FY 2019/2020 Oak Salvage

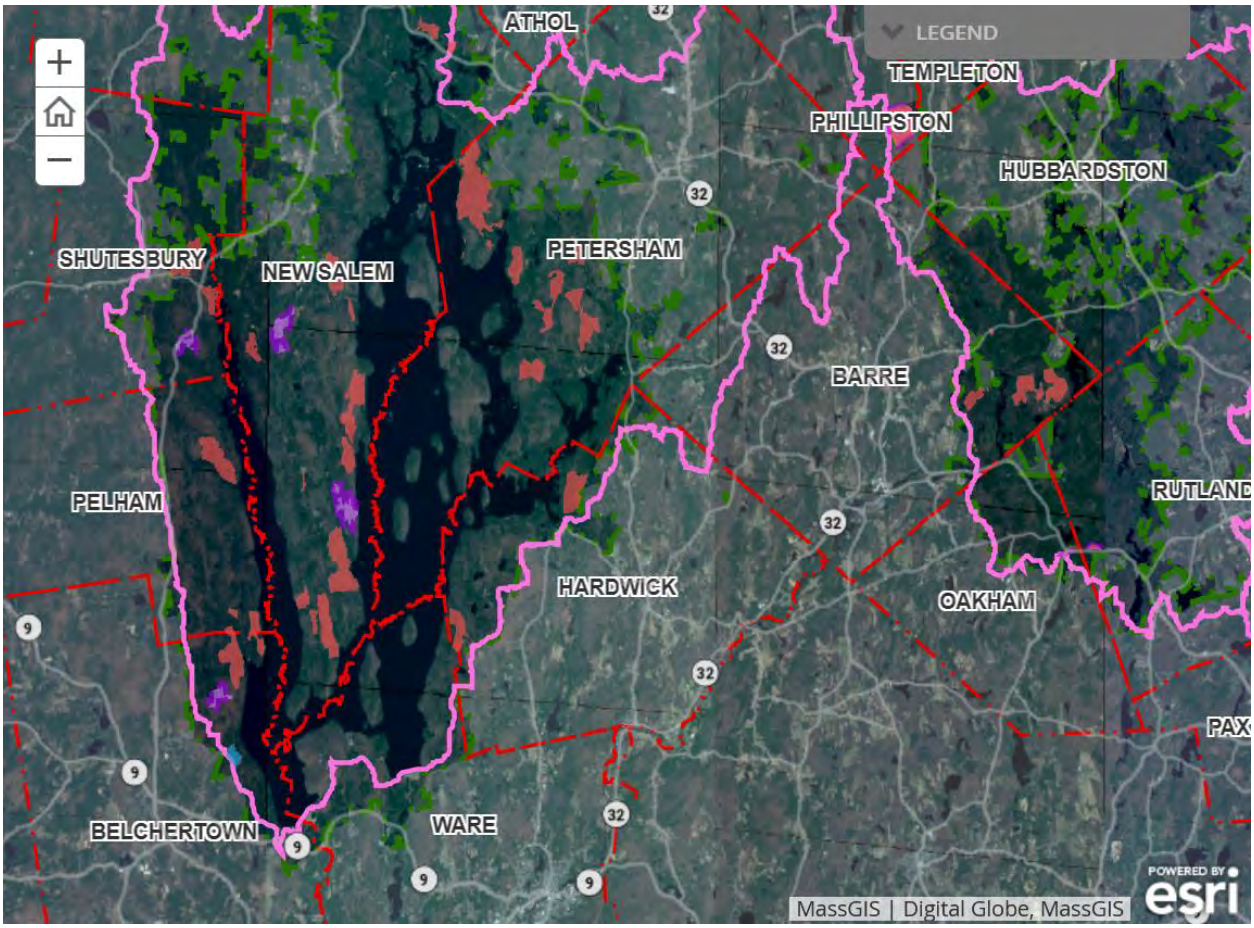
Gypsy Moth Related Oak Salvage

A combination of stresses from a multi-year drought repeated gypsy moth defoliation events, and outbreaks of native boring beetles has resulted in widespread oak mortality throughout the Quabbin and Ware River forests. The degree of damage varies from place to place, but there are unfortunately some significant areas with near complete mortality. While a large amount of the dead oak will remain in place to add to wildlife habitat and forest structural diversity, DWSP intends to temporarily shift its forest management focus to harvesting in areas of significant oak mortality. These areas would have otherwise been harvested through normal practices many years from now.

This map identifies approximate areas of special concern for oak salvage. Beginning in 2018 (for fiscal year 2019) these areas have been identified through a combination of satellite imagery analysis (performed by Pasquarella, Bradley, & Woodcock, 2017), and flown and field surveys 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 is salvaging 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. DWSP will also salvage affected interior roadside trees to maintain access and address public safety concerns.

This map shows areas identified for fiscal year 2019 which have been: identified but as yet untreated (red), contain at least one lot sold to be salvage but so far unharvested (blue), contain at least one lot which has been partially harvested (yellow), and have had the full all potential salvage harvests completed (green). Areas identified as potential areas of extensive oak mortality for fiscal year 2020 are in purple. Click on any polygon for further information.

