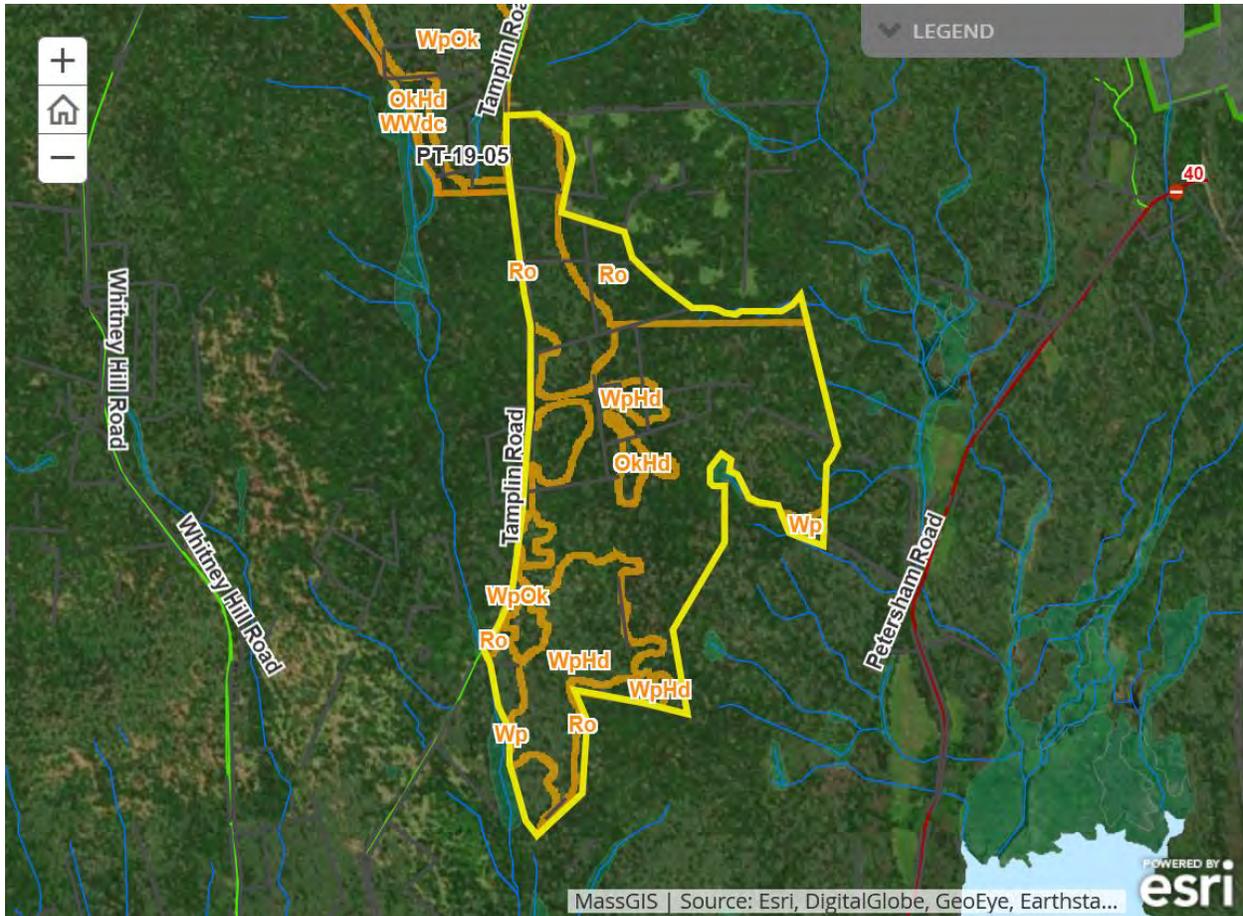
Main type is comprised of a couple of stands (OH4/5, OR4) on an upland site. Most of area had been cut at least once over the last 30 years and stands have tended to develop with more red, black and scarlet oak, hickory, and black birch as dominate hardwoods along with some red maple, white birch and black cherry. Scattered white pine is also present in overstory on about half of the type. Scattered white oak and white ash also present.

Rest of lot is now several stands of what would be better described as white pine/oak with a couple of the stands having dominate crowns approaching 100' in height. Red oak is the most common hardwood with black, scarlet and white also present along with black and white birch, hickory and red maple.

Stand was heavily impacted (total defoliation 2017) by gypsy moth in 2016 and '17 with some mortality of oak being observed in fall of 2017. Not many egg masses were observed on base of trees in fall 2017 so somewhat optimistic that GM population has crashed but that will be dependent on a wet spring in 2018 allowing the fungus to be active. Other than that both stands appear to be fairly healthy though there are still numerous poorly formed and/or less vigorous trees. Quit a few emergent, course white pine are present along with cavity trees of both hardwood and softwoods. Most areas are fully to over stocked. Part of the southern section had small (under 1/4 acre) openings created by one of the previous cuts and the regeneration (mostly

black birch and white pine) is now over topped and stagnant. Rest of lot, where previously cut, appears to have just had firewood thinning or a light prep cut.

Regeneration is mainly black birch and/or white pine and pine in particular has gotten stunted and stagnant. Red maple and beech are also common with scattered oak though more oak regeneration was noted along some of the lower slopes on east side. There is also some hemlock near the wet areas here and to the south where there is a small stand of WK.



## Soils

Drainage Class	%
Excessively Drained	0

<b>Well Drained Thin</b>	37
<b>Well Drained Thick</b>	42
<b>Moderately Well Drained</b>	21
<b>Poorly to Very Poorly Drained</b>	0

Soils are mainly well drained Montauk-Canton association and Charlton-Chatfield-Hollis association with an area north central part of lot with moderately well drained Montauk-Scituate-Canton association.



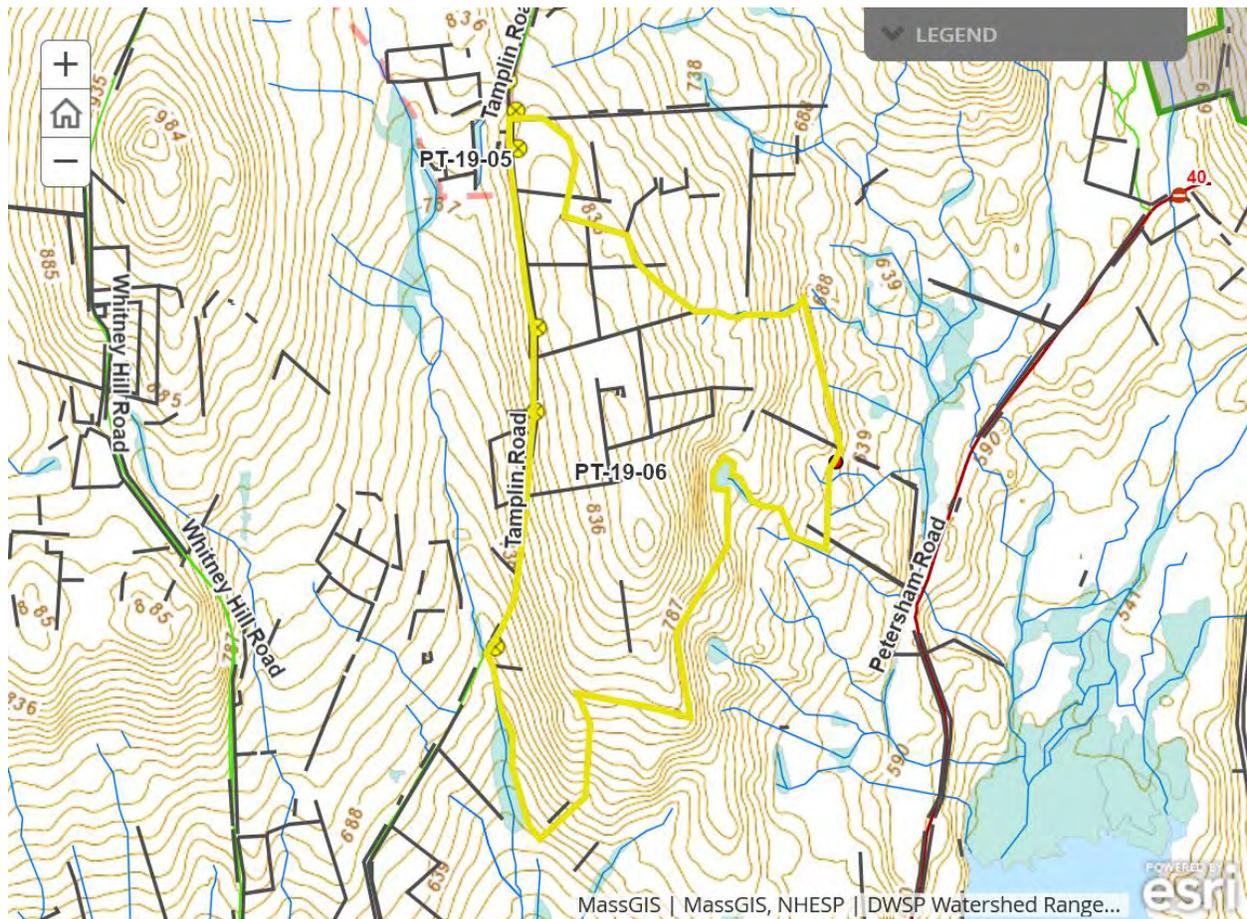
## Wetlands

- Wetlands present? - **Yes**

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

### Further comments on wetlands:

Interior of lot is mostly dry. Southwest edge of lot is a stream which crosses Tamplin Rd and flows SE into a wetland and eventually drains into Pottapaug Pond. There are also 2 small stream complexes which originate out of base of hill along the eastern edge of proposal. There are 2 potential vernal pools to the east of the lot, one may be within 200' of area to be cut.



