

# 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/dcrdwsp2017landmanagementplan.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

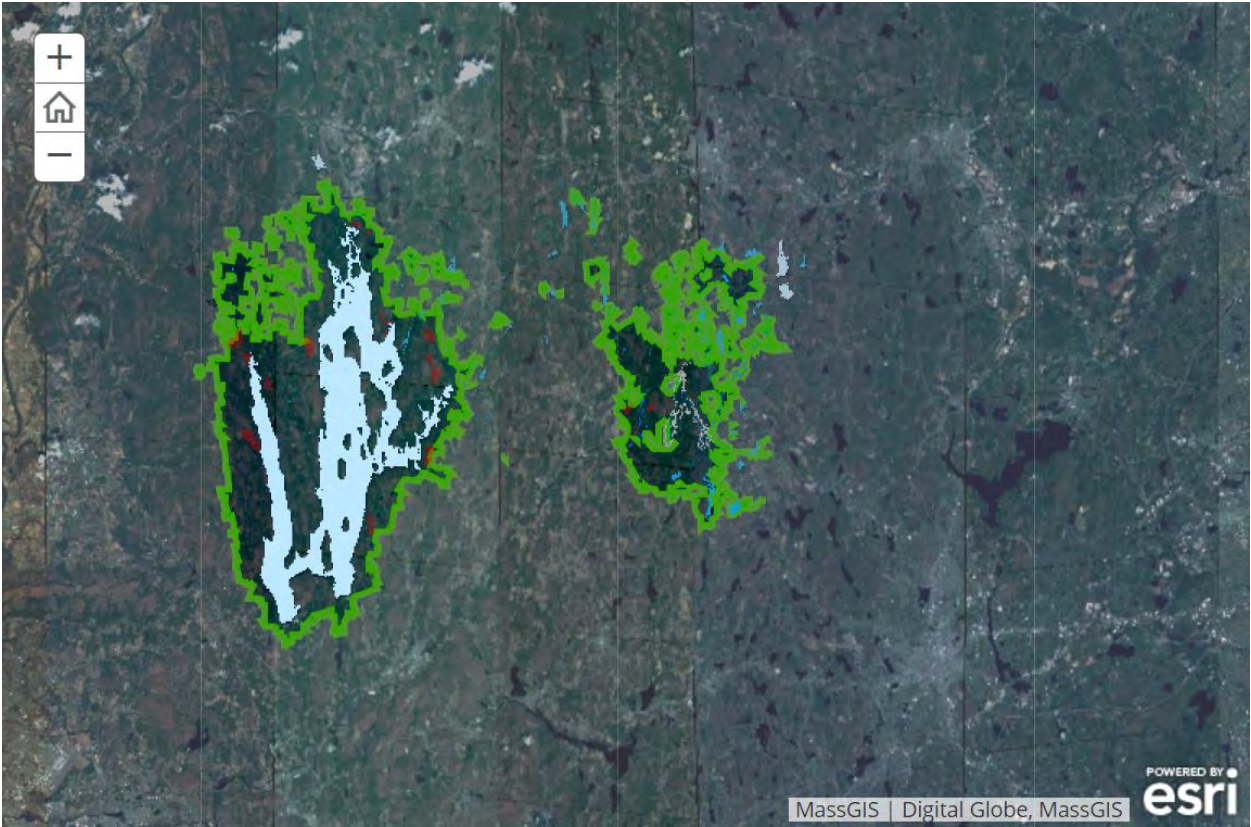
**Comments must be received by the close of business on Monday, July 23rd, 2018.**

If you have any questions, please contact Natural Resource Analyst Brian Keegan at [brian.keegan@state.ma.us](mailto:brian.keegan@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



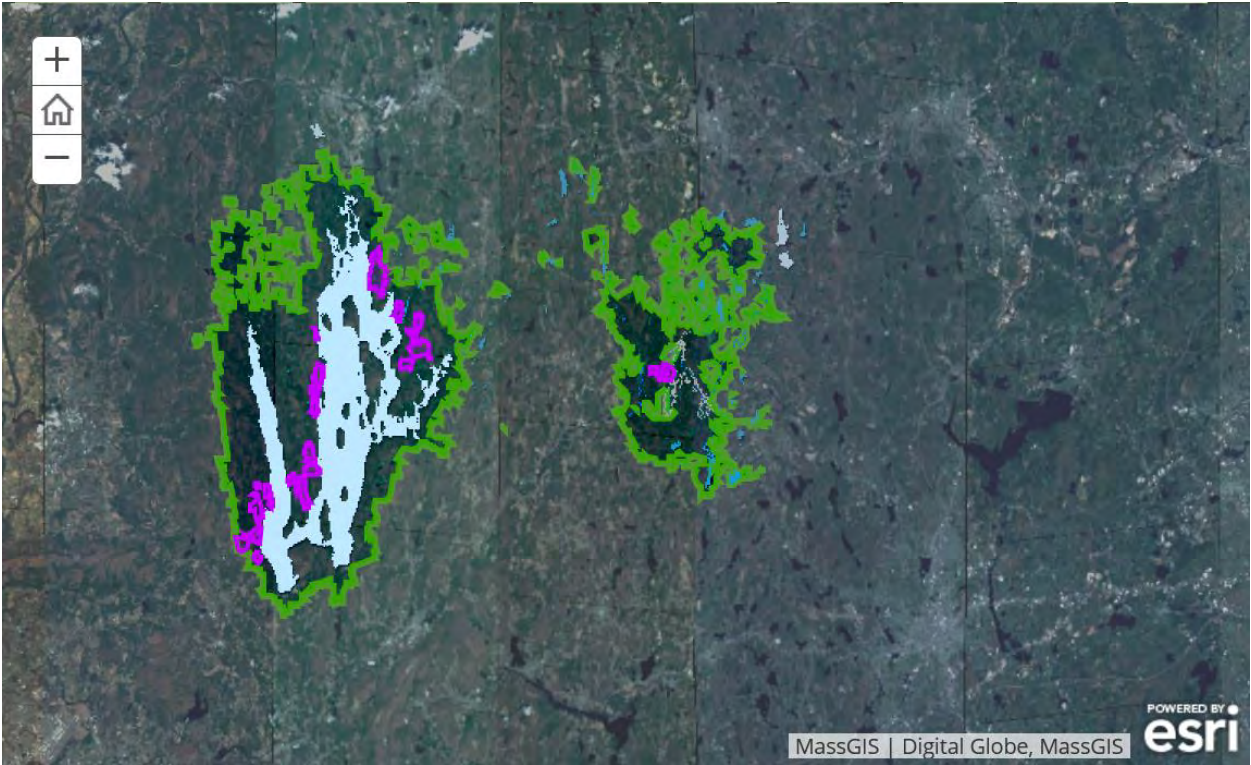
## FY19 Gypsy Moth Related Oak Salvage

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 HA-19-08

**Gravel needed:** Yes

**Landing work needed:** Yes

**Culverts needed:** Yes

**Work needed on permanent bridges:** No

**Beaver issue:** No

## Further comment on access needs:

A landing suitable for a chipping operation needs to be constructed to the south of Gays Hill. Gravel may be needed for parts of the access road as well as for the landing.

The culvert under the unnamed access road is broken in the center and crushed on the east end, and needs to be replaced for use during the harvest. A larger diameter culvert may be desirable to reduce backup of water on the west side. This work may require a Notice of Intent and Request for Determination to the New Salem Conservation Commission.



## General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	Oak/hardwood	31.8
<b>Secondary</b>	Northern red oak	30.5
<b>Secondary</b>	White pine/oak	29.4

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

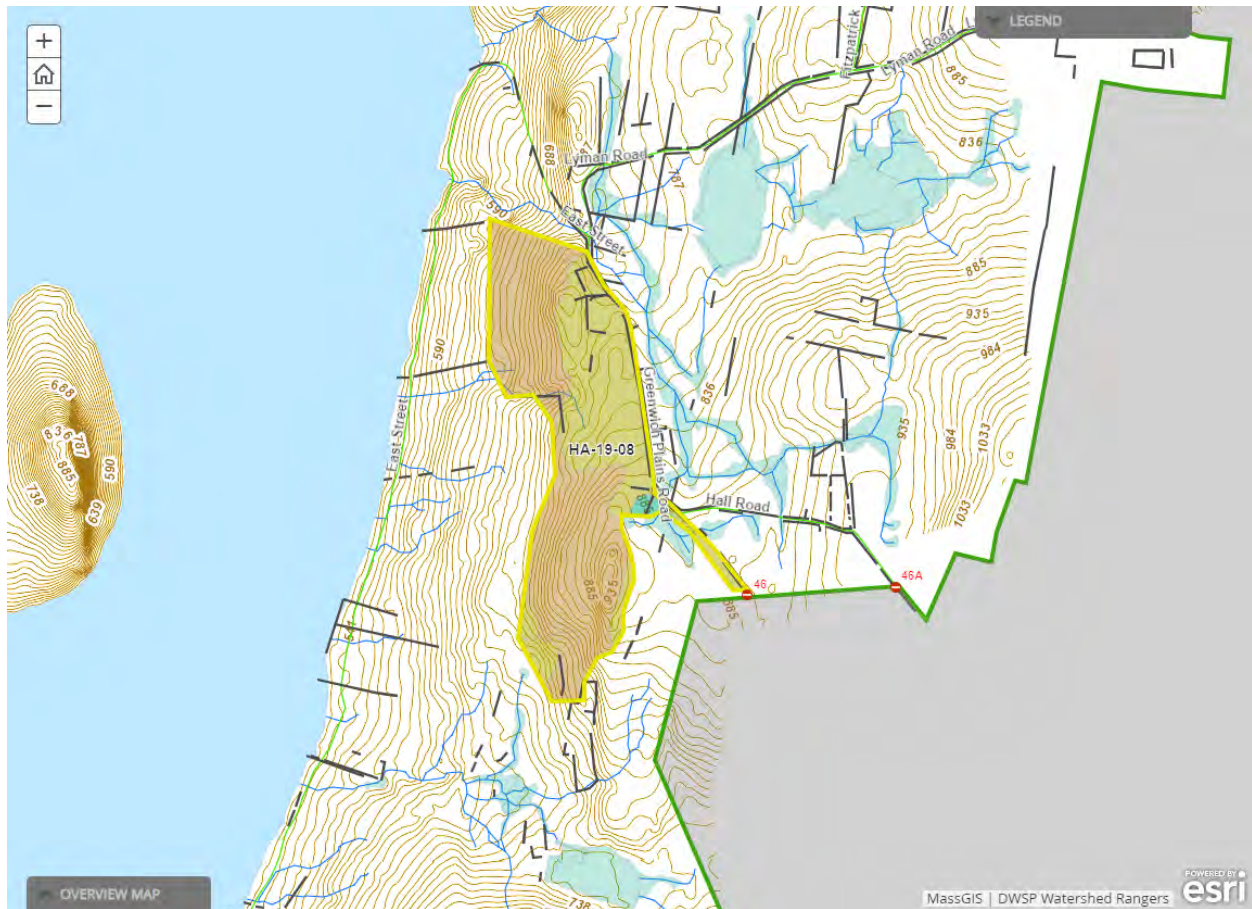
### Description of forest composition/condition:

This is a white pine/mixed-oak lot on a former chestnut site, with concentrations of pine on the northwest slope and west of the existing landing opposite G46A road. The central part of the lot on the flat along G46 road is mixed-oak with occasional overstory pine. The principal species are white pine, and red, black and white oak. Other species present include red maple, hickory, cherry, red pine, hemlock, beech, and yellow, black and white birch. Three separate sales covering most of the lot were conducted during the 1990's. Lot #734 treated the south end of the lot in 1995, lot #704 the north end in 1995, and lot #622A treated the main body of the lot along G46 road in 1993. Each sale established regeneration through prep cutting and small group selections. Residual basal area averages 110 for mixed-oak and 150 for white pine. Oak averages 70'+ in total height and white pine 80'+. A codominant black oak cored for analysis measured 15" and 87 years (2015?) at breast height and showed declining growth for the past 45 years. Overall stand quality and vigor are fair for oak and good for white pine, with occasional superior phenotypes. Regeneration response following past treatment was good, with adequate to high levels of well distributed 10-20 year-old white pine and mixed hardwoods in most locations. Huckleberry is common in the understory above a herbaceous layer of several species of ferns and club mosses.



<b>Drainage Class</b>	<b>%</b>
<b>Excessively Drained</b>	0
<b>Well Drained Thin</b>	0
<b>Well Drained Thick</b>	60
<b>Moderately Well Drained</b>	39
<b>Poorly to Very Poorly Drained</b>	1

Extremely stony glacial tills with surface boulders on steep west slopes. Moderate rating on Web Soil Survey for harvest equipment operability. Hydric inclusion and small forested wetland in center of the lot. Shrub swamp on muck soils opposite G46A road. Soils present are Montauk-Canton association, Montauk-Scituate-Canton association and small area of Bucksport and Wonsqueak mucks.

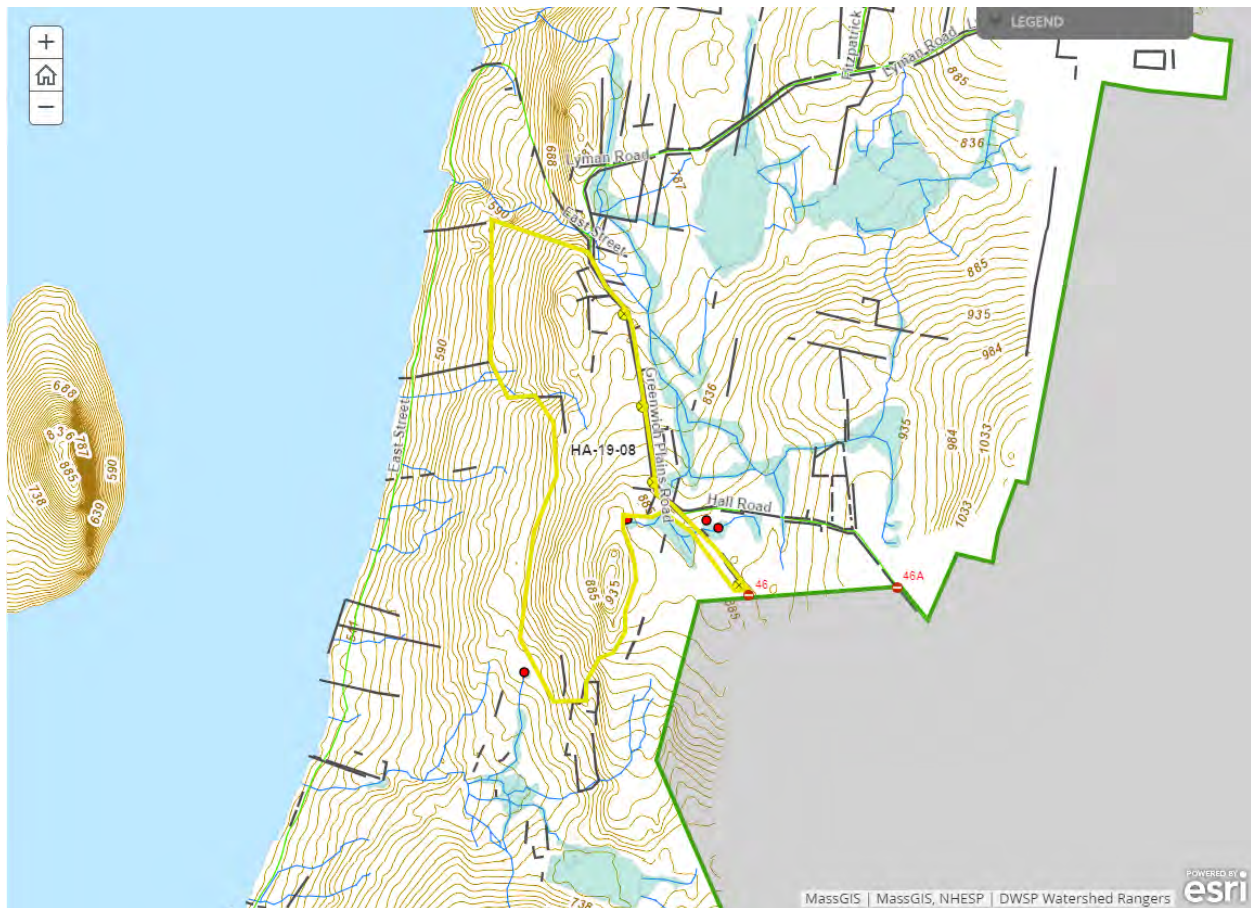


## Wetlands

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

Small saddle-like depression with seep on flat in center of lot; forested, with spicebush and fern understory. The shrub swamp has an inlet and an outlet that are seasonal and culverted under

G46 road. There is a vernal pool just outside of the lot boundary under high forest canopy northwest of the shrub swamp. The DCR verified vernal pool will be appropriately buffered according to DWSP policy and [MA Forestry Best Management Practices](#).



## Silviculture

Acres in Intermediate cuts: **20**

Acres in prep/establishment cuts: **15**

Acres in Regeneration cuts: **35**

Average regen opening size: 1

Maximum regen opening size: 2

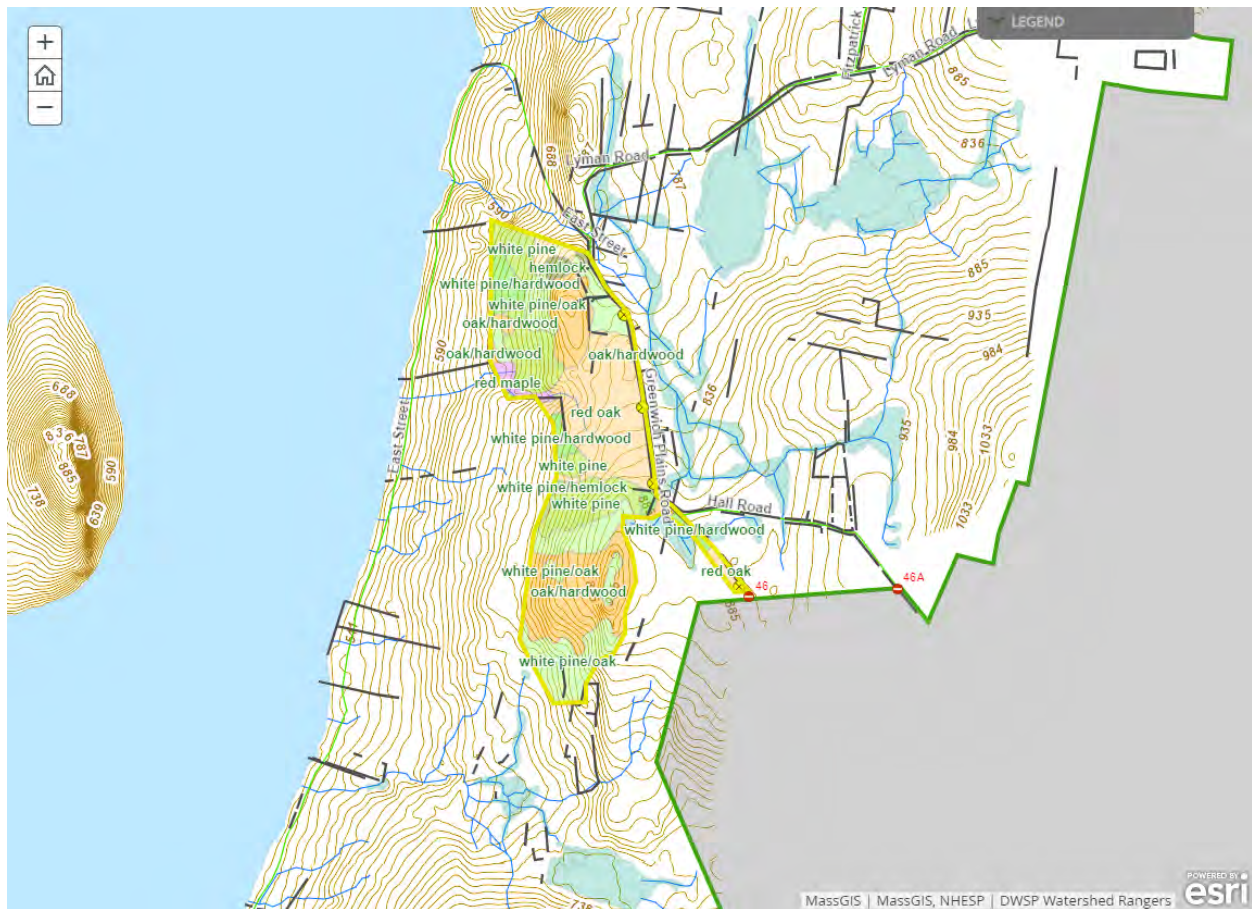
**Description of advance regeneration in proposal area:**

Regeneration response following past treatment was good, with adequate to high levels of well distributed 10-20 year-old white pine and mixed hardwoods (mainly BB, RM) in most locations.

Huckleberry is common in the understory above a herbaceous layer of several species of ferns and club mosses. Light to moderate deer and moose browse present, browse levels not expected to be excessive but may limit diversity.