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


LEGEND
ATHOL
TEMPLETON
PHILLIPSTON
HUBBARDSTON
PETERSHAM
SHUTESBURY
NEW SALEM
BARRE
PELHAM
RUTLAND
HARDWICK
OAKHAM
BELCHERTOWN
WARE
MassGIS | Digital Globe, MassGIS
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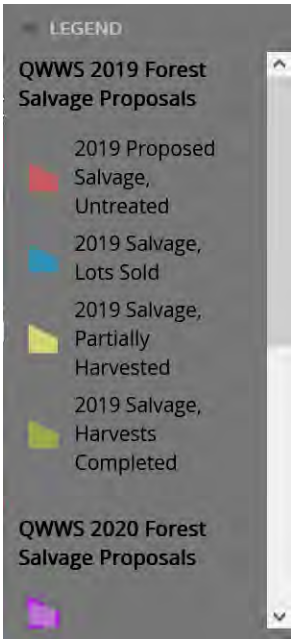

LEGEND
QWWS 2019 Forest Salvage Proposals
2019 Proposed Salvage, Untreated
2019 Salvage, Lots Sold
2019 Salvage, Partially Harvested
2019 Salvage, Harvests Completed
QWWS 2020 Forest Salvage Proposals

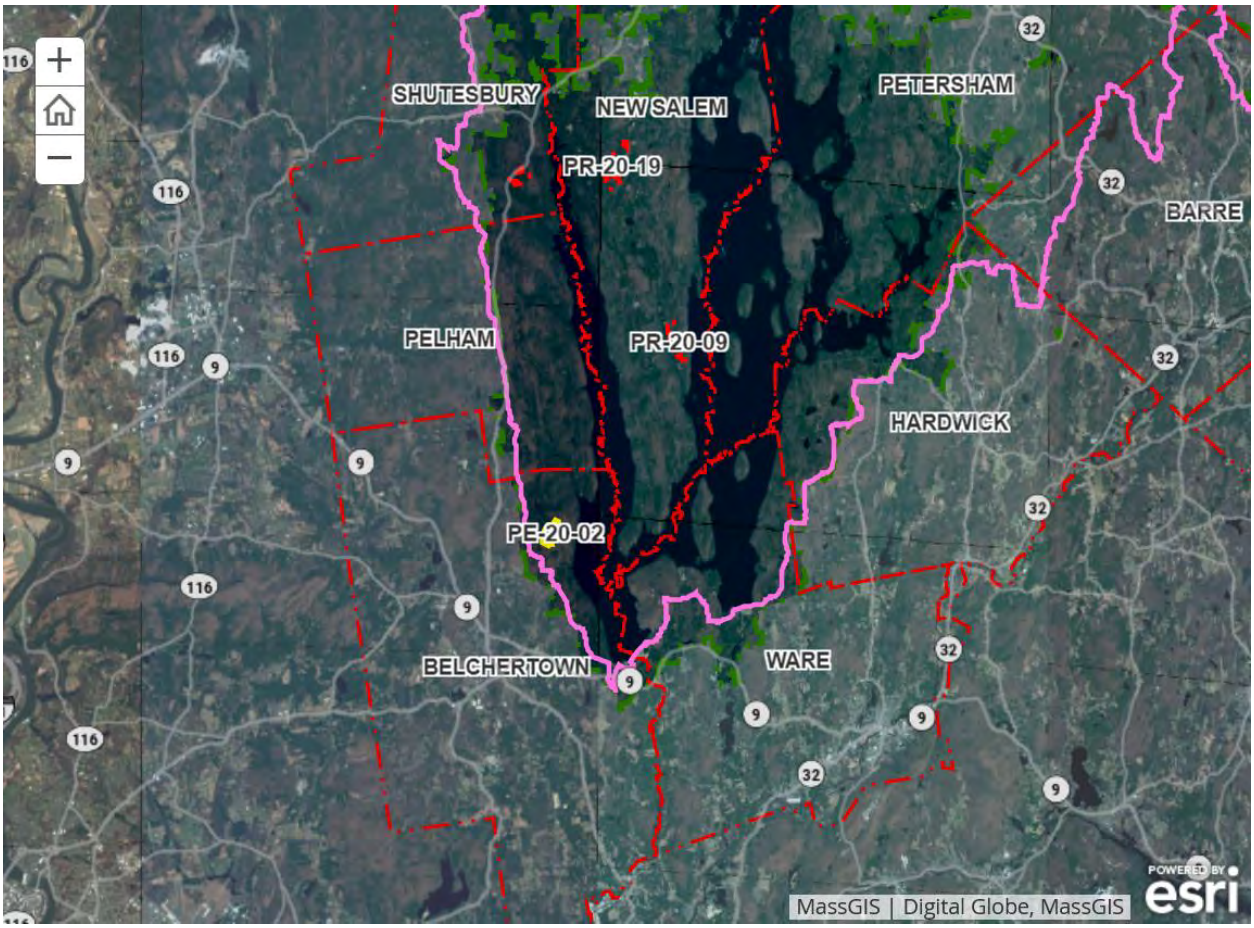
Quabbin Harvest Proposal PE-20-2

Proposal Goals

Proposal Location

From an existing landing on east side of Jucket Road north along road to intersection with a road sometimes referred to as Airplane Road. East along road past old landing, which will be the main landing for this proposal, to a point where forest type changes from WO to RO, head SE, then S then E to power line. Follow power line south to GM salvage proposal PE-19-2-S and follow that proposal boundary W then S then SW to where land drops off steeply to a small brook. Follow the top of this slope generally NW to top of slope of another brook, follow top of that slope N to Jucket Road and follow eastern edge back to starting point, excluding an acre or so that was previously cut has regenerated.