## Silviculture

Acres in Intermediate cuts: **40**

Acres in prep/establishment cuts: **10**

Acres in Regeneration cuts: **35**

Average regen opening size: **1**

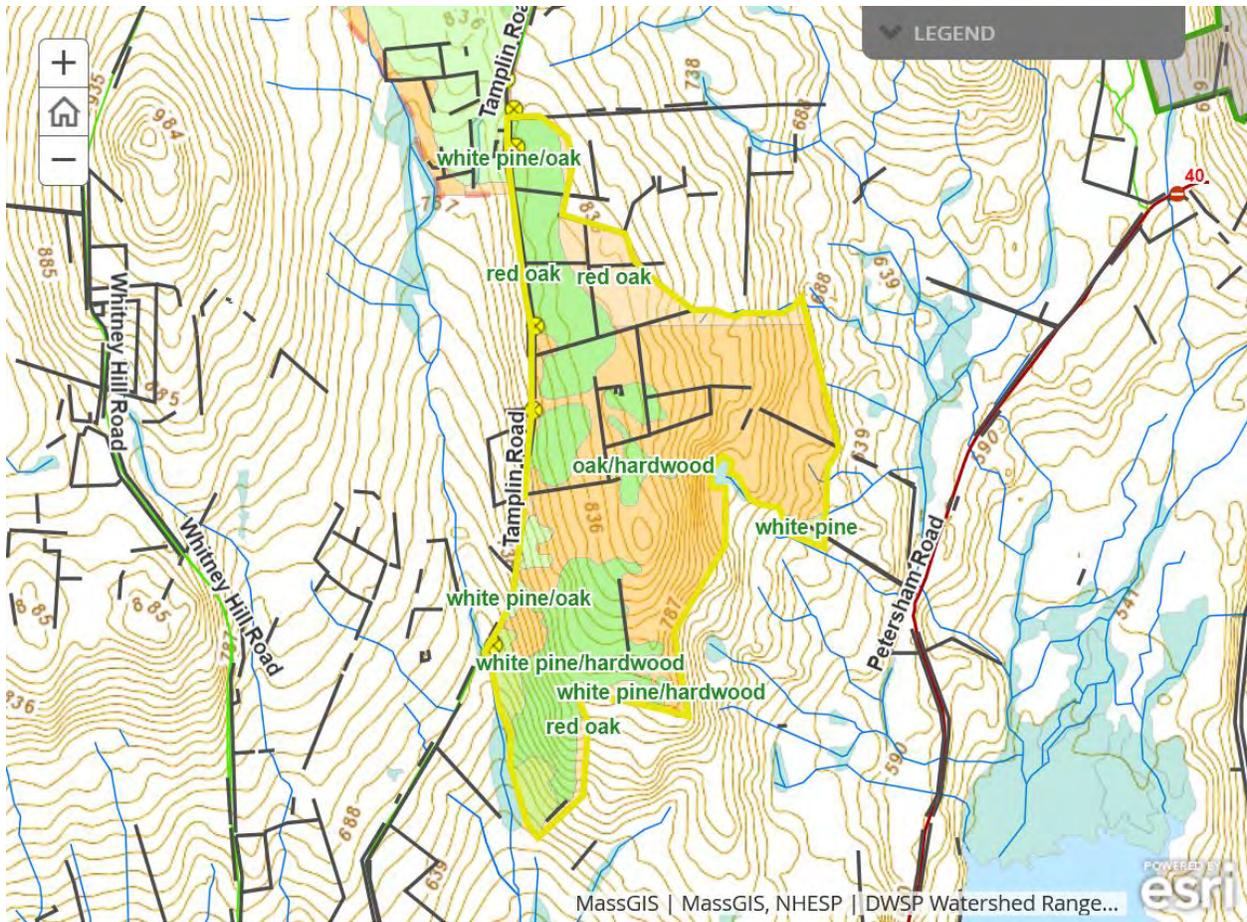
Maximum regen opening size: **2**

### **Description of advance regeneration in proposal area:**

Most of the lot is moderately stocked with mainly sapling size black birch and/or white pine and pine, in particular, has become stunted and stagnant. Red maple and beech are also common with scattered oak though more oak regeneration was noted along some of the lower slopes on the east side. There is also some hemlock near the wet areas here and to the south where there is a small stand of WK. There is some larger sapling to pole sized black birch in a few of the larger openings created in the past.

### **General comments on silviculture proposed:**

The intent is to regenerate about  $\frac{1}{4}$  of this lot with our standard regeneration opening silviculture. Openings will be spaced and stocked as required and will range from about  $\frac{1}{4}$  - 2 acres. Openings will be placed abutting older openings to further release existing regeneration where viable. Other areas to be targeted for harvest include sections with more poorly formed or less vigorous or diseased stems including stems severely impacted by gypsy moth. Additional openings will be created where more diverse hardwood seedling to pole size currently exists with the intent of releasing or coppicing them. Areas with younger, better formed, vigorous stems will be avoided or thinned if overstocked. Edges of openings and along skid trails will also be thinned to allow more light into openings and lessen future damage to regeneration when next harvest occurs. Exceptional individuals of all species present will be retained for diversity, as will active den trees and additional trees for habitat as deemed desirable. Additional large legacy trees will be retained.



### 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
28	24463.8	2.9	613.1	9.2
41	745.9	5.7	180.8	63.2
53	1082.4	0	270.6	21.2

None of the subwatersheds are approaching their 25% limit although 41 and 53 also are on one of this years proposals (PT-19-5) which is adjoining this lot to the northwest but is on other side of Tamplin Rd. It is not expected that regeneration acreage will exceed 1/4 of lot acreage for either proposal (35 and 17 acres) so still less than half of allowed acreage will be regenerated. On this

proposal openings will most likely be evenly spaced throughout. On PT-19-5 openings will mainly be in the southern part and northern edge so mainly within subwatershed 53 which has higher acreage remaining.



## Harvesting Limitations

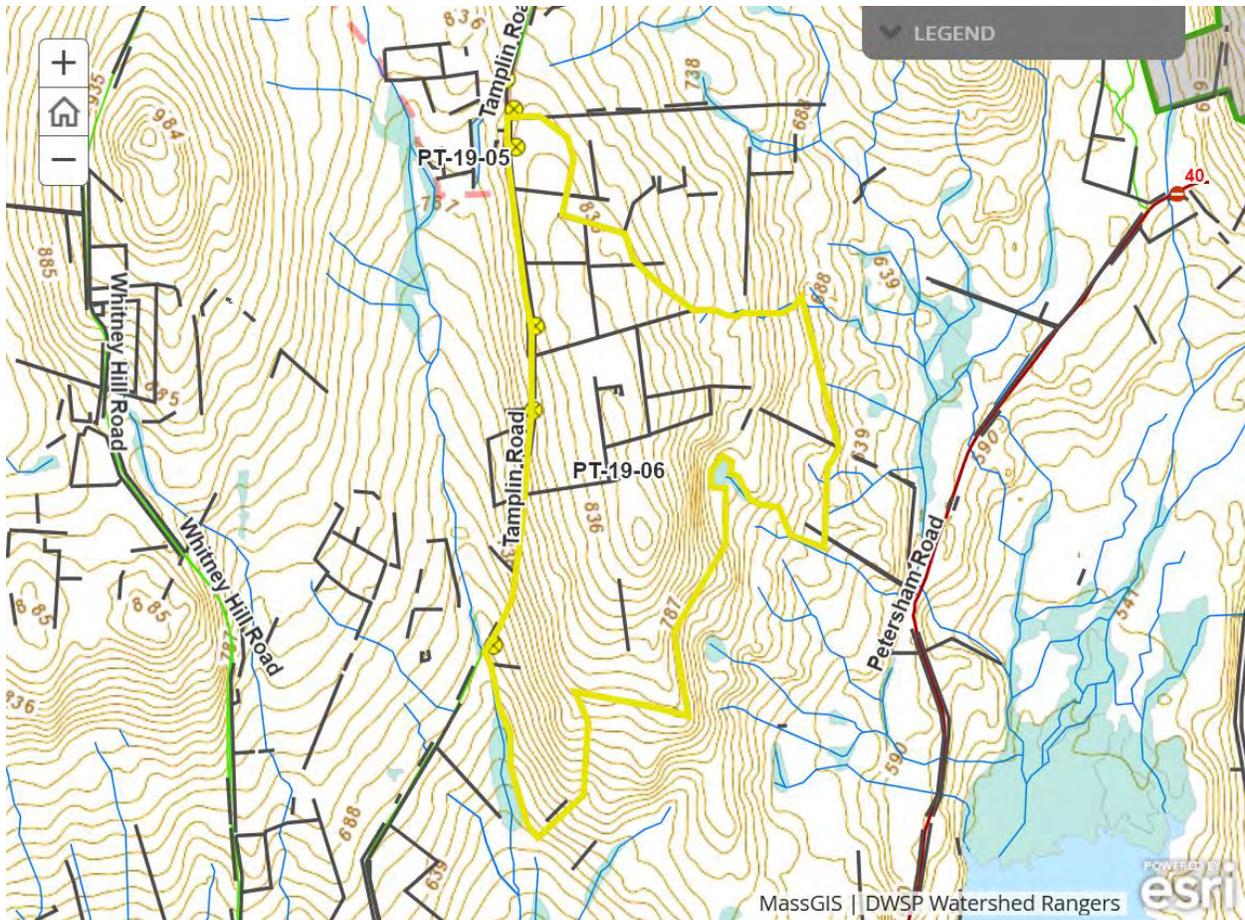
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

### Comments on harvesting limitations:

There are a couple of steep sections on the lot but these will be mostly avoided, not expecting to need to put a skid trail on them. The 5 landings are all smaller road side type landings so a forwarder would be useful for loading trailers. Road needs to be improved to allow trailers which will be necessary for lot to the north.