### General comments on silviculture proposed:

Continue the development of uneven-aged structure started during previous entries by enlarging existing small openings and establishing new group selections from 1/4-2 acres. Trees of poor quality and low vigor will be selected for removal and will determine the placement of group openings. Intermediate cuts along forest transit roads and around opening edges. Sections of pine type that have smaller, better quality evenly spaced stems will have a prep cut. Target the removal of 30%-35% of basal area.

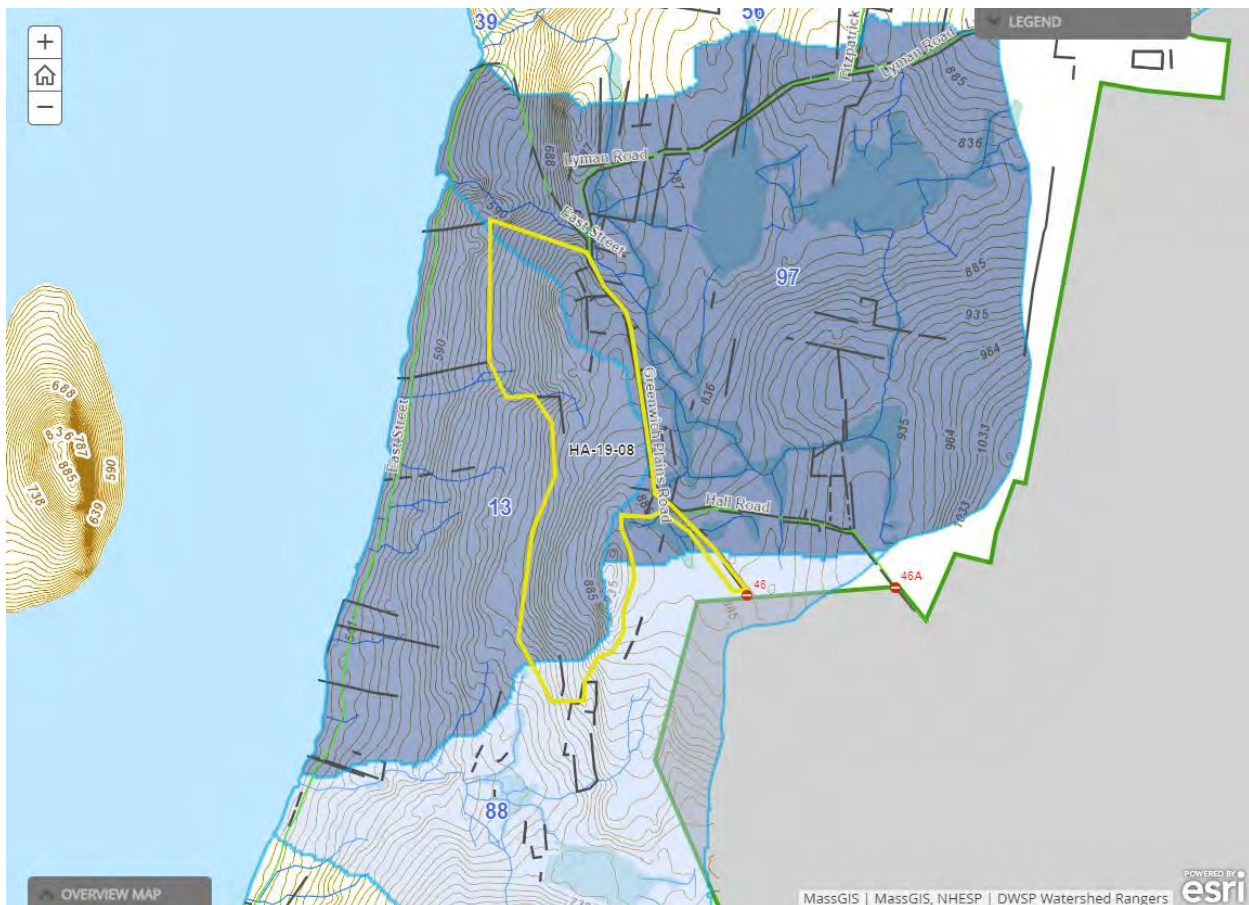


### Subwatershed Analysis

Sub-watershed number	Total DCR-owned Acres	Acres Regenerated on DCR Land in the last 10 years	Acres Remaining for Regenerating	Acres part of this proposal

			Up to the 25% / 10 Year	
13	293	13.4	59.9	91
97	604.4	31.9	119.2	27.7
88	352	25.5	62.5	11.6

Note most of the proposal is in 13 which is sub-shed along eastern shore along East St. which has had numerous harvests over last 20 years but all are fully regenerated and stable now. The proposed 35 acres of regeneration cuts falls below the 25% threshold. Most of the acreage regenerated last 10 years was lot 1038 which will drop out in 2019. Openings in subwatershed 13 are expected to not exceed 23 acres and will be well distributed.



## Harvesting Limitations

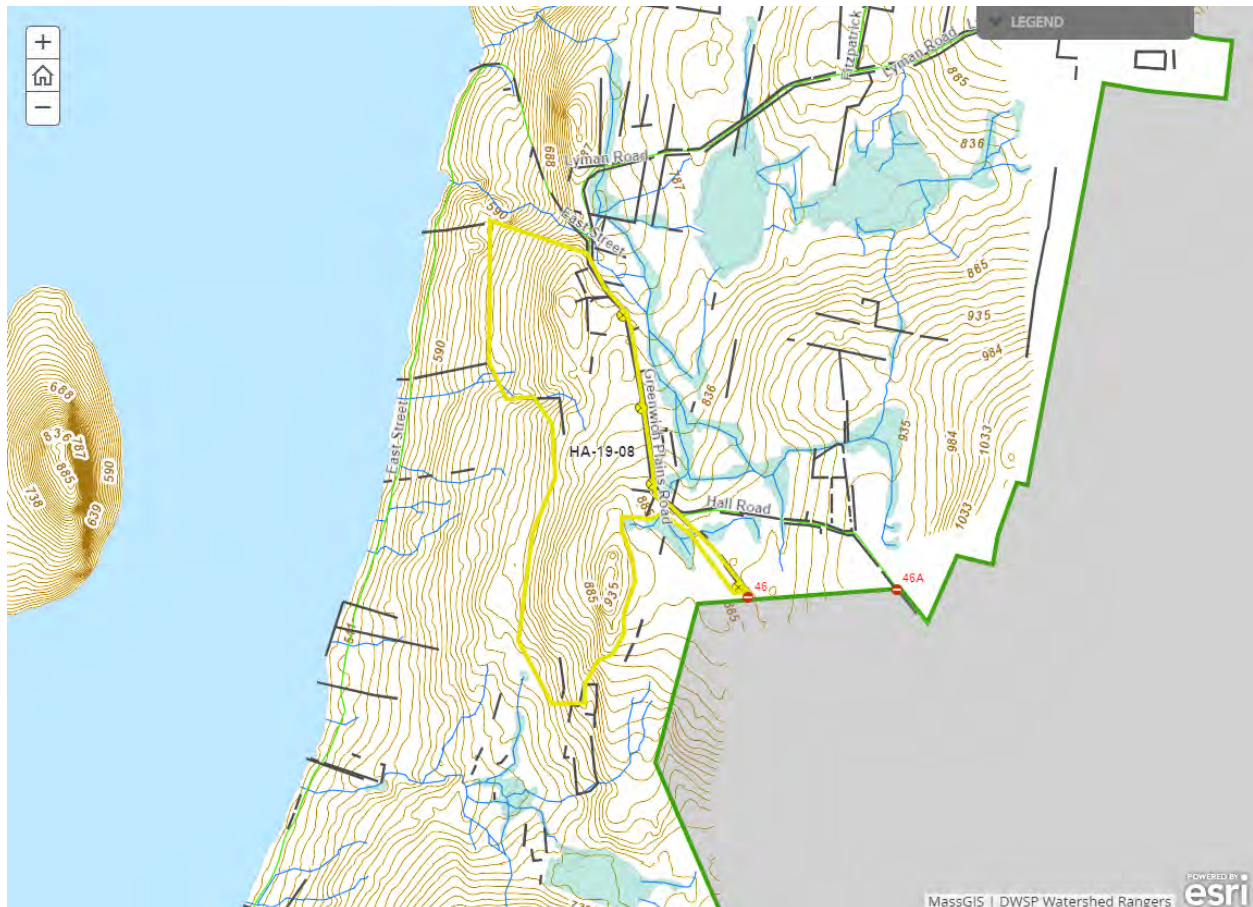
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

### Comments on harvesting limitations:

Existing landings and established forwarder/skid roads allow access throughout, but steep slopes with surface boulders will limit the use of processors. May require a forwarder depending on how openings and skid trails are laid out.



## Cultural Resources

### Comments on Cultural Resources:

This lot contains the foundations of the homes of Orman C Marvell (14.11) and Charles Cornwell (14.1), as well as the foundations of the home, barn and outbuildings of Harry Kurwacz (4.04). All foundations located near harvest operations will be flagged and protected. Stone walls will be flagged and avoided as much as possible. Existing barways will be used where feasible and harvest layout will protect walls as much as possible. If applicable DWSP will follow any additional recommendations from DCR's Archeologist regarding protection of sensitive sites.