Total Acres: 87



General Description

	Overstory Type(s)	Acres
Dominant	Oak, mixed - dry site	42
Secondary	White pine/oak	28
Secondary	Norway Spruce	9

	Understory Type(s)
Dominant	Dry site - blueberry/huckleberry

Dominant	Tree seedlings/saplings dominate the site

Description of forest composition/condition:

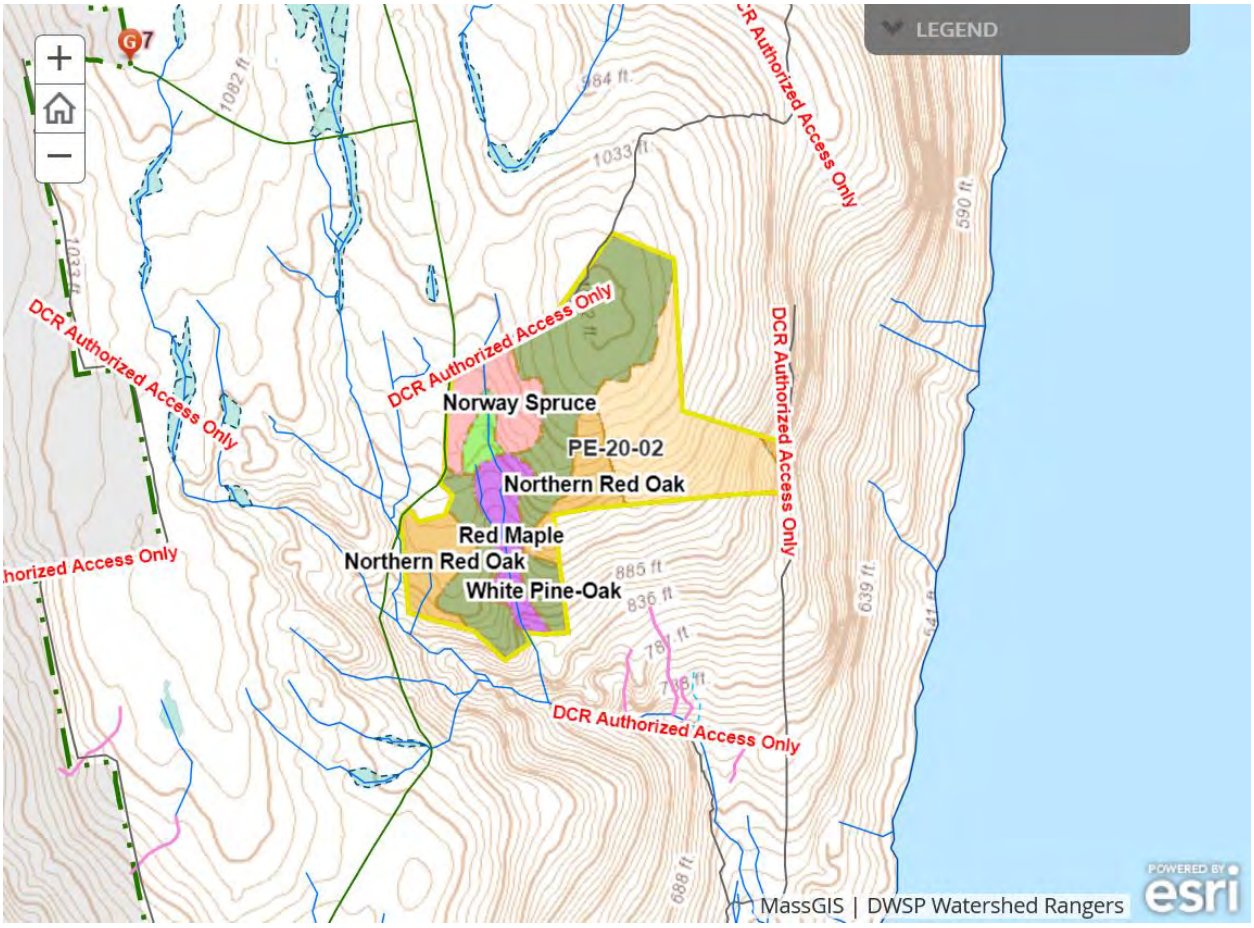
Half of the area is predominately oak, typed as oak-hardwood but now mostly mixed oak, on a dry site. Within this, there are a few pockets of mostly northern red oak generally on better sites with more soil moisture. Species present are red oak and black oak with some scarlet oak, white oak, red maple, white pine, black birch, and white birch. Scattered hickory, black cherry, and ash are also present. Much of this type had some past thinning where mainly firewood was cut. The type still has many poorly formed stems and is not very vigorous. The drought of 2015-16 has had an impact and the stand has been infested with gypsy moth for at least three years now. There are many snags present, and oak mortality seems to be accelerating but so far hasn't been as bad as in the stands to the south (PE 19-2S). It is assumed that wood borers are also building up as is root rot.