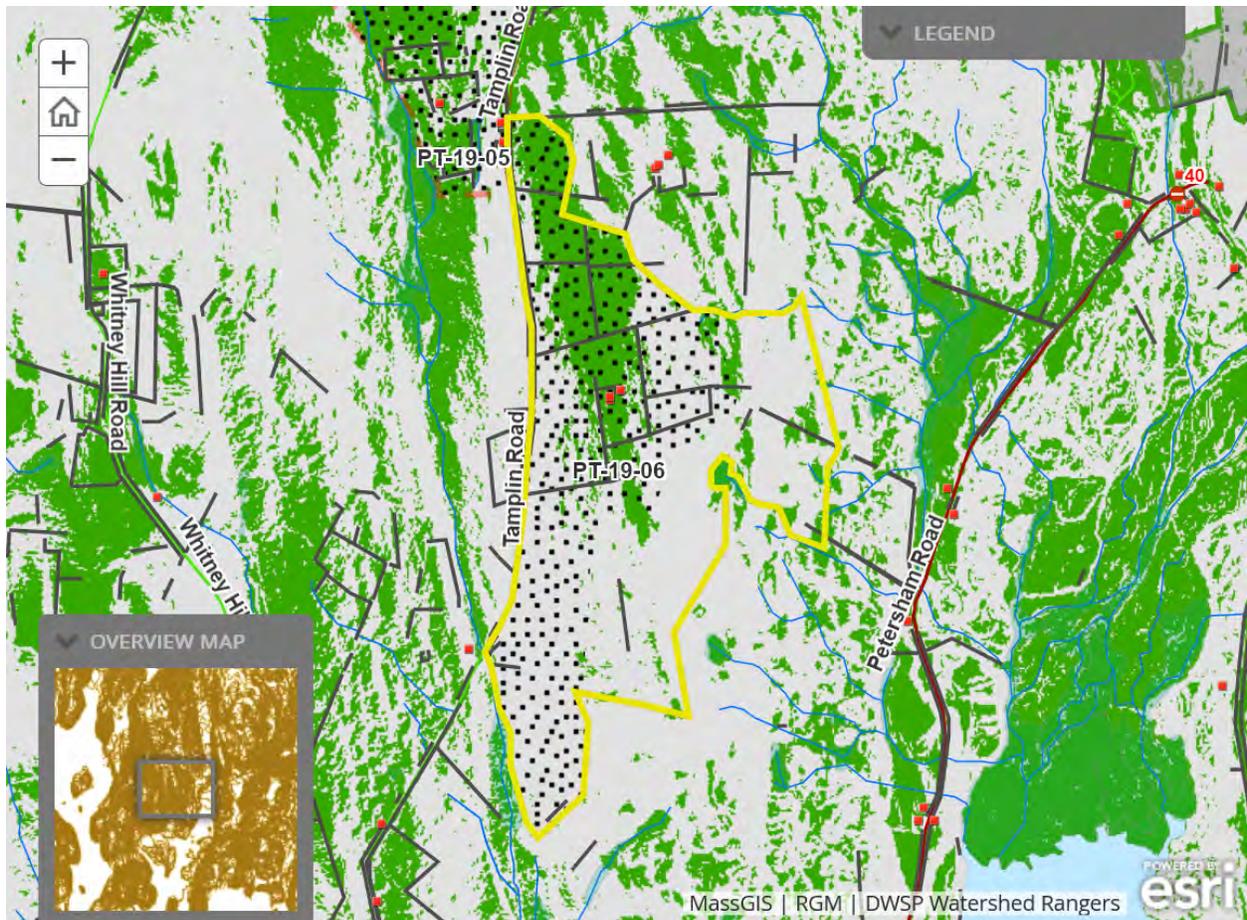


## Cultural Resources

### Comments on Cultural Resources:

Numerous stonewalls present, mainly on the northern half of the lot. Barways are frequent with most being used for logging access in past but some will need to be widened for current equipment. As long as the landings proposed (all have been used in past) can be utilized few if any new barways will be needed. Most of the walls, other than right around the area of foundations, are of the low, tossed variety. There is at least one area that appears to have had surface stone mined from a ledge outcrop. Surface stone is somewhat variable but generally prevalent throughout.

Existing barways will be used where feasible and harvest layout will protect walls as much as possible. Wells and foundations will be flagged and avoided. If applicable DWSP will follow any additional recommendations from DCR's Archaeologist regarding protection of sensitive sites.



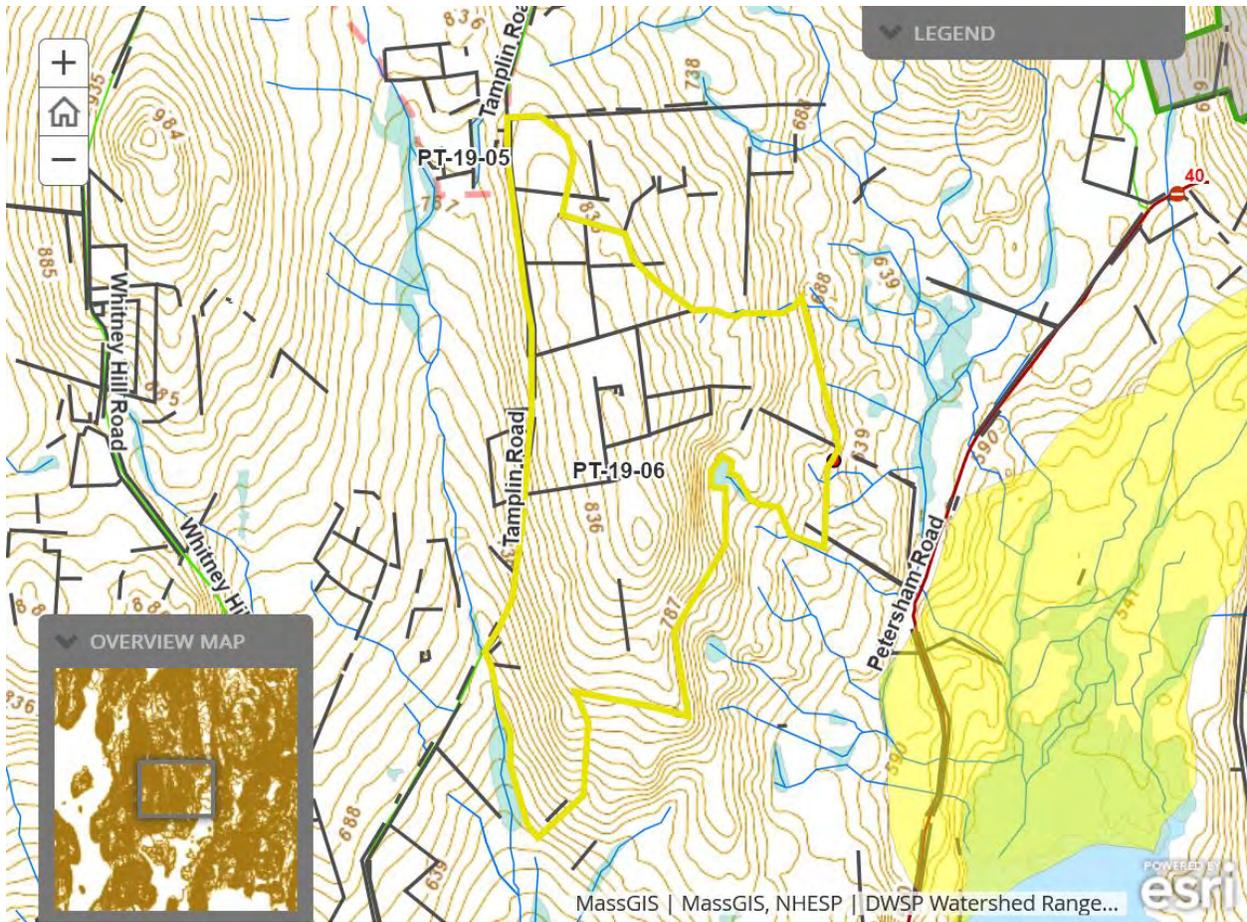
## Wildlife Resources & Rare and Endangered Species

### General Wildlife Comments:

Deer, moose, coyote and turkeys are known to frequent this area. Beavers have been active in past in wetland complex on the northern edge though no recent activity was noted.

### Comments on Rare Species/Habitats:

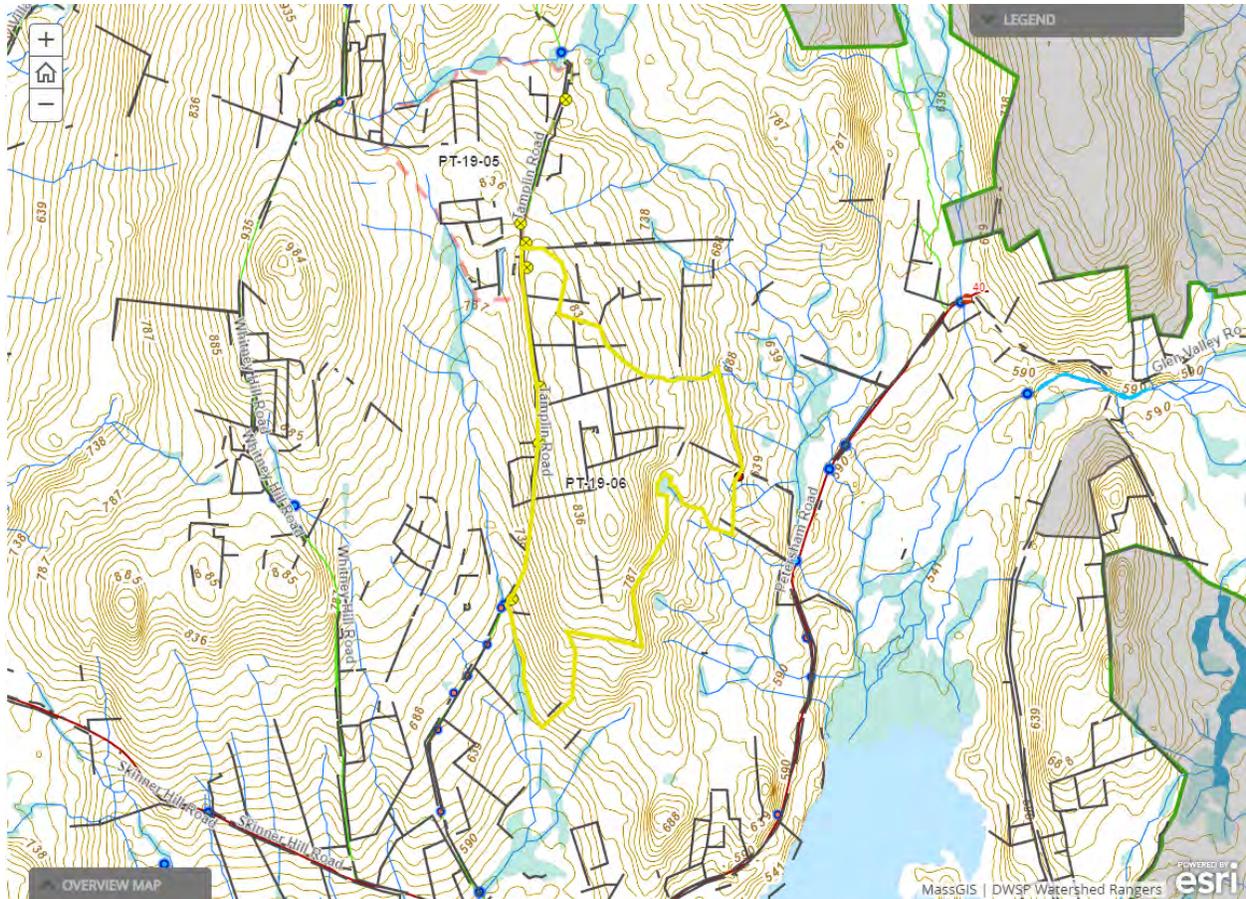
Cavity trees and potential/existing nest trees will be retained if possible. There are not any NHESP state-listed sensitive species or habitats within the lot proposal area. If any new information regarding sensitive species or habitats in the area is found DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed harvest.



## Environmental Quality Engineering

### Comments on EQ Issues:

There are no perennial stream crossings.