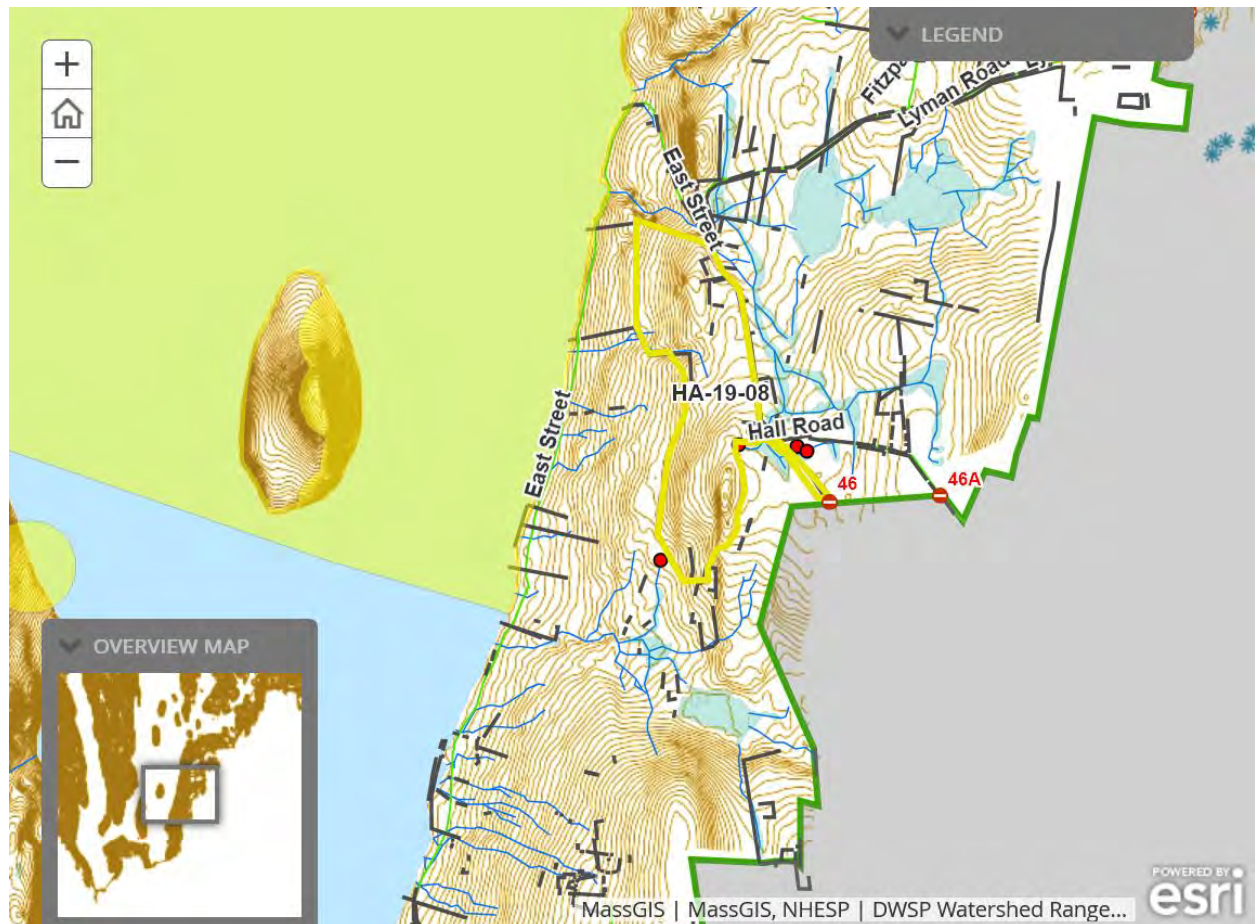
## Wildlife Resources & Rare and Endangered Species

### General Wildlife Comments:

Have seen moose and bear in this compartment. Good regeneration response to previous prep cutting with sustainable level of browse.

**Comments on Rare Species/Habitats:**

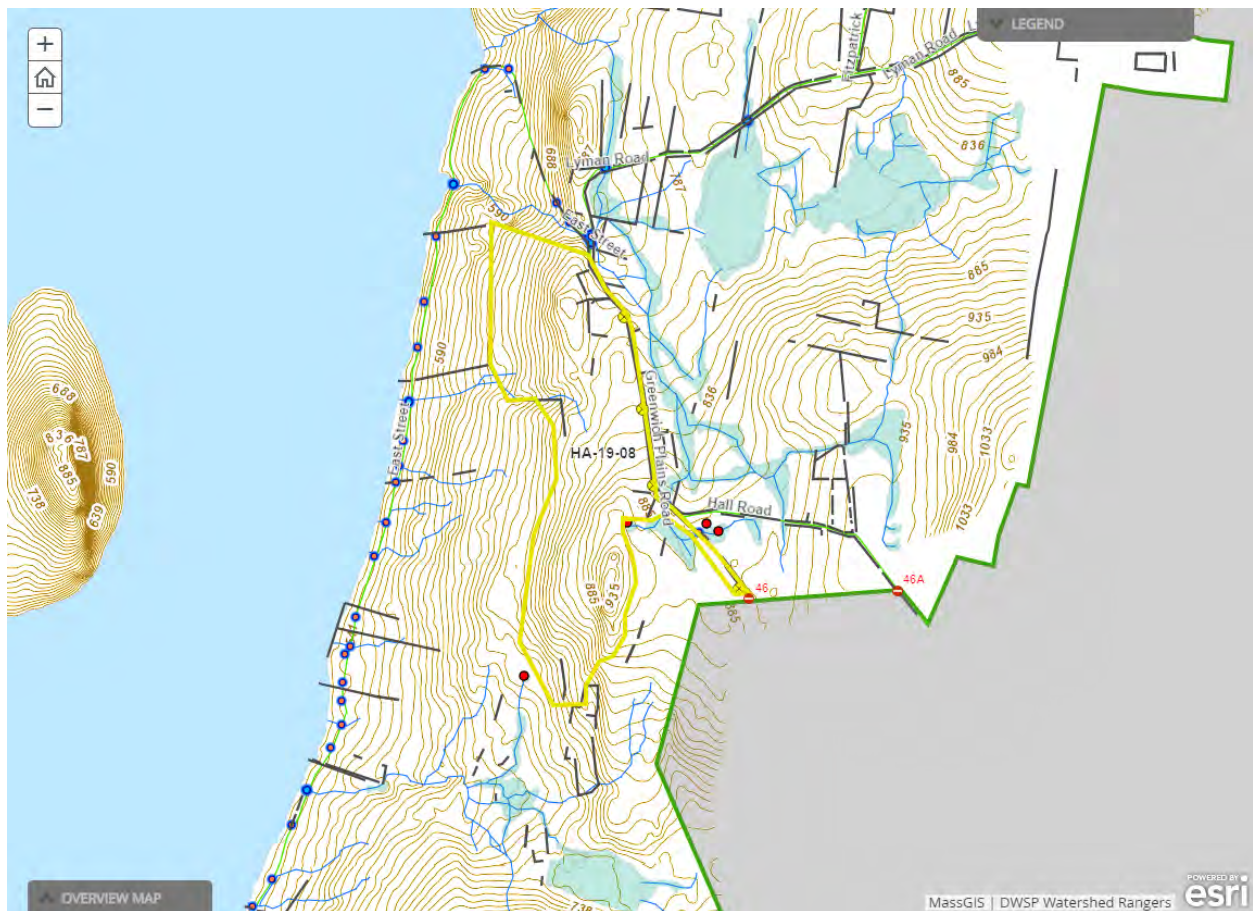
None known.



## Environmental Quality Engineering

**Comments on EQ Issues:**

No stream crossings.



## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** No

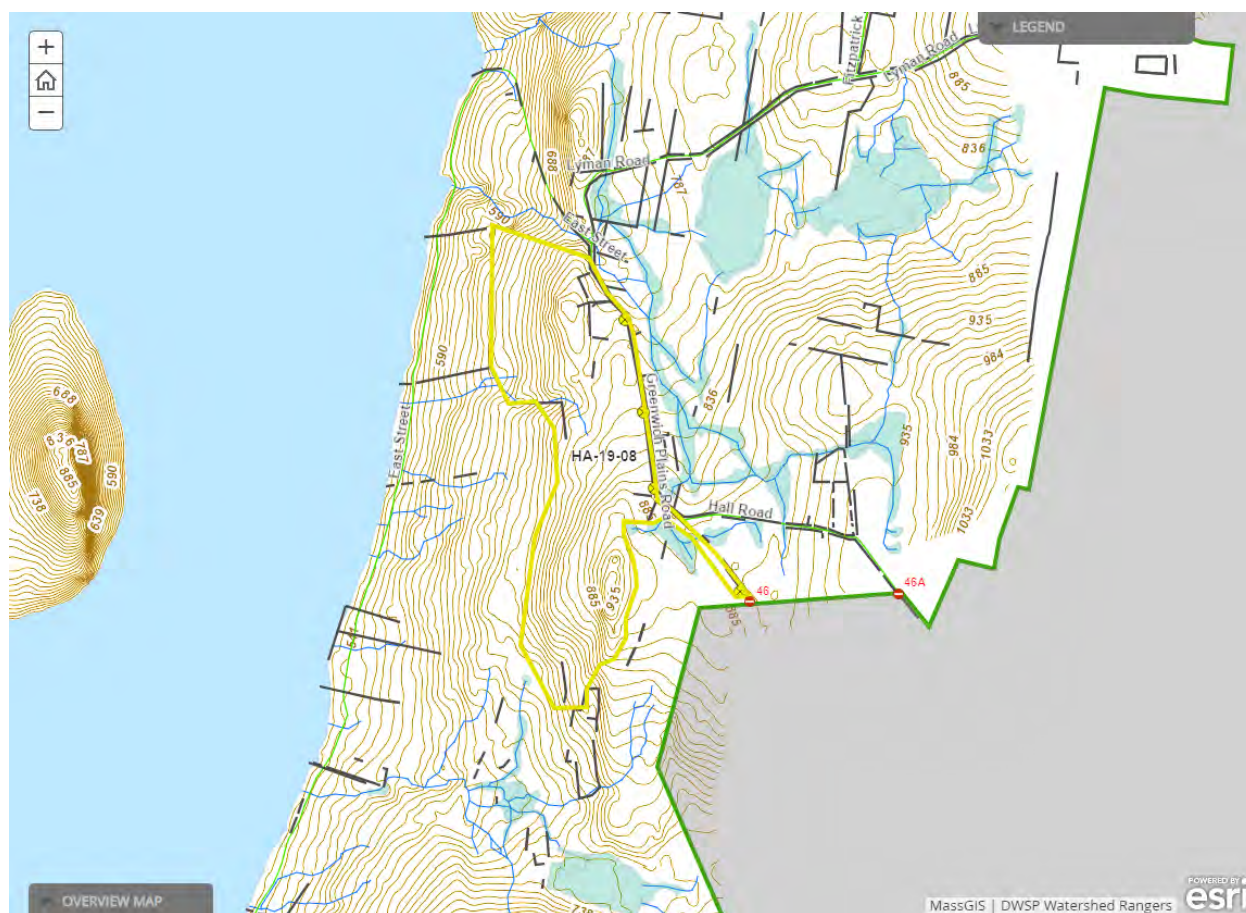
**Culverts needed:** No

**Work needed on permanent bridges:** Yes

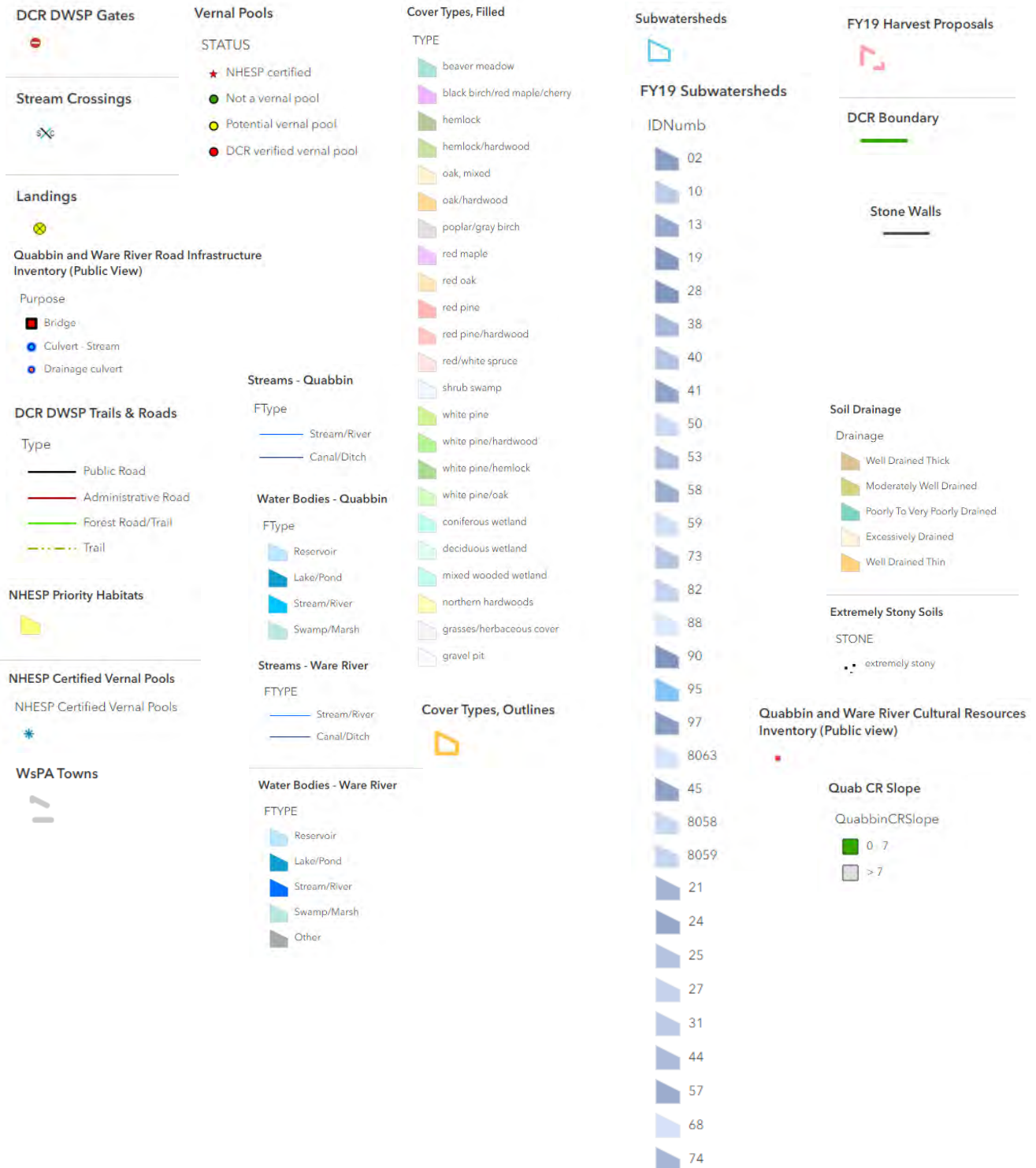
**Beaver issue:** No

**Further comment on access needs:**

No engineering work will be needed prior to the harvest.



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



# Quabbin Harvest Proposal HA-19-12

## Proposal Goals

These stands are currently even-aged with some pockets of regeneration created from previous harvests. Understory has minimal species diversity and some of the previously established regeneration is declining from being overtopped by overstory for too long. Proposed harvest will release the regeneration that is still viable and should establish an understory with a more diverse species composition. The area will then have at least 3 age classes present.

## Proposal Location

This proposal in Hardwick is on the east side of Hell Huddle Rd about 1000' in from gate 43 (fishing area 3).

**Total Acres: 192**

**Previously Reviewed as HA-16-12**



## General Description

	Overstory Type(s)	Acres
<b>Dominant</b>	White pine/hemlock	82
<b>Secondary</b>	White pine/oak	63
<b>Secondary</b>	Oak, mixed - dry site	20

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

**Description of forest composition/condition:**

Previously treated stands of white pine, oak, and hemlock. Five different harvests over sections of the lot last 25 years. These harvests established regeneration on the ground as well as releasing dominants and co-dominants from competition. These stands originated from abandoned cut-over land, hurricane salvage and sprout land at the time of the taking. Parts of the lot were lumber company land and most likely were cut heavily for white pine leaving lower value hardwoods (at the time) which responded to the release. These larger red oaks were aged around 110 to 120 years at the time (1995?). Structure is currently dominated by older age classes, to meet our management goals this should be reduced by about 50%. Lot site is dry and supports oak/pine type very well. Hemlock was being impacted by insects (2015) and still has adelgid and probably scale. There has been a fair amount of hemlock mortality continuing since 2015, and white pine and oaks continue to exert dominance. Hemlock is becoming less of a major stand component. Steep slope (8 acres) and wetland areas (12 acres) will not be operated.

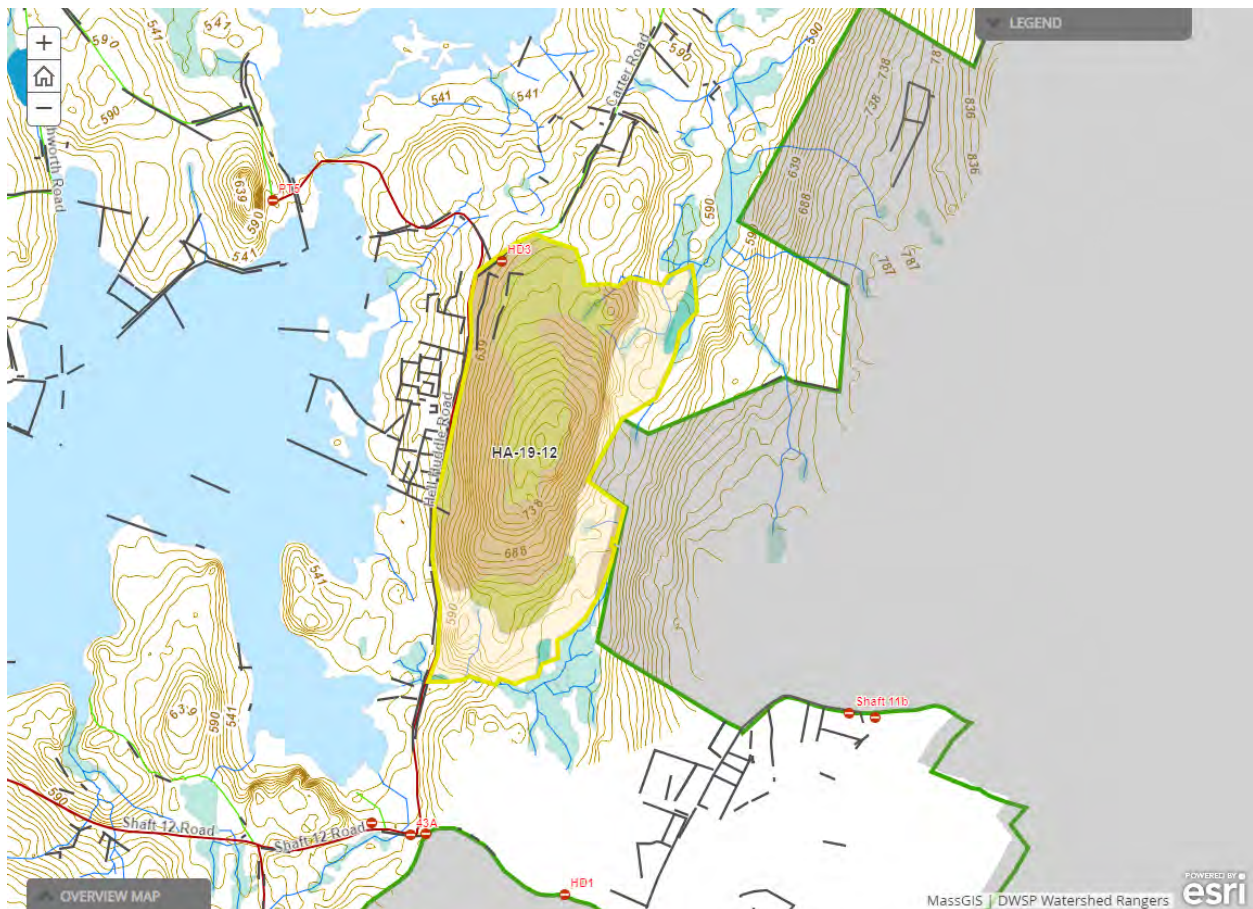


## Soils

Drainage Class	%
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<b>Excessively Drained</b>	27
<b>Well Drained Thin</b>	0
<b>Well Drained Thick</b>	41
<b>Moderately Well Drained</b>	29
<b>Poorly to Very Poorly Drained</b>	2

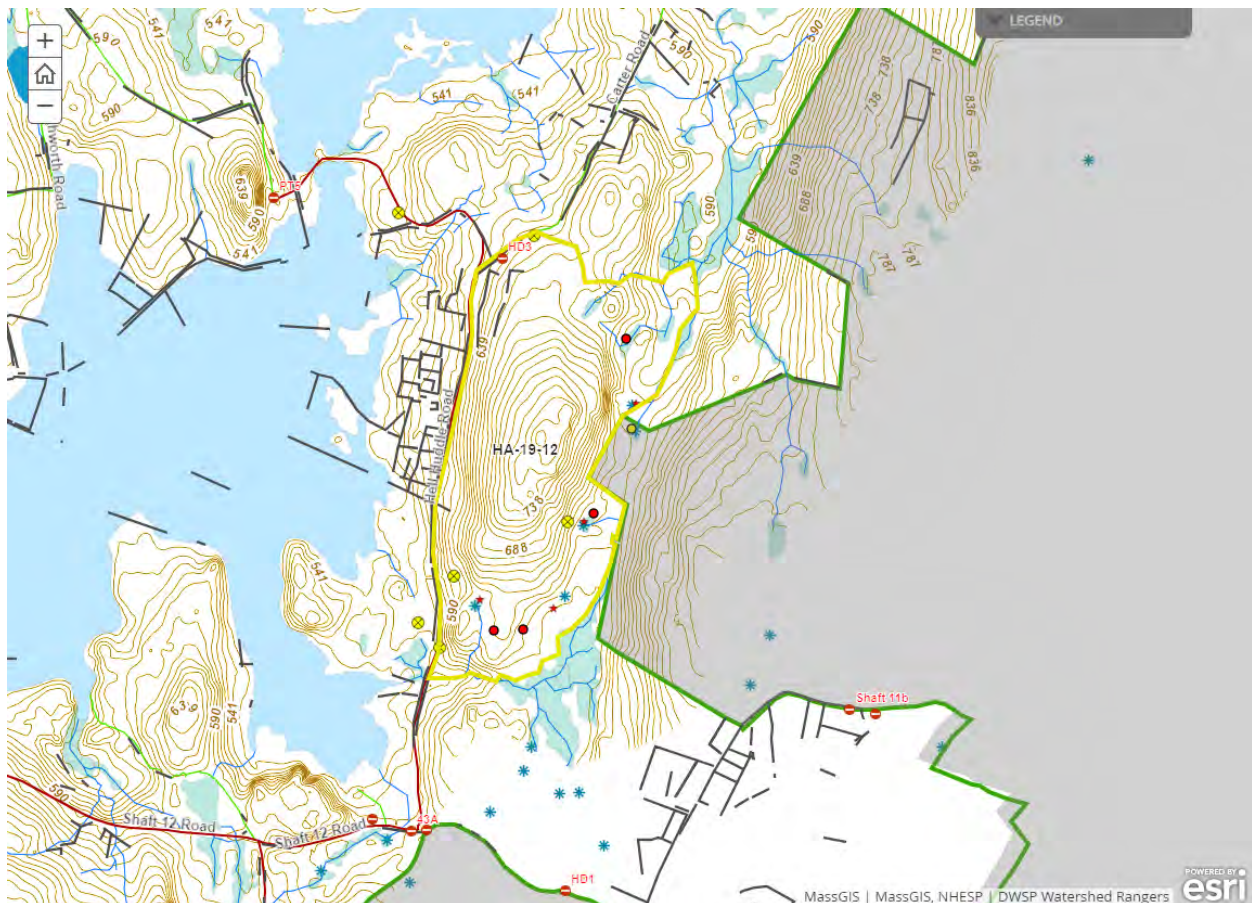
Montauk-Canton and Montauk-Scituate dominate the upper areas of the lot, thin on top deeper lower down at foot of the hill. Stony with high silt content. The low lying areas along streams and near the wetlands are Hinckley-Loamy sands excessively well drained but can be saturated depending on water table levels. The wetlands and pool features may be from Montauk material washing down into these areas over time. There are several outwash terraces in these areas. North side of the hill may have hard pan.



## Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **Yes**
- Seeps present? - **Yes**
- Are stream crossings required? - **Yes**
- Are wetland crossings required? - **Yes**
- Is logging in filter strips planned? - **Yes**
- Is logging in wetlands planned? - **No**

Wetlands along east side drain south into a stream that crosses Hell Huddle ( gate 43 road) along the boundary in low area, saturated soils. North end small wooded wetland drain via channels to beaver pond in that area. Stream on the north end are ephemeral, intermittent. These crossings were bridged in the past. Small esker at edge of lot was accessed by crossing narrow wetland same area. The DCR verified and NHESP certified vernal pools will be appropriately buffered according to DWSP policy and [MA Forestry Best Management Practices](#).



## Silviculture

Acres in Intermediate cuts: **60**

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

Acres in Regeneration cuts: **60**

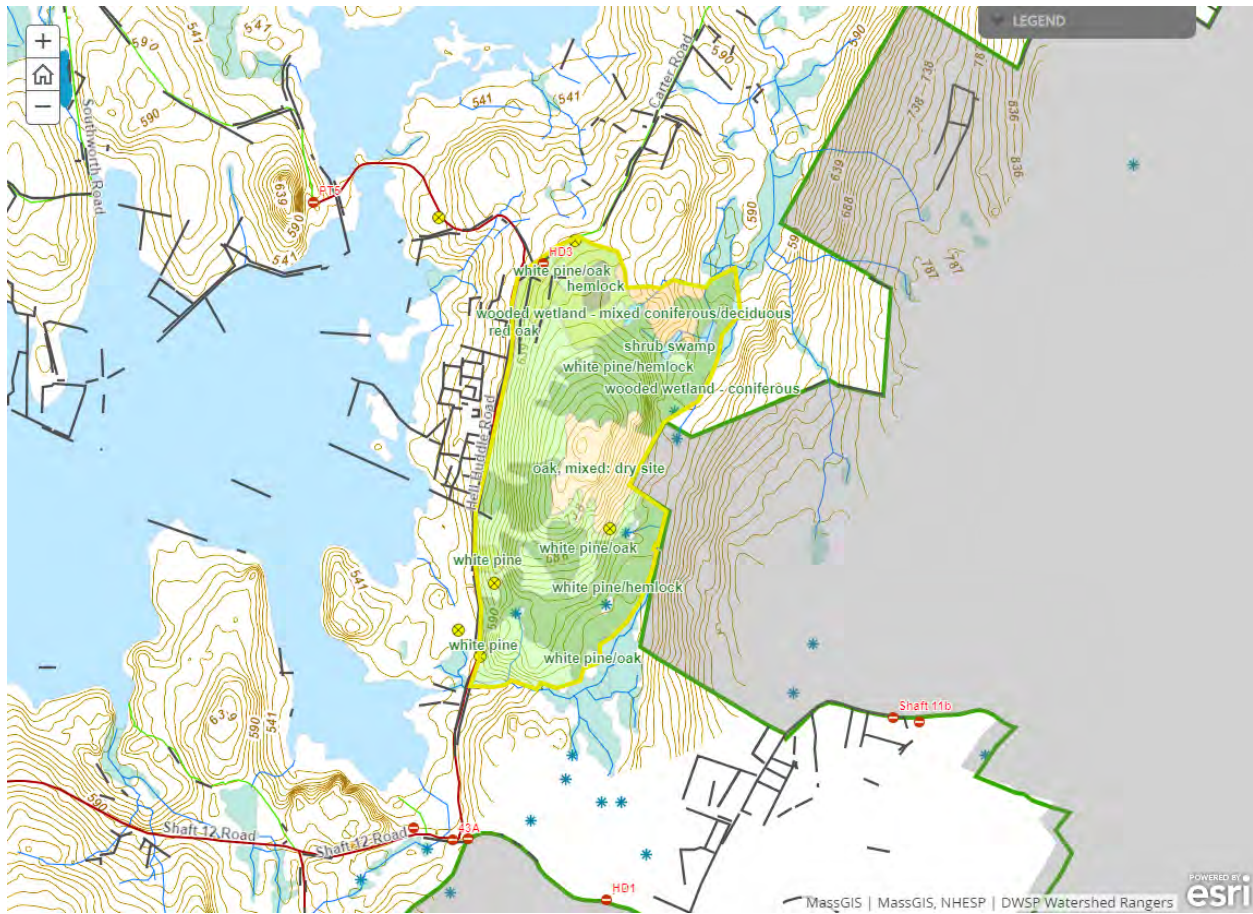
Average regen opening size: **0.75**

Maximum regen opening size: **2**

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

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

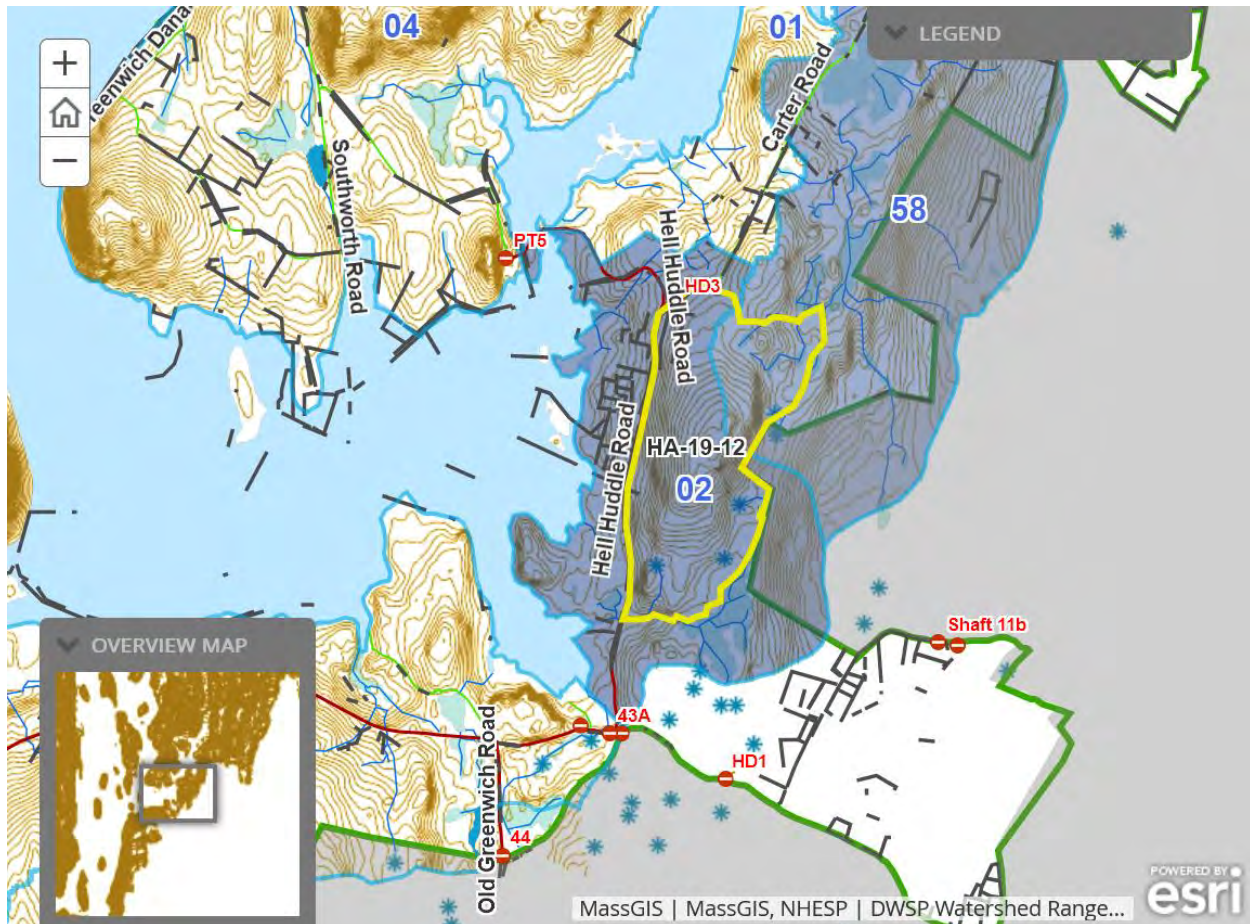
A goal of this entry into lot is to regenerate another 1/3 of the lot, by releasing established advance regeneration, and removing overstory stocking to create gaps for new seedlings. Hemlocks are declining due to wooly adelgid as well as scale, and will be salvaged to create space for other species to seed in, there will be a large volume of dead hemlock, woody debris and snags on this lot. Larger white pine canopy will also be reduced to make space for younger trees, this will reduce potential wind throw volumes from storms. Individuals of all species present will be retained as seed sources. Harvest will be single tree up to 2 acre groups and will likely average about 3/4 acre. Openings will be irregular in shape dependant on terrain and material to be removed. The intermediate cutting will act as a prep cutting as it will open space for incidental regeneration, and create and merge with existing and new gaps, establishing regeneration which will need to be released in future harvests.