The next most common type is white pine/oak much of which is typed WH on the map but due to past harvests and succession is now mainly white pine, red oak, and black oak. Other species present are red maple, black birch, and white birch with scattered hickory and black cherry. The same insect/disease problems mentioned above have impacted this type too. Also, some of the white pine regeneration has died partly due to being stagnant for too long but most likely various needle casts have also had an impact. This type also has many poorly formed stems but is generally more vigorous as the pine is better adapted to growing conditions present here. It is expected that most of the proposal area that is cut will regenerate to white pine/hardwood.

The walled area of white pine/Norway spruce in the north end of the proposal appears to have never been thinned and doesn't have much regeneration under it. This section has some well formed, medium sized White pine with good crowns that would benefit from being released. There are probably a few other pockets of white pine in the other types that would fit this description and all would benefit from a shelterwood seed cut. The dominant species here is Norway spruce probably planted in the '30s with white pine common throughout, especially east of the brook. Much of the spruce is self-thinning but the stand is still overstocked with many trees in various stages of decline or decay. Scattered red maple, black cherry, and oak are also in the overstory. Gypsy moth has also affected the hardwoods here.

Assessment of Terrestrial Invasive Species:

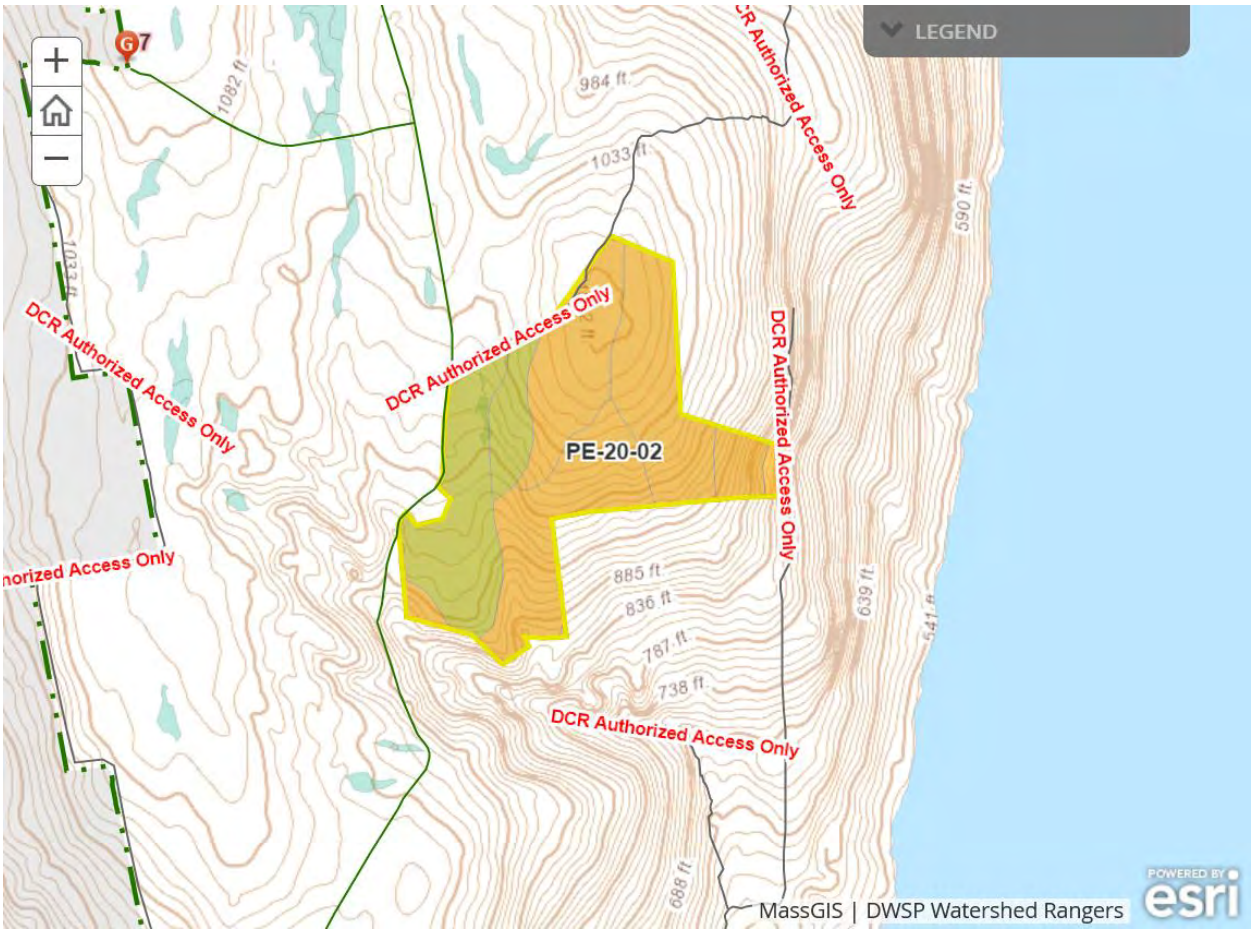
Not many invasives were seen on initial scouting trips, mainly Japanese barberry and some honeysuckle around the old landings and cellar holes.



Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	1
Well Drained Thick	69
Moderately Well Drained	30
Poorly to Very Poorly Drained	0

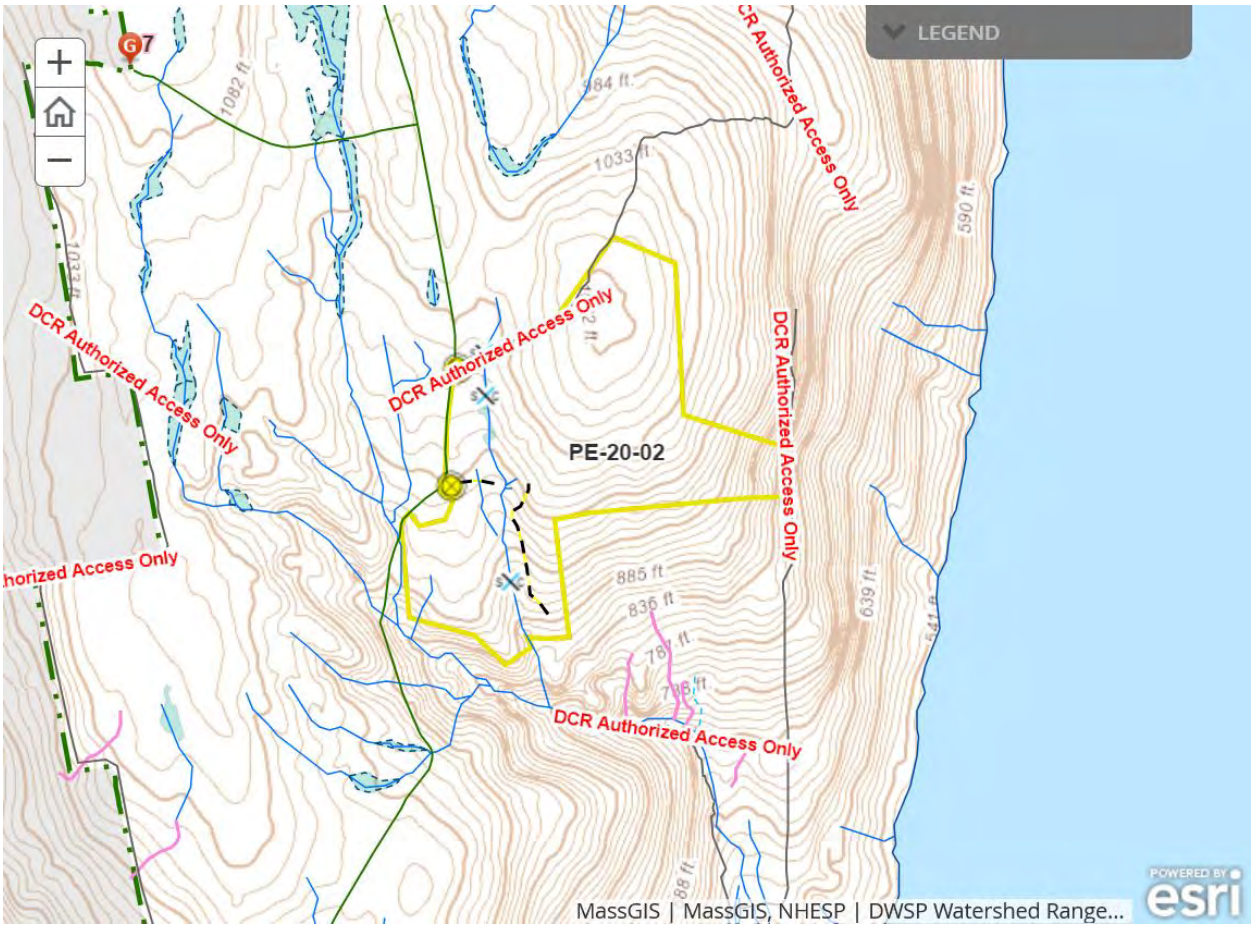
58 acres of Canton fine sandy loam, extremely stony, 26 acres with Scituate fine sandy loam, extremely stony, 1.3 acres with Gloucester gravelly fine sandy loam, extremely stony about 1 acre of Charlton-Hollis-Rock outcrop complex. The moderately drained soils are all on the western 1/3rd of the lot, rest of the area is well drained.



Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **None known**
- Seeps present? - **Yes**
- 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**

One stream present that starts at the north end as an intermittent stream that flows south picking up water from several intermittent feeder streams, seeps and a couple of small associated wetland areas. There are three crossings. The most northern is an existing stone culvert in the old road. Further south is another in an old skid road that has a culvert. The next old crossing location is in the trail from the southern landing and that crossing has degraded. A new trail and crossing will be created to the south. Portable bridges will be required for the southern two crossings. There are some areas that are poorly drained and will be avoided. The largest is the central part of the spruce stand between the two mapped brooks. There is also an unmapped wetland area and intermittent stream in the southwest corner of the lot.



Silviculture

Acres in Intermediate cuts: **5**

Acres in prep/establishment cuts: **4**

Acres in Regeneration cuts: **18**

Average regen opening size: **1**

Maximum regen opening size: **2**

Description of advance regeneration in proposal area:

Advance regeneration is well distributed across the area. Most of the regeneration is less than 10' tall. Most common species is White pine, followed by black birch and red maple. There is also scattered red oak, black oak, white oak, white birch, hickory, hemlock, and ash. Some Norway spruce has also become established in the areas with spruce in the overstory though regeneration is generally sparse here. Other than under the spruce there is generally enough regeneration present to fully stock the stand if overstory was cut. There are smaller areas with very dense pine regeneration.

General comments on silviculture proposed:

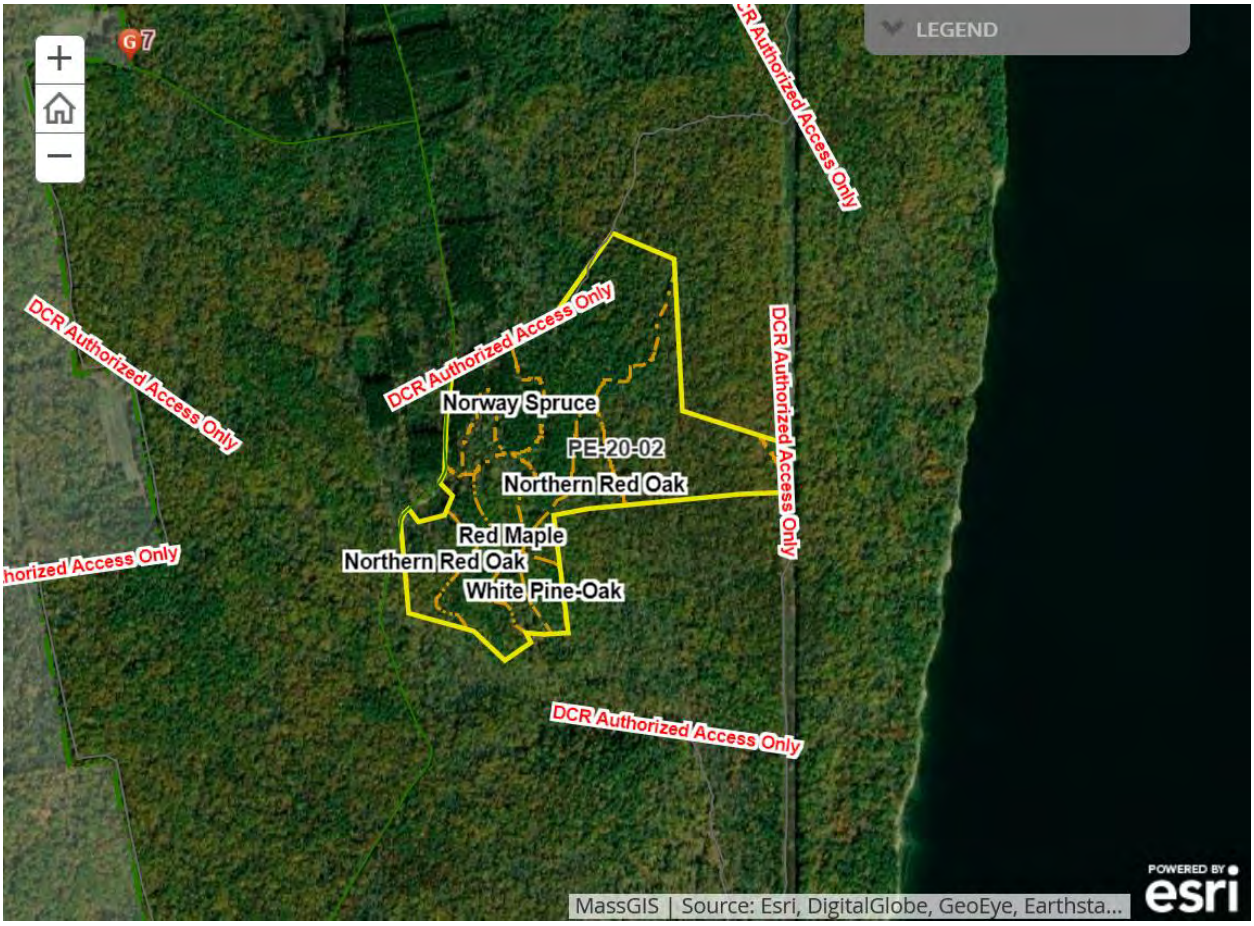
Group selection will be main silviculture used here with openings from around 1/4 - 2 acres in size being created. Openings will be irregular in shape as much as possible and will be spaced at least 100' apart. At least 5 square feet of basal area will be retained in most, if not all openings over 1/2 acre. Edges of openings will be thinned to promote additional regeneration in these areas, further release the opening edge trees and to minimize the amount of potential disturbance to regeneration in future harvests.