## Forest Access Engineering

**Gravel needed:** Yes

**Landing work needed:** Yes

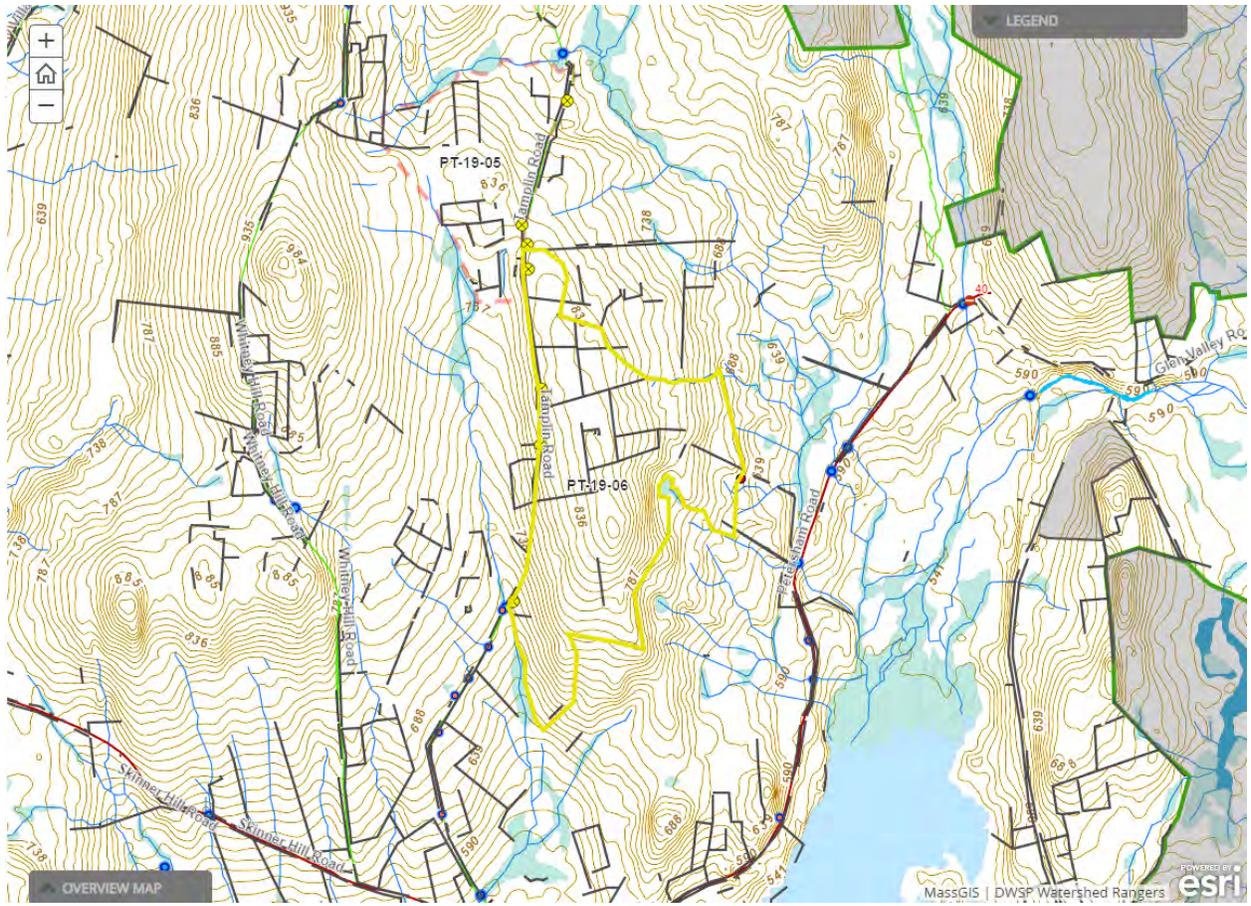
**Culverts needed:** Yes

**Work needed on permanent bridges:** No

**Beaver issue:** No

### **Further comment on access needs:**

Road needs to be improved to allow trailer access to last landing proposed on west side. Trailer turn around needs to be created, probably in area Allards used for landing a few years ago. At least 3 culverts need to be replaced, one is partially blocked, others are degrading.



DWSP FY 2019 Quabbin and Ware River Forestry Proposals – Master Legend for story maps

#### DCR DWSP Gates

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#### Stream Crossings

---

#### Landings

#### Quabbin and Ware River Road Infrastructure Inventory (Public View)

Purpose

- Bridge
- Culvert - Stream
- Drainage culvert

---

#### DCR DWSP Trails & Roads

Type

- Public Road
- Administrative Road
- Forest Road/Trail
- Trail

---

#### NHESP Priority Habitats

---

#### NHESP Certified Vernal Pools

NHESP Certified Vernal Pools

---

#### WsPA Towns

#### Vernal Pools

STATUS

- NHESP certified
- Not a vernal pool
- Potential vernal pool
- DCR verified vernal pool

---

#### Streams - Quabbin

FType

- Stream/River
- Canal/Ditch

---

#### Water Bodies - Quabbin

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh

---

#### Streams - Ware River

FType

- Stream/River
- Canal/Ditch

---

#### Water Bodies - Ware River

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh
- Other

#### Cover Types, Filled

TYPE

- beaver meadow
- black birch/red maple/cherry
- hemlock
- hemlock/hardwood
- oak, mixed
- oak/hardwood
- poplar/gray birch
- red maple
- red oak
- red pine
- red pine/hardwood
- red/white spruce
- shrub swamp
- white pine
- white pine/hardwood
- white pine/hemlock
- white pine/oak
- coniferous wetland
- deciduous wetland
- mixed wooded wetland
- northern hardwoods
- grasses/herbaceous cover
- gravel pit

---

#### Cover Types, Outlines

#### Subwatersheds

---

#### FY19 Subwatersheds

IDNumb

- 02
- 10
- 13
- 19
- 28
- 38
- 40
- 41
- 50
- 53
- 58
- 59
- 73
- 82
- 88
- 90
- 95
- 97
- 8063
- 45
- 8058
- 8059
- 21
- 24
- 25
- 27
- 31
- 44
- 57
- 68
- 74

#### FY19 Harvest Proposals

---

#### DCR Boundary

---

#### Stone Walls

---

#### Soil Drainage

Drainage

- Well Drained Thick
- Moderately Well Drained
- Poorly To Very Poorly Drained
- Excessively Drained
- Well Drained Thin

---

#### Extremely Stony Soils

STONE

- extremely stony

---

#### Quabbin and Ware River Cultural Resources Inventory (Public view)

---

#### Quab CR Slope

QuabbinCRSlope

- 0 - 7
- > 7

# Quabbin Harvest Proposal PT-19-11

## Proposal Goals

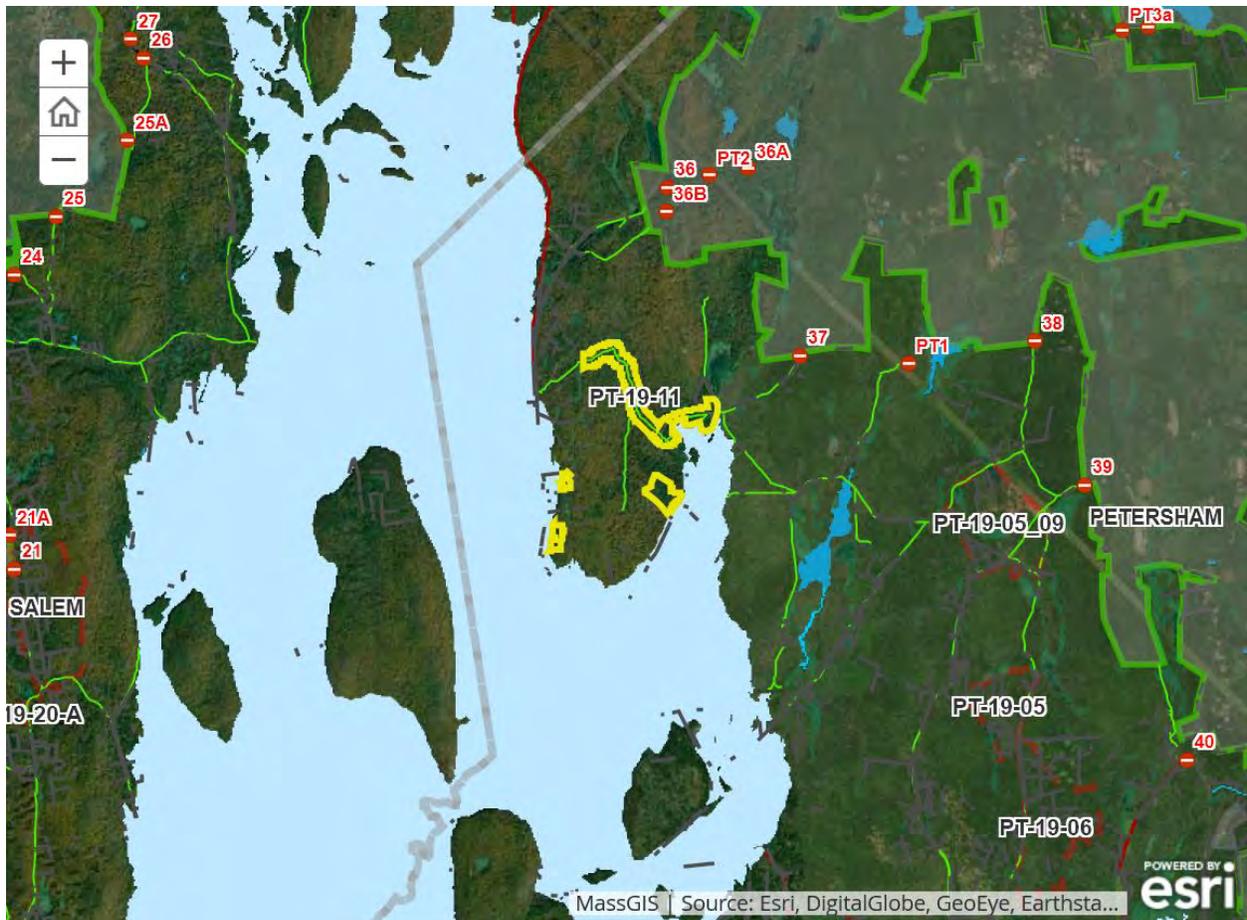
The goal of this proposal is to remove red pine before it's killed by [red pine scale](#).

## Proposal Location

This proposal is located along both sides of North Dana road and in three plantations on the peninsula to the south.

**Total Acres: 75.9**

**Previously reviewed as PT-09-11**



### General Description

	Overstory Type(s)	Acres
Dominant	Red pine	31.1
Secondary	White pine/hardwood	44.8