## 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
58	624.8	0	156.2	47.6
2	419.7	20	84.9	142.7

It is anticipated that less than 40 acres in subwatershed 2 will be in new openings after this harvest.



## Harvesting Limitations

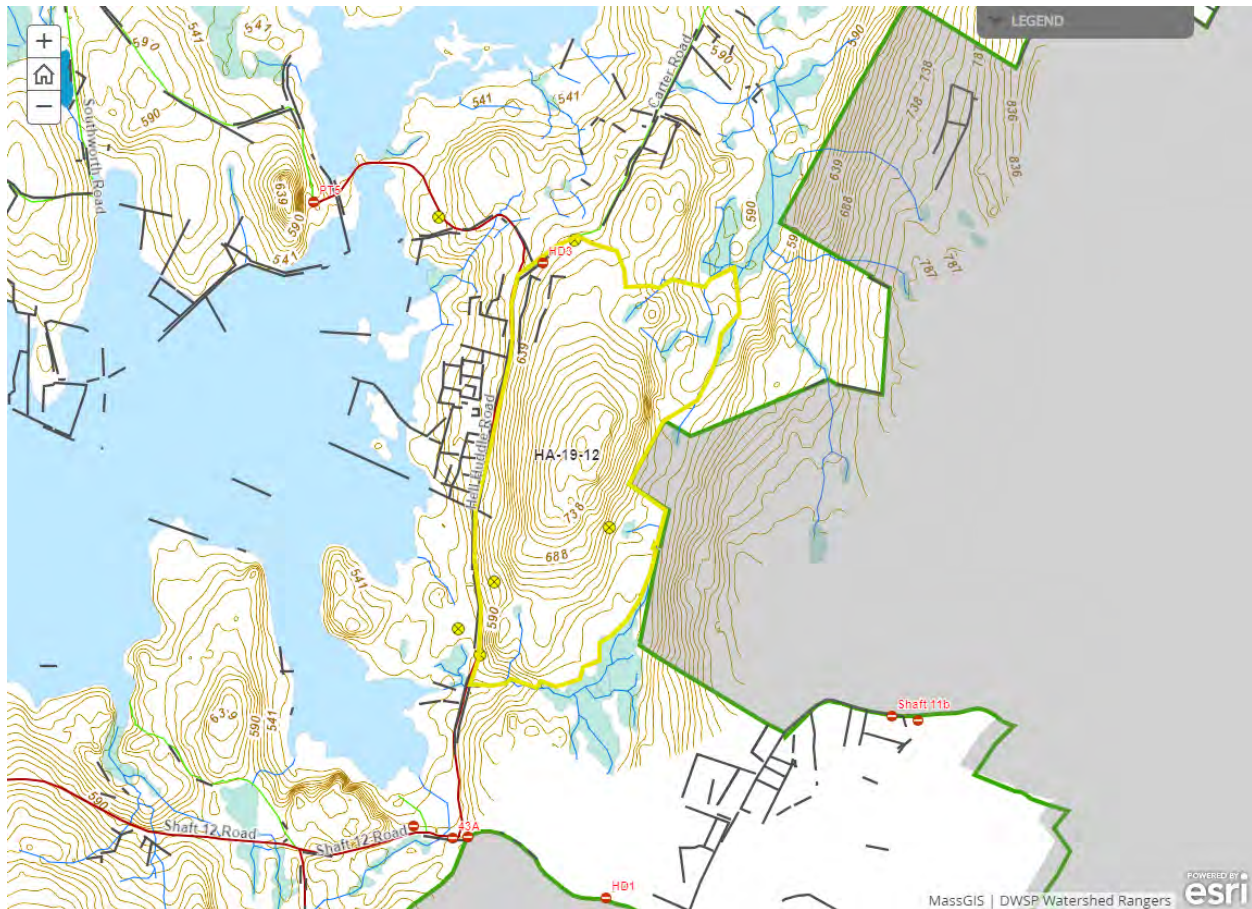
Forwarder required: **Yes**

Feller/processor required: **No**

Steep slopes present: **Yes**

### Comments on harvesting limitations:

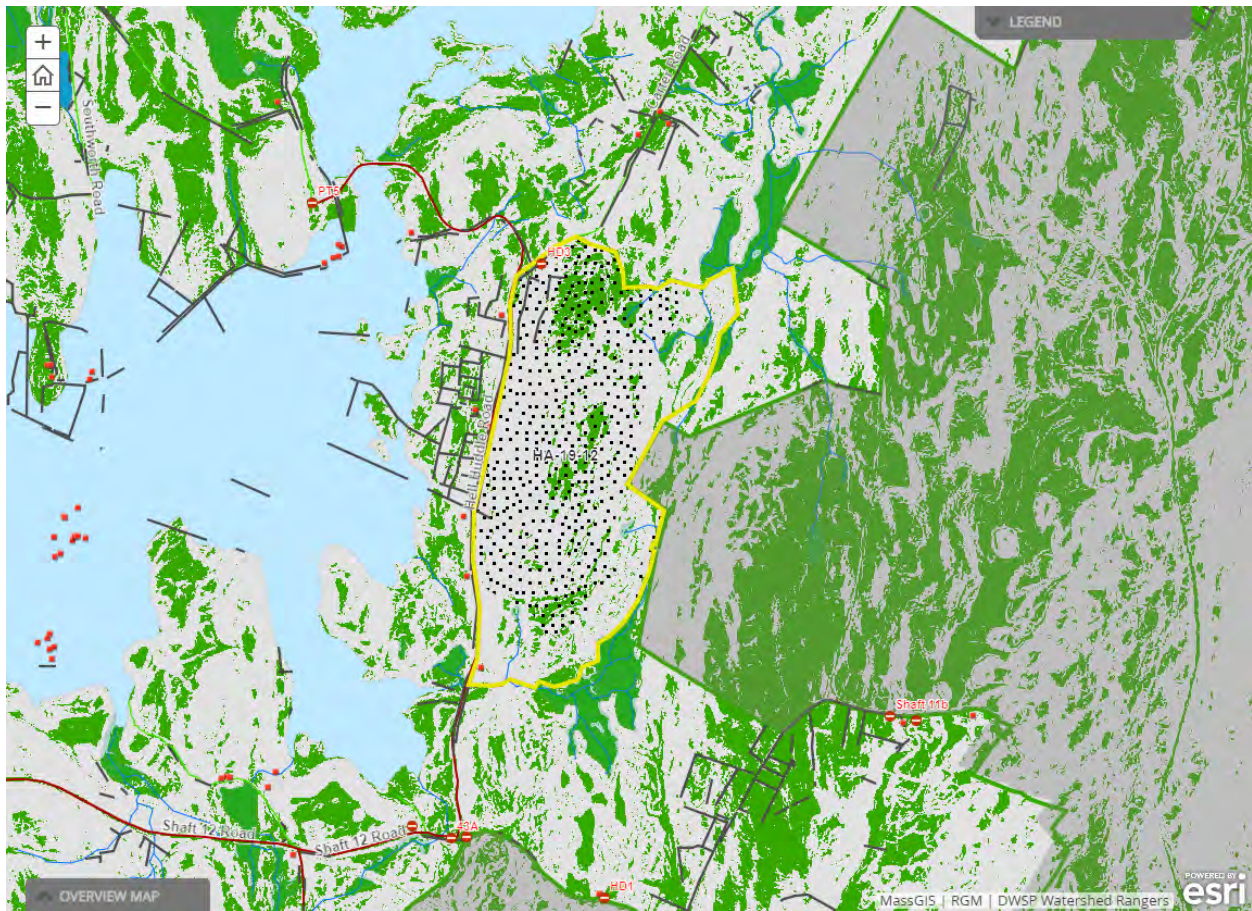
Past harvests have used forwarders to move material to landings along the gate 43 road (paved). Skidders will be allowed for pre-bunching in groups and cabling from filter strips. Steep areas are excluded from harvest. Landings on gate 43 road are not suited for skidders and have limited space. A skidder could be used to access the landing on Carter Road.



## Cultural Resources

### Comments on Cultural Resources:

This lot contains the foundations of the homes of Orman C Marvell (14.11) and Charles Cornwell (14.1), as well as the foundations of the home, barn and outbuildings of Harry Kurwacz (4.04). All foundations located near harvest operations will be flagged and protected. Stone walls will be flagged and avoided as much as possible. Existing barways will be used where feasible and harvest layout will protect walls as much as possible. If applicable DWSP will follow any additional recommendations from DCR's Archeologist regarding protection of sensitive sites.



## Wildlife Resources & Rare and Endangered Species

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

There are five DCR verified vernal pools. Vernal pools on the southeast side in the hemlock are cold sites and have often been frozen when the southern pond was open and a lot of singing going on. The wooded wetland in the northeast corner had beaver present when last logged and they dammed and flooded the skid road and raised the water level of the wetland which has caused many of the trees to die and blow over. This used to be a very dark, shaded wetland. There are now many Calla lilies present.