The walled area of white pine/Norway spruce will be treated with partial cutting at this time rather than with regeneration openings, based on recent studies suggesting the importance of maintaining a variety of conifer habitats, including Norway spruce, as hemlock declines due to Hemlock Woolly Adelgid and other insects.

Site quality in this proposal area is generally average, with many stagnant and poorly formed trees other than the white pine mentioned above. There are a few other areas with better formed trees and good species composition that could benefit from a thinning. Many of the trees in these areas are younger or at least smaller in diameter and should increase growth rate and carbon uptake quickly so would be worth retaining in the stand. Where these areas are encountered near skid trails or openings they will be thinned.

For all treatments poorly formed, less vigorous trees and/or diseased trees will be targeted for removal. The exception to this would be some stems with active wildlife use seen such as den, stick nest and cavity trees. Better formed individuals will be retained of all species currently present to maintain diversity and hopefully increase it through new regeneration establishment.

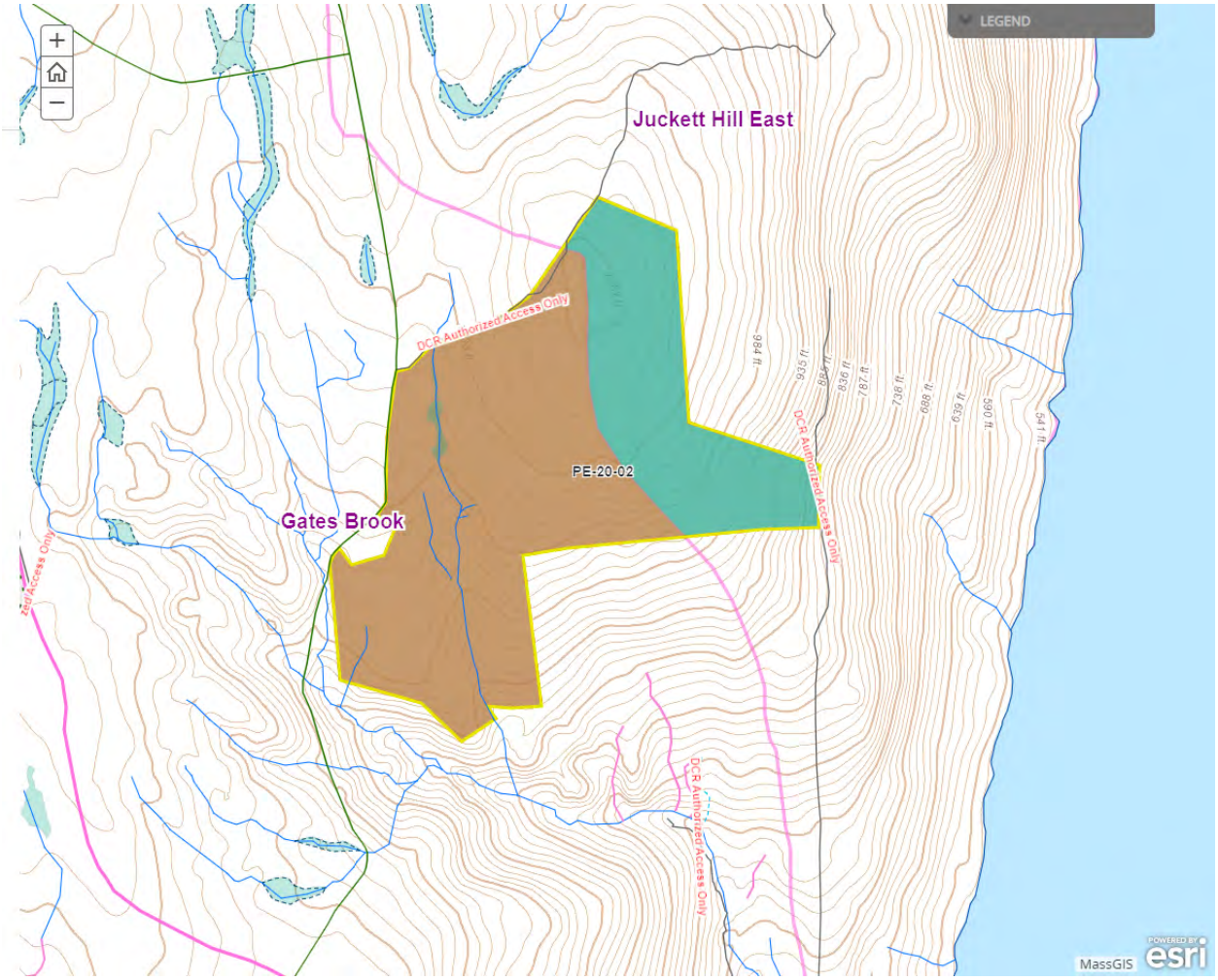
By replacing low health/poorly growing individuals with a new cohort of regeneration the long term carbon sequestration of the site should be increased.