	Understory Type(s)
Dominant	Tree seedlings/saplings dominate the site

**Description of forest composition/condition:**

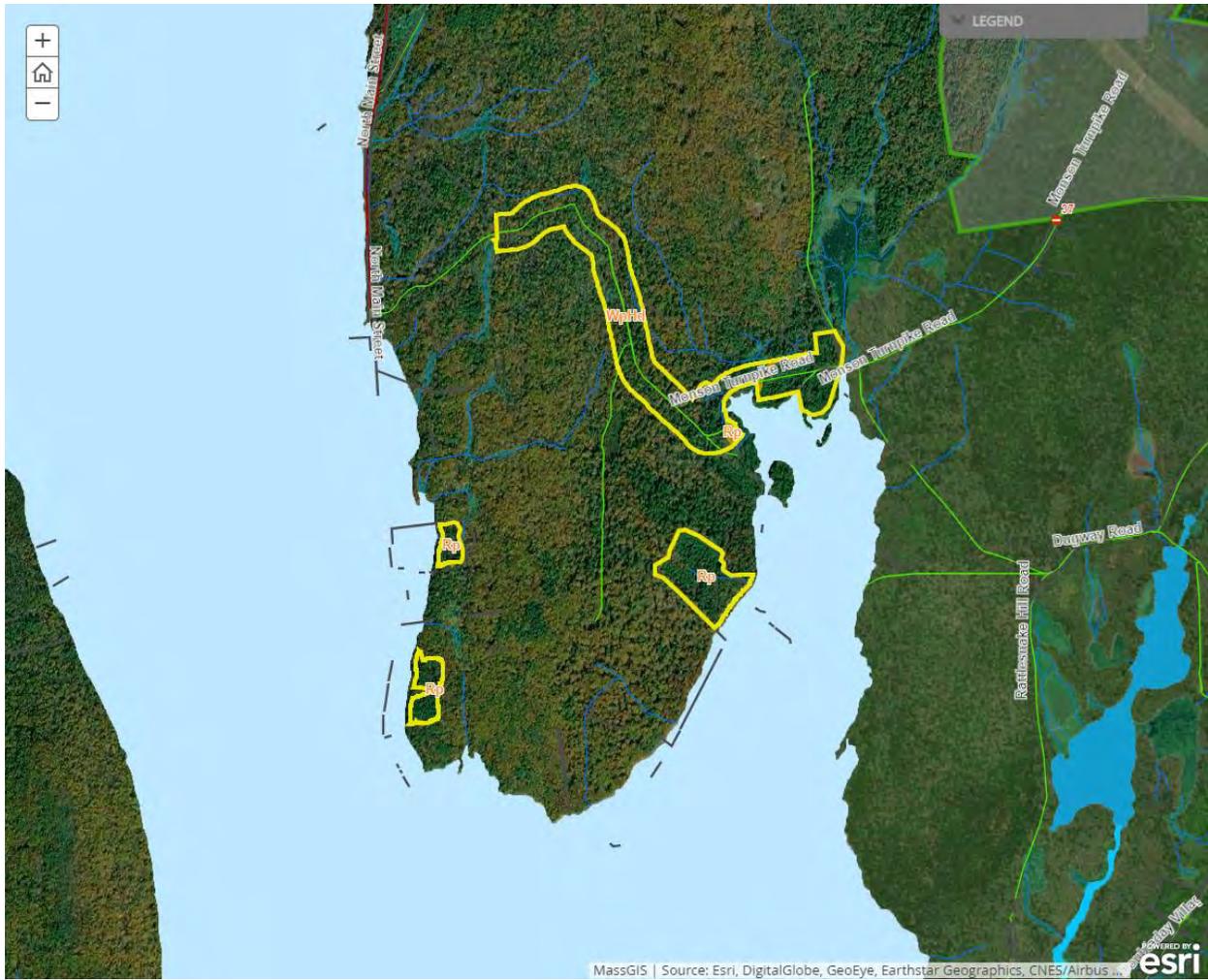
The roadside strip is mostly white pine-hardwood with scattered red pine mixed in an 8 acre red pine plantation at the east end. The health of the red pine was still good as of the stand exam late in 2017, but there were early signs of possible red pine scale infestation. This area has had numerous harvests, including:

- A selection harvest on the north side of the road in 2007
- A shelterwood regen establishment cut on the south side of the road in 2004
- An intermediate harvest in the roadside red pine plantation in 1989
- A shelterwood prep cut on the south side of the road at the west end of the proposed area in 1988
- Intermediate harvests on both sides of the road in 1983
- A shelterwood prep cut on the south side of the road in 1972

Most of the roadside strip has strong regeneration, especially of white pine, as a result of these harvests.

Red pine in the plantation on the east side of the peninsula is showing greater signs of decline than the red pine by the road, but was still viable as of the stand exam at the end of 2017. The eastern half was thinned in 1989. The western half was clearcut at the same time, but is included in this proposal in order to harvest any remnant red pines that are still standing.

The two red pine plantations on the west edge of the proposal have never been thinned by DWSP. This is problematic for red pine plantations, which tend to stagnate due to the lack of factors that would create variations in competitiveness, such as genetic and age diversity, and variability of spacing and microsite conditions. The consequences can be seen in these plantations, which are overstocked and stagnant, with small average diameter, flat crowns, and low live crown ratios. No trees have had enough of a competitive edge to differentiate from the rest and become vigorous dominant individuals. With no “winners,” the entire plantations are now “losers.” They were also showing advanced signs of red pine scale as of the stand exam in late 2017; it can be expected that these weakened trees will succumb quickly, perhaps before they can be harvested.

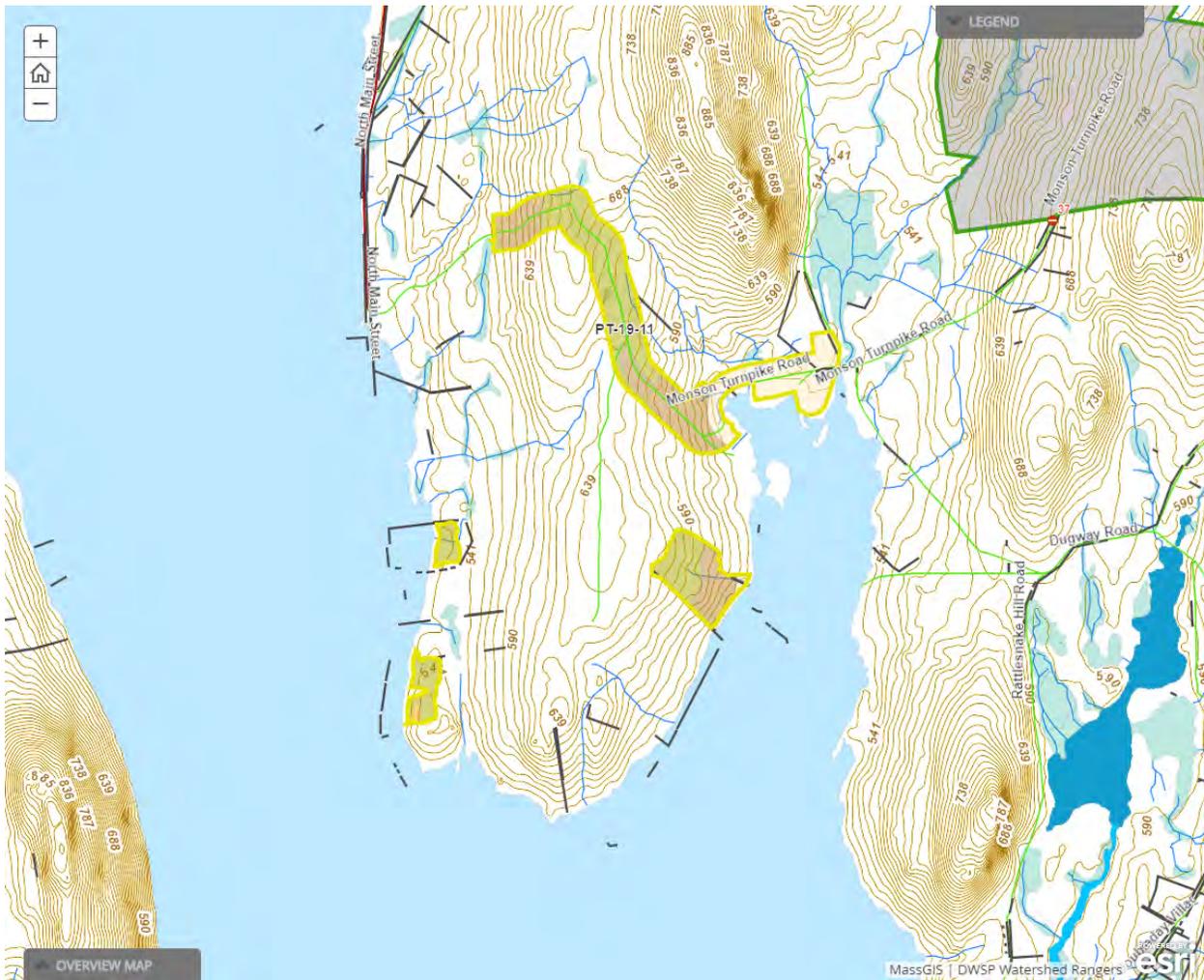


## Soils

Drainage Class	%
Excessively Drained	23
Well Drained Thin	0
Well Drained Thick	77

Moderately Well Drained	0
Poorly to Very Poorly Drained	0

Soil types include Hinkley sandy loam; Charlton-Chatfield-Hollis association, very rocky; and Montauk-Canton and Montauk-Scituate-Canton associations, extremely stony.



## Wetlands

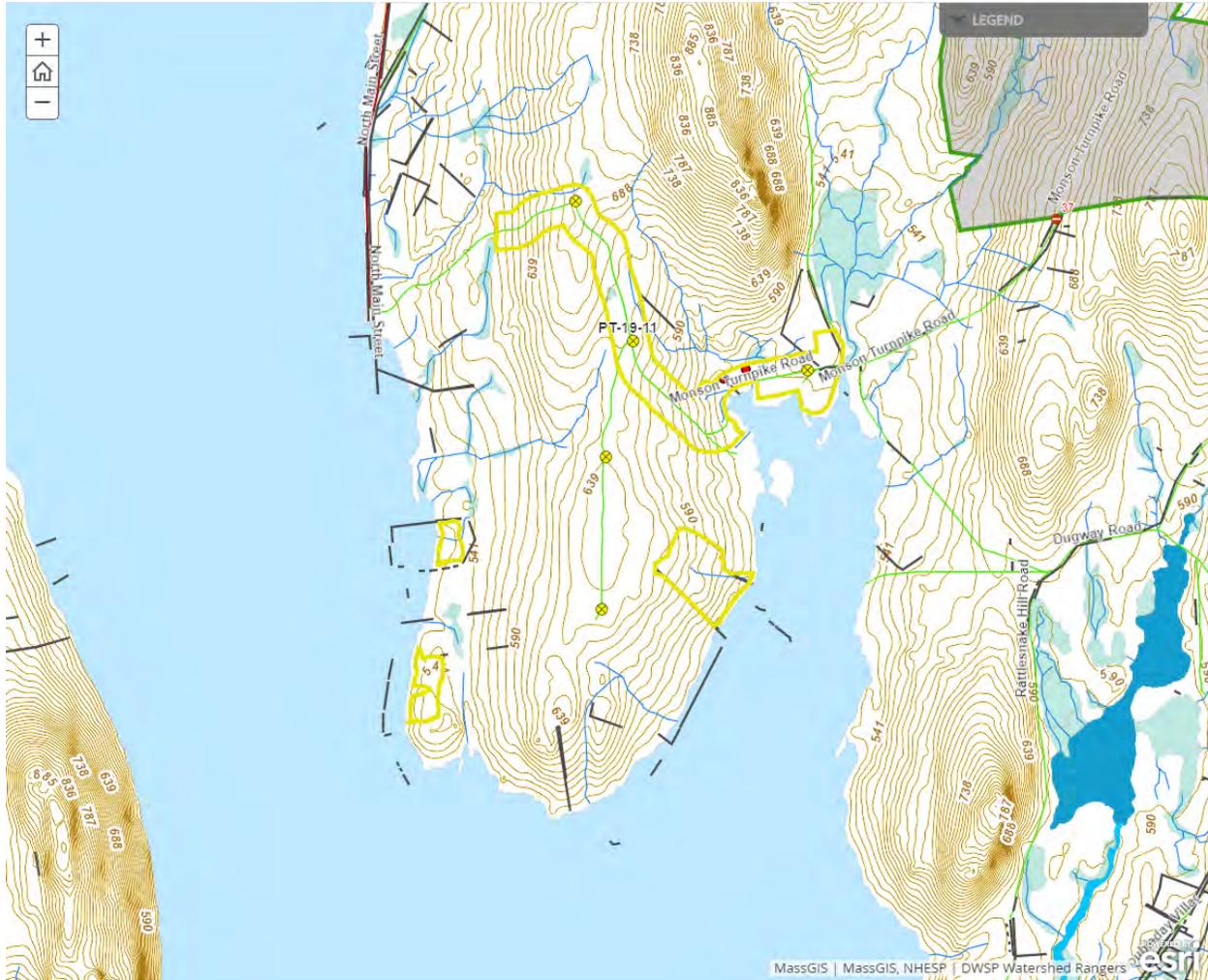
- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **Yes**

- Seeps present? - **None known**
- Are stream crossings required? - **Yes**
- Are wetland crossings required? - **No**
- Is logging in filter strips planned? - **Yes**
- Is logging in wetlands planned? - **No**

**Further comments on wetlands:**

There are two verified vernal pools to the north of the road, just west of the red pine plantation. There will be no harvesting within 200 feet of these features.