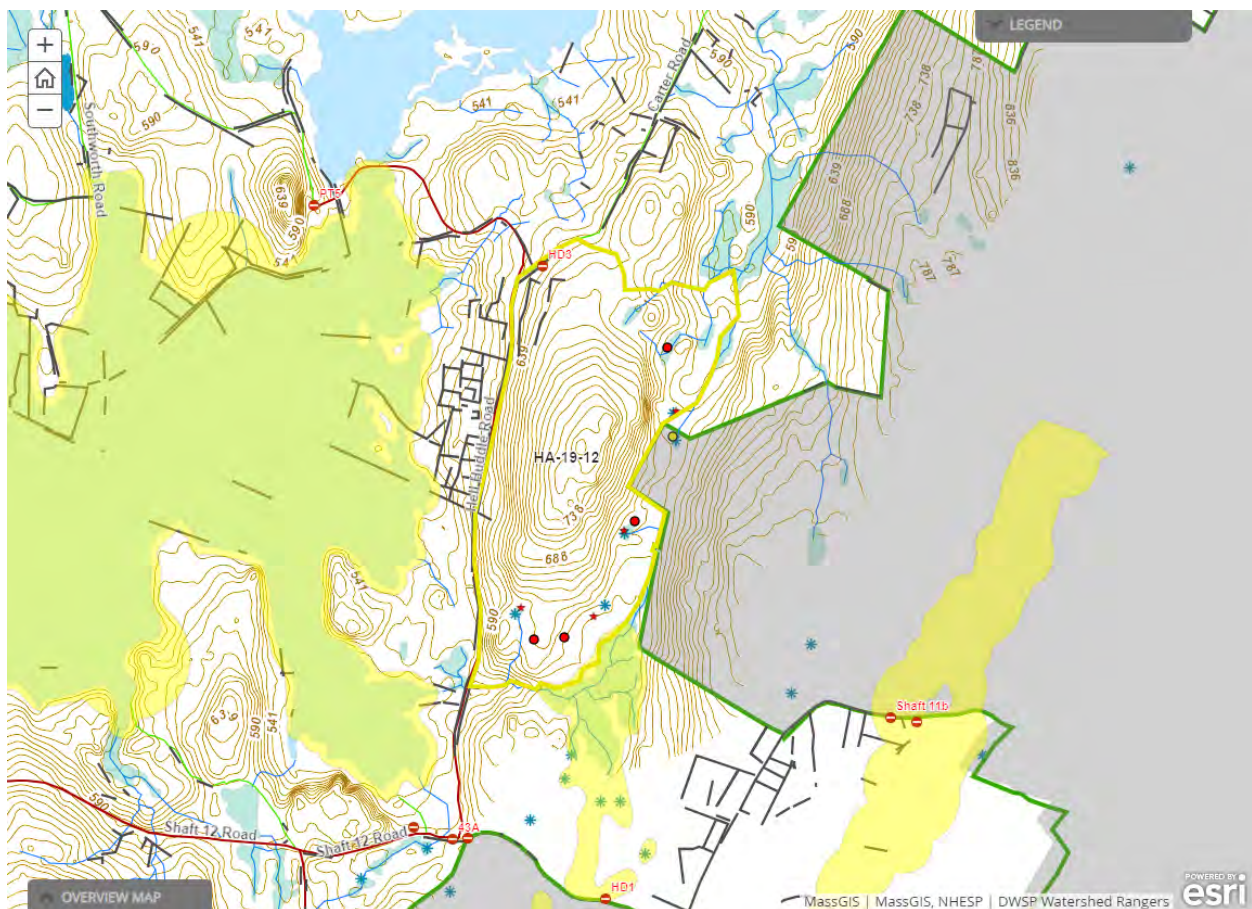
### General Wildlife Comments:

Crows have been seen and heard nesting in pines middle of the lot top of hill, Goshawk used lot to northwest of Carter Road. Otters seen in ponds and tracks in snow. Hemlock woolly adelgid is present and doing a job on the hemlocks, there will be a lot of snags and coarse woody debris on the lot. Also bear, bobcat, coyotes, and black racers have been seen here on past occasions.

The sand pit landing west of Hell Huddle, at the far end of the pit near the reservoir, was used by turtles nesting when it was kept clear of vegetation in the past.(As per proposal HA-16-12)

### Comments on Rare Species/Habitats:

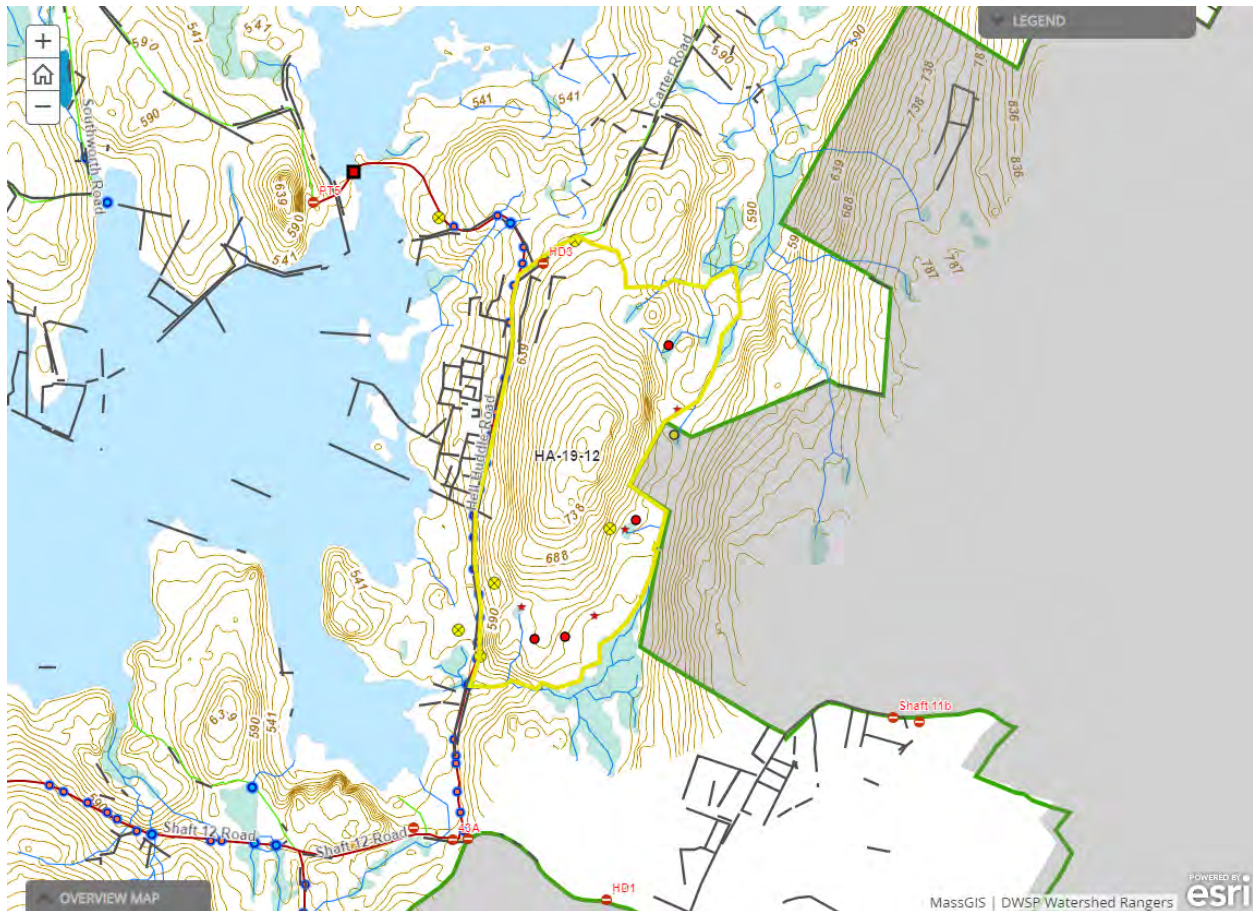
Cavity trees and potential/existing nest trees will be retained if possible. NHESP has determined that certain state-listed sensitive species or habitats may exist within the northern section of the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected 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 harvest.



## Environmental Quality Engineering

### Comments on EQ Issues:

Small stream crossings on north end were bridged during past harvests. They drain small wetlands as shown. Western one should be able to be avoided this time. Both typically mostly dry up during dry spells. East side by ponds the water table varies with beaver activity.



## Forest Access Engineering

**Gravel needed:** No

**Landing work needed:** Yes

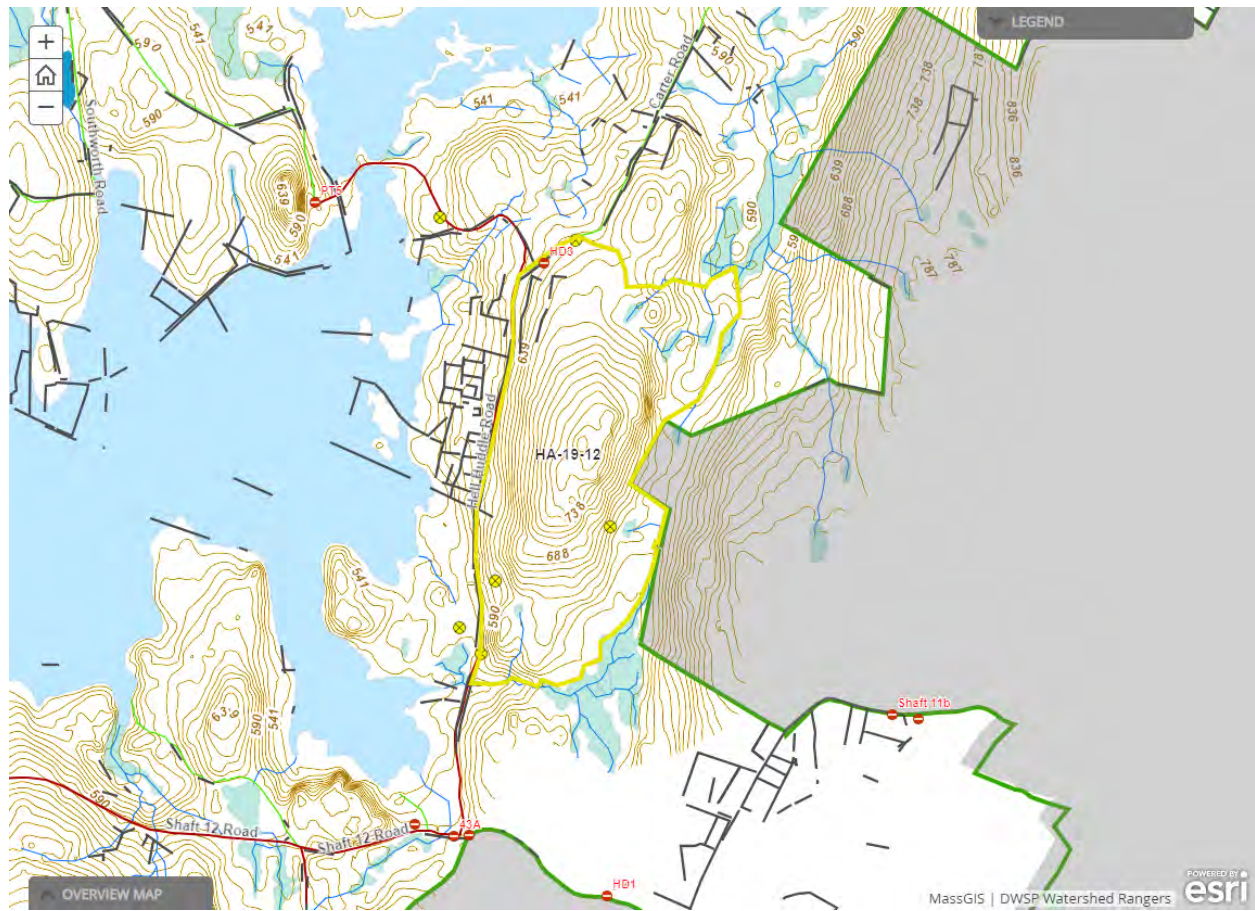
**Culverts needed:** No

**Work needed on permanent bridges:** Yes

**Beaver issue:** No

### Further comment on access needs:

Trailers have been allowed on Hell Huddle in the past and would use old sand pit and intersection with Carter road as landings. Would turn in field before fishing area. Brushing and mowing field and pit would be helpful. SIGNS NEED TO BE POSTED to make sure trucks do not go past field to horseshoe dam. Carter road could use regular maintenance so tri-axes could turn at old landing 1/4 mile up or so.



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