There are numerous small wetlands and intermittent streams on the west side of the peninsula, including an intermittent stream bisecting the smallest red pine plantation. These will be avoided as much as possible, but a few intermittent stream crossings will be needed to get to the western plantations.



## Silviculture

Acres in Intermediate cuts: **0**

Acres in prep/establishment cuts: **0**

Acres in Regeneration cuts: **20**

Average regen opening size: **2**

Maximum regen opening size: **5**

**Description of advance regeneration in proposal area:**

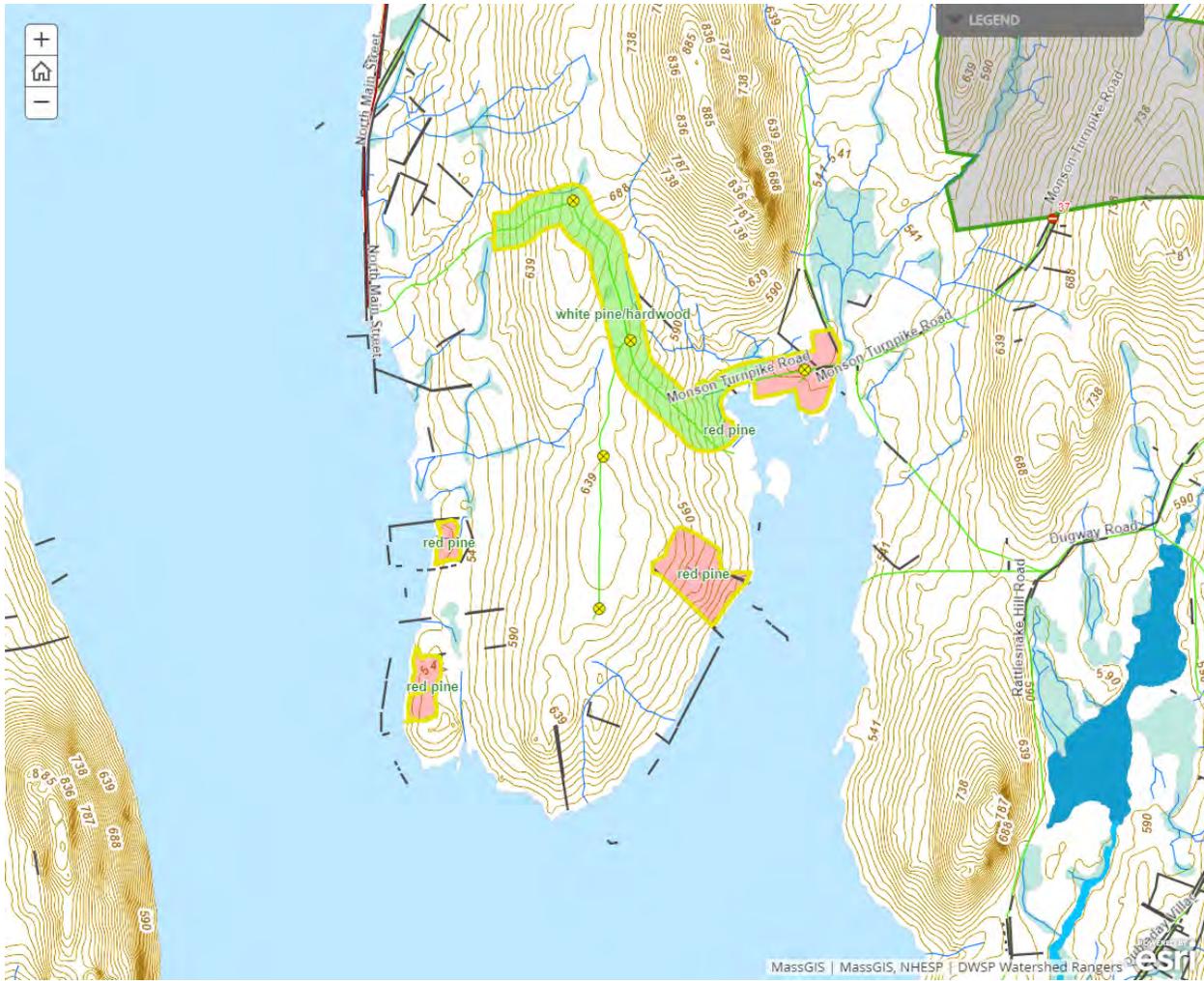
Most of the roadside strip has strong regeneration, especially of white pine. The west red pine plantations have very little. The east red pine plantation has some regeneration, especially within the clearcut area, as there has been some storm damage here as well.

### **General comments on silviculture proposed:**

The purpose of this proposal is to enable harvesting of red pine, if it is possible to do so before it's killed by red pine scale. All red pine within plantations will be cut, unless they must be left due to filter strips or cultural or other features to be protected. These will become openings ranging from 2 to 5 acres.

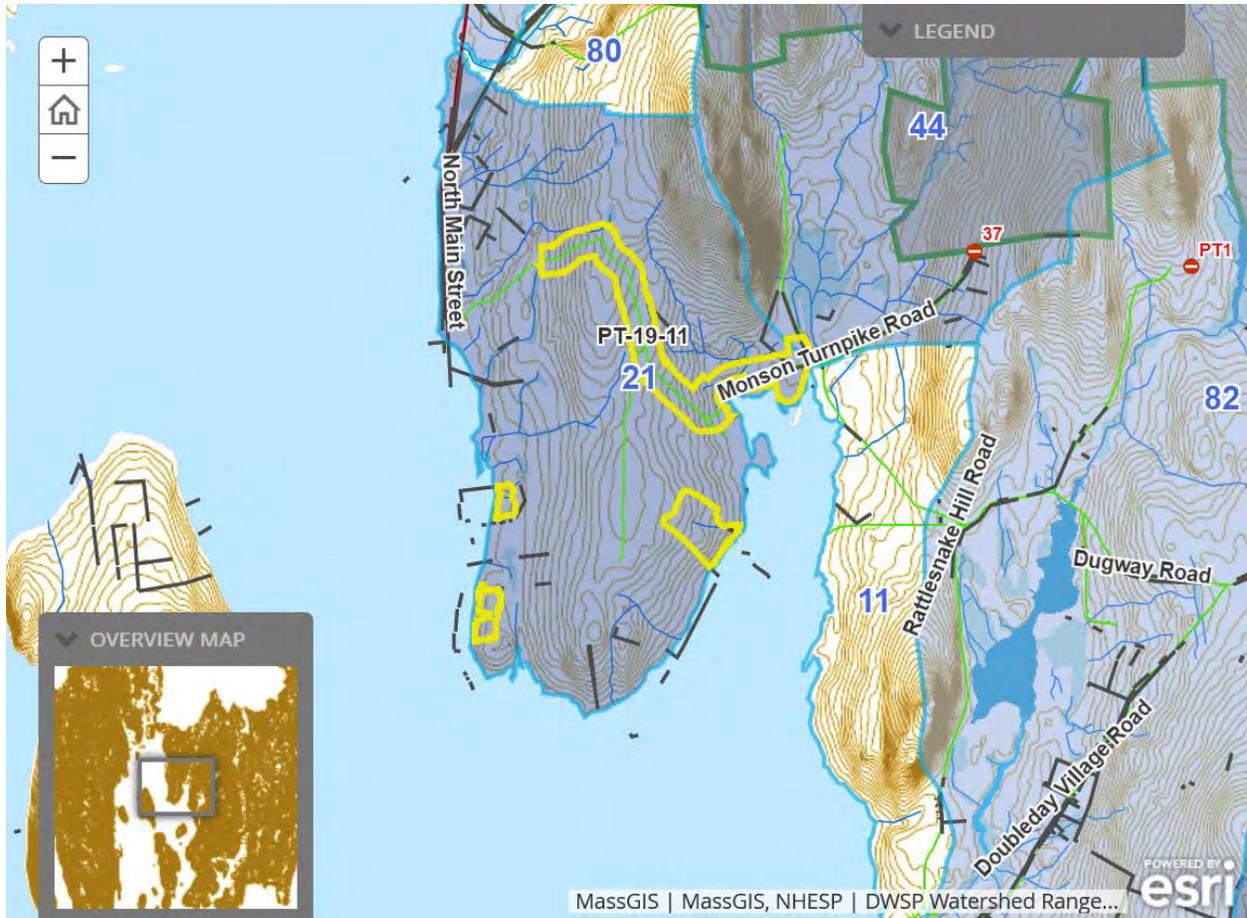
In the roadside white pine-hardwood stand, the main objective will be to cut all red pine. White pines and hardwoods that are at risk of falling into the road will be cut for public safety. A small number of white pines and hardwoods with very poor form, health and vigor will be cut in conjunction with the red pine, in order to make small gaps in the canopy, and to facilitate access to the red pine.

Both in plantations and in mixed stands, healthy, well formed trees of species other than red pine will be retained and protected. Red pine that has declined to the point of being unsalvageable at the time of marking will be left to die in place.



### 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
21	740.7	2.8	182.3	75.9



## Harvesting Limitations

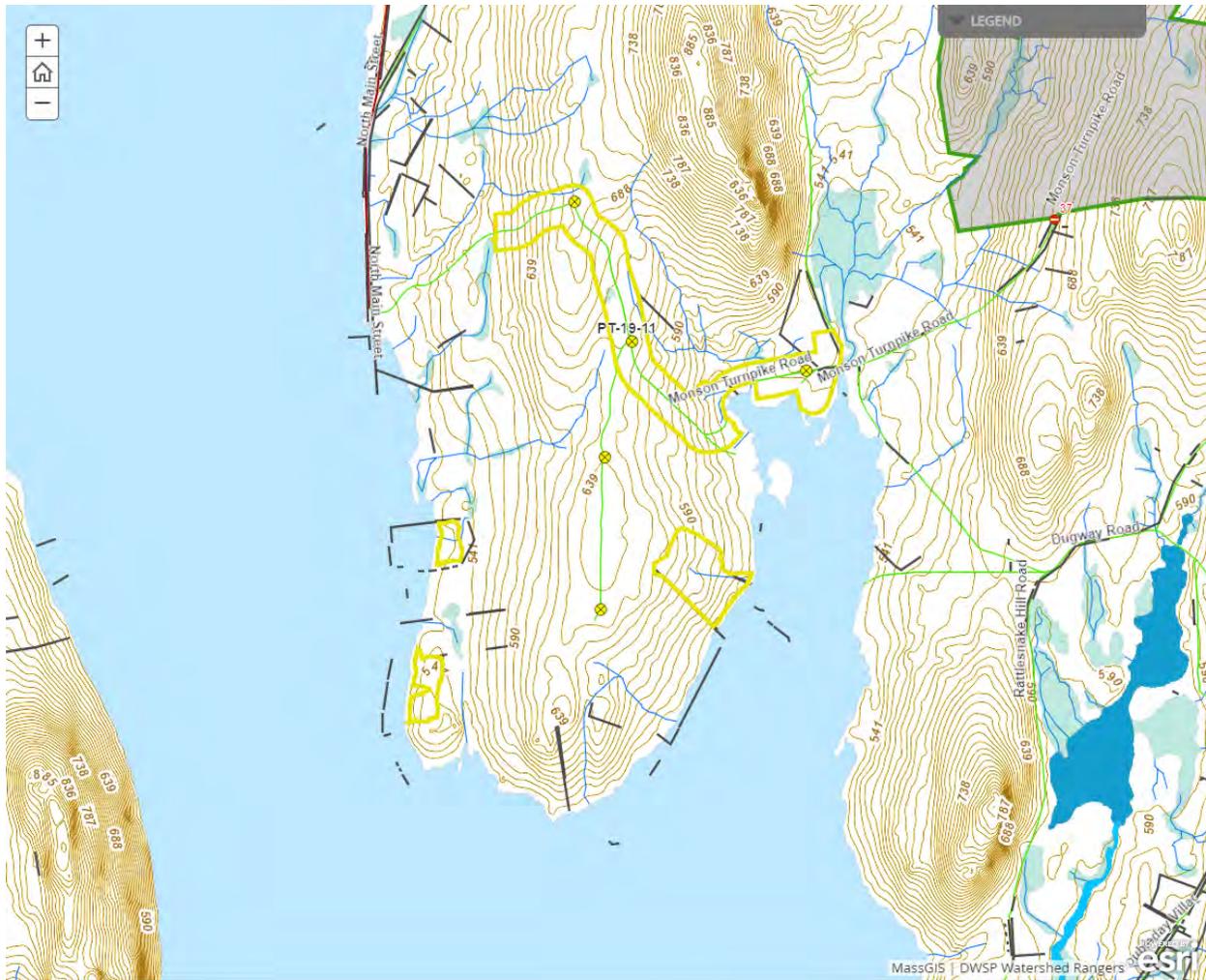
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

### Comments on harvesting limitations:

No harvesting limitations are proposed.



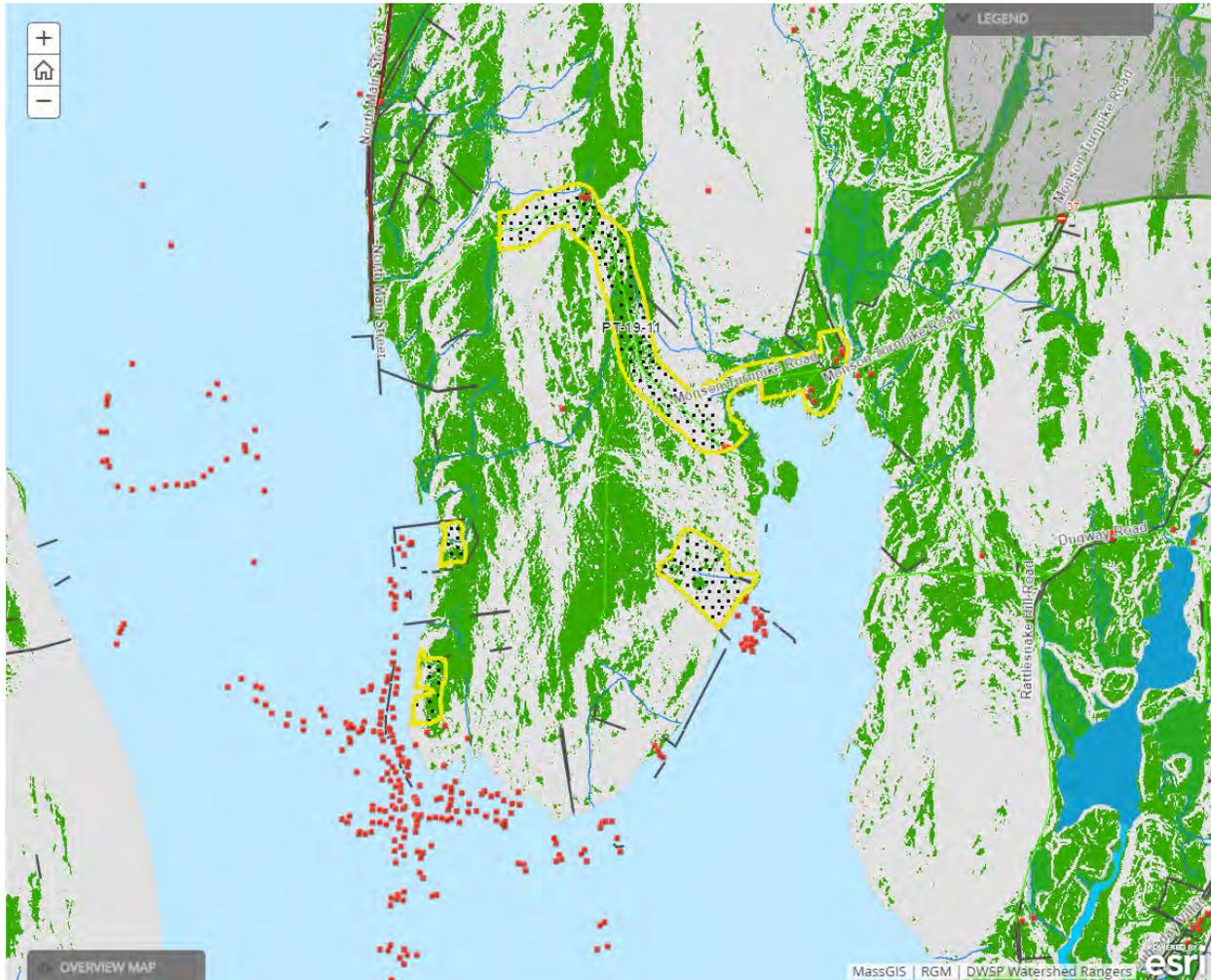
## Cultural Resources

### Comments on Cultural Resources:

There are numerous “thrown” stone walls in this area, including some around the perimeters of the red pine plantations, and many between the plantations. There are numerous house, barn and shed sites around the perimeter of the peninsula and under the water at the edge of the Reservoir, but none of these are within the area to be harvested. There is also a house, barn and garage site near the road in the area with thick invasive plants, and a house site with two nearby cellar holes in the northernmost part of the proposed area.

Existing barways will be used where feasible and harvest layout will protect walls as much as possible. Wells and foundations will be flagged and avoided. If applicable DWSP will follow

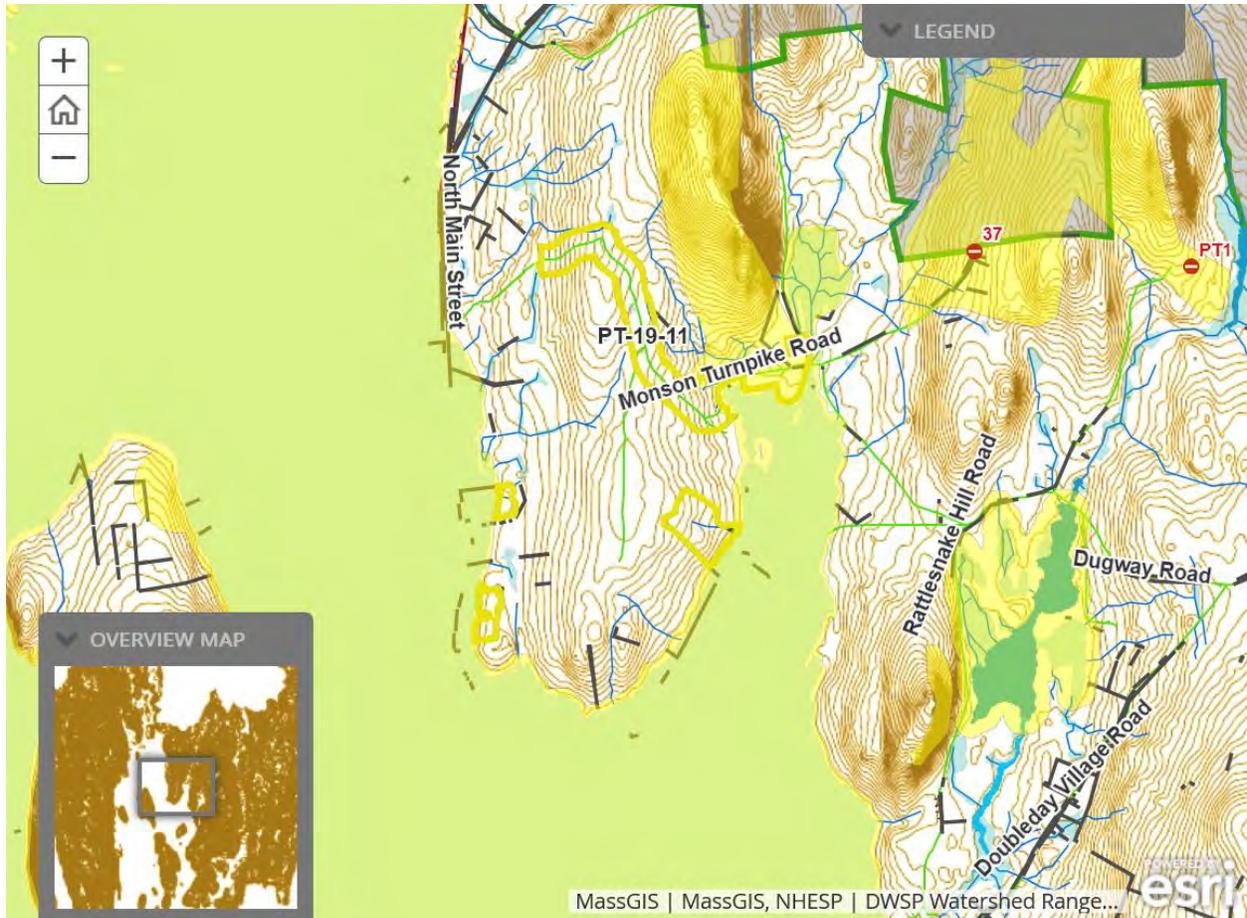
any additional recommendations from DCR's Archaeologist regarding protection of sensitive sites.



## Wildlife Resources & Rare and Endangered Species

### Comments on Rare Species/Habitats:

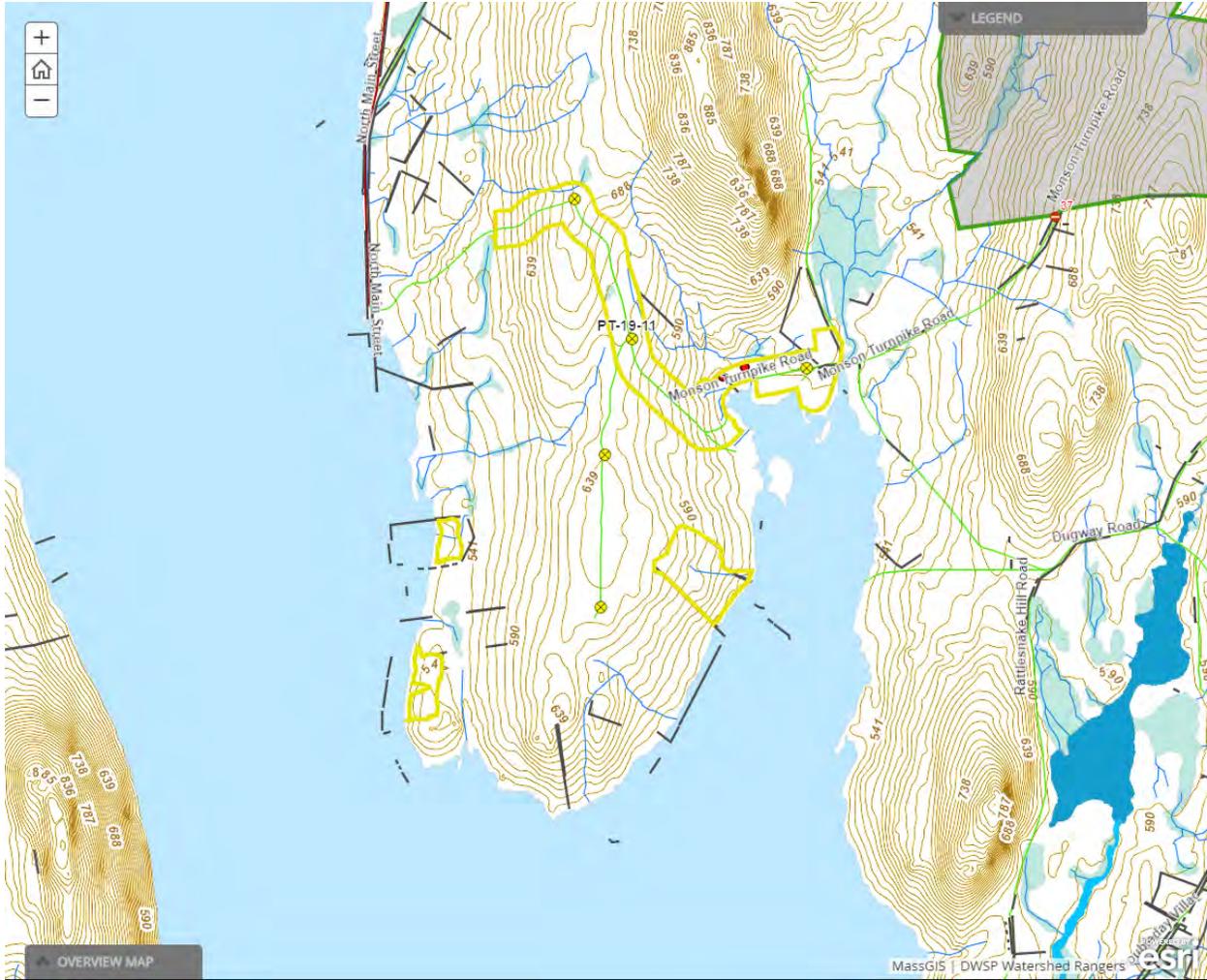
Cavity trees and potential/existing nest trees will be retained if possible. NHESP has determined that certain state-listed sensitive species or habitats may exist within the portions of the proposal area. To protect them from unnecessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed harvest.



## Environmental Quality Engineering

### Comments on EQ Issues:

There are no perennial stream crossings.



## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

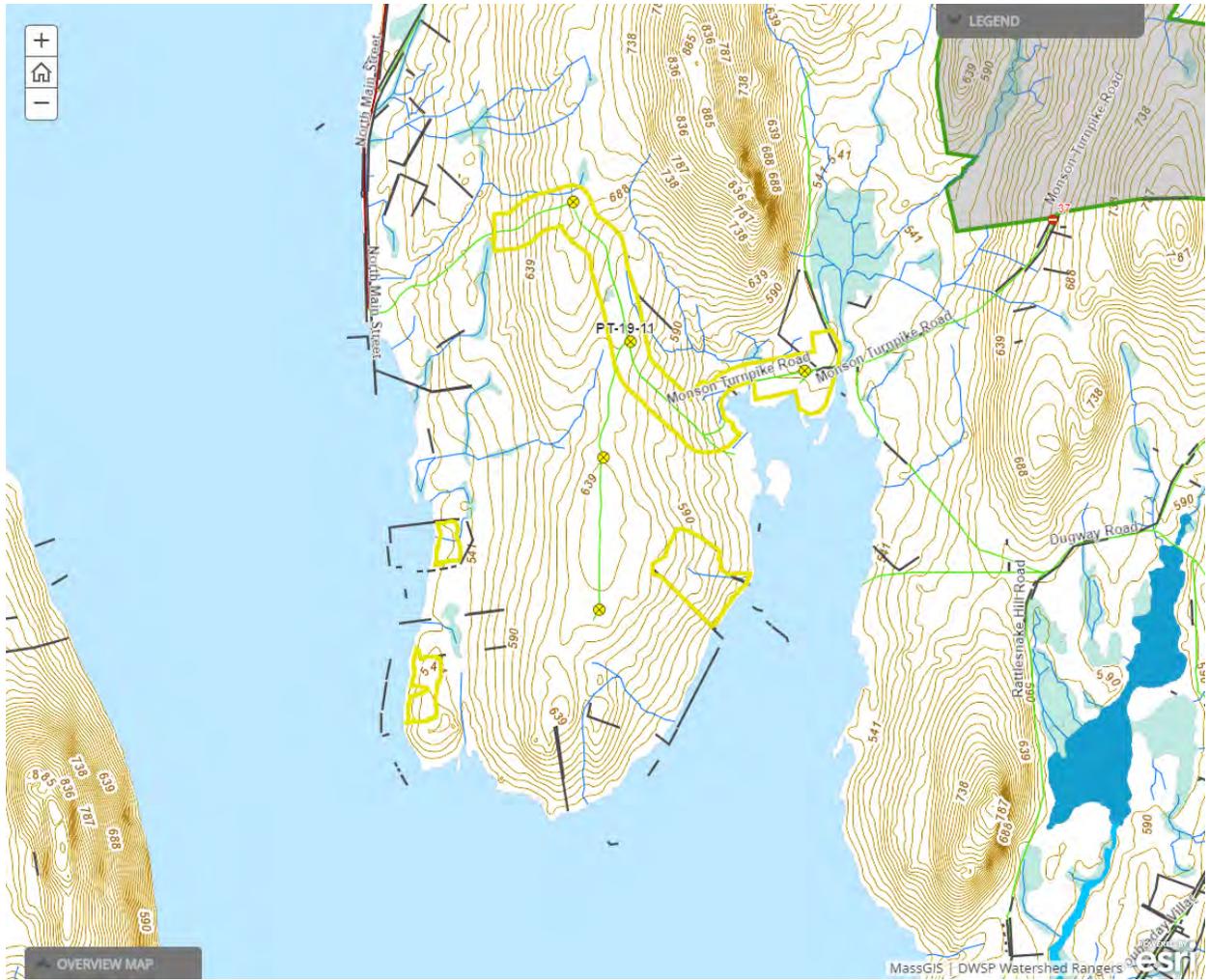
**Culverts needed:** No

**Work needed on permanent bridges:** No

**Beaver issue:** No

**Further comment on access needs:**

None.



DWSP FY 2019 Quabbin and Ware River Forestry Proposals – Master Legend for story maps

**DCR DWSP Gates**

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**Stream Crossings**

---

**Landings**

**Quabbin and Ware River Road Infrastructure Inventory (Public View)**

Purpose

- Bridge
- Culvert - Stream
- Drainage culvert

---

**DCR DWSP Trails & Roads**

Type

- Public Road
- Administrative Road
- Forest Road/Trail
- Trail

---

**NHESP Priority Habitats**

---

**NHESP Certified Vernal Pools**

NHESP Certified Vernal Pools

---

**WsPA Towns**

**Vernal Pools**

STATUS

- NHESP certified
- Not a vernal pool
- Potential vernal pool
- DCR verified vernal pool

---

**Streams - Quabbin**

FType

- Stream/River
- Canal/Ditch

**Water Bodies - Quabbin**

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh

---

**Streams - Ware River**

FType

- Stream/River
- Canal/Ditch

**Water Bodies - Ware River**

FType

- Reservoir
- Lake/Pond
- Stream/River
- Swamp/Marsh
- Other

**Cover Types, Filled**

TYPE

- beaver meadow
- black birch/red maple/cherry
- hemlock
- hemlock/hardwood
- oak, mixed
- oak/hardwood
- poplar/gray birch
- red maple
- red oak
- red pine
- red pine/hardwood
- red/white spruce
- shrub swamp
- white pine
- white pine/hardwood
- white pine/hemlock
- white pine/oak
- coniferous wetland
- deciduous wetland
- mixed wooded wetland
- northern hardwoods
- grasses/herbaceous cover
- gravel pit

---

**Cover Types, Outlines**

**Subwatersheds**

**FY19 Subwatersheds**

IDNumb

- 02
- 10
- 13
- 19
- 28
- 38
- 40
- 41
- 50
- 53
- 58
- 59
- 73
- 82
- 88
- 90
- 95
- 97
- 8063
- 45
- 8058
- 8059
- 21
- 24
- 25
- 27
- 31
- 44
- 57
- 68
- 74

**FY19 Harvest Proposals**

---

**DCR Boundary**

---

**Stone Walls**

---

**Soil Drainage**

Drainage

- Well Drained Thick
- Moderately Well Drained
- Poorly To Very Poorly Drained
- Excessively Drained
- Well Drained Thin

---

**Extremely Stony Soils**

STONE

- extremely stony

---

**Quabbin and Ware River Cultural Resources Inventory (Public view)**

---

**Quab CR Slope**

QuabbinCRSlope

- 0 - 7
- > 7