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
61 (Gates Brook)	551	3.25	135	60
17 (Juckett Hill East)	594	0	149	26

Note that gypsy moth salvage proposal PE-19-2S which covers lot S11SQ, which has not yet been sold, is also in these subwatersheds. Since only about 22 acres will be regenerated in this proposal it is unlikely the 25% limit would be exceeded.



Harvesting Limitations

Forwarder required: **No**

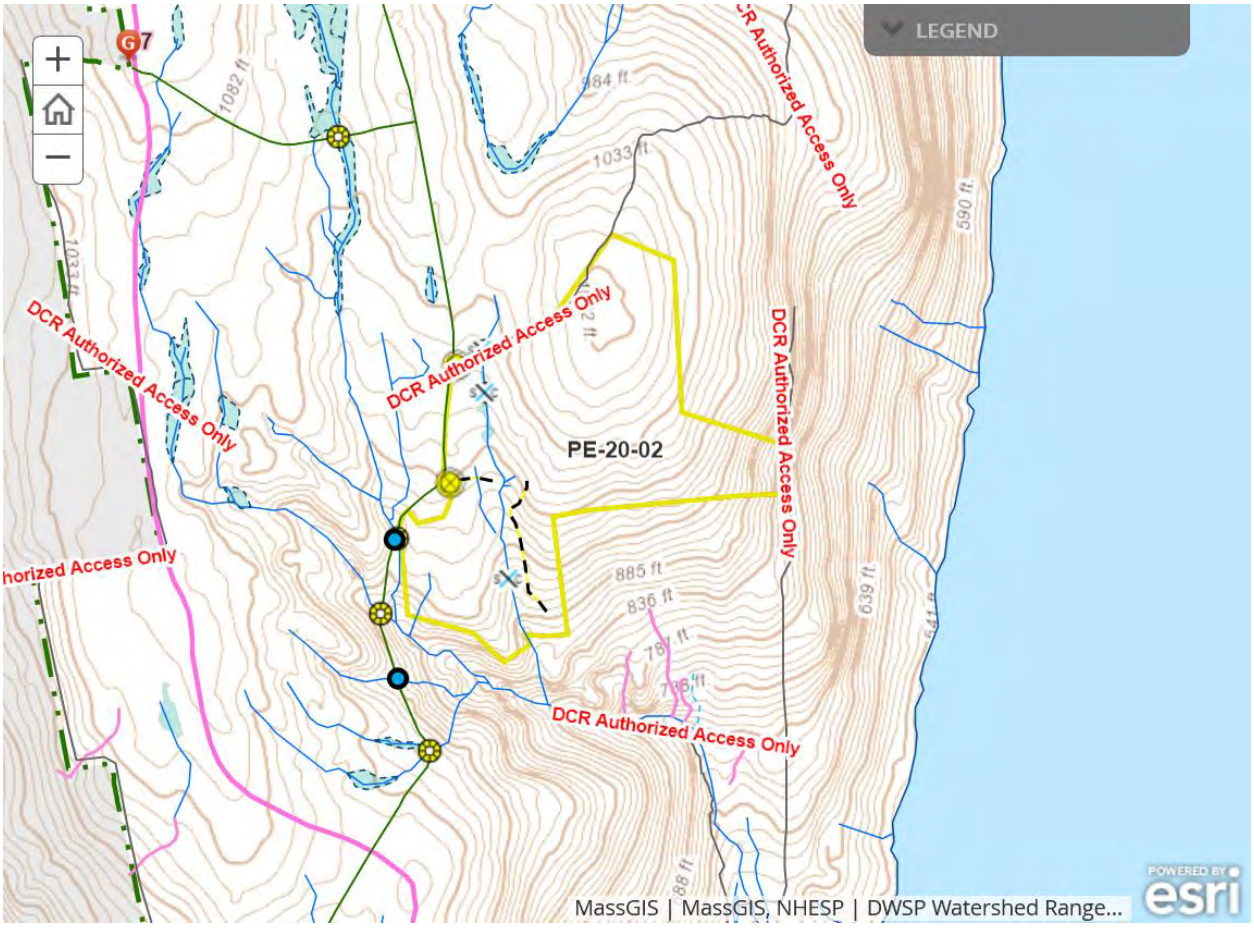
Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

There are numerous stone walls on the western part of the proposal and depending on the final layout of skid trails a forwarder may be required to navigate them. Due to the amount of low

quality trees an attempt will be made to keep trails straight and otherwise avoid needing to restrict equipment. The northern crossing is a little tricky due to the close proximity to a stone wall. Portable bridges will be required for 2 southern stream crossings.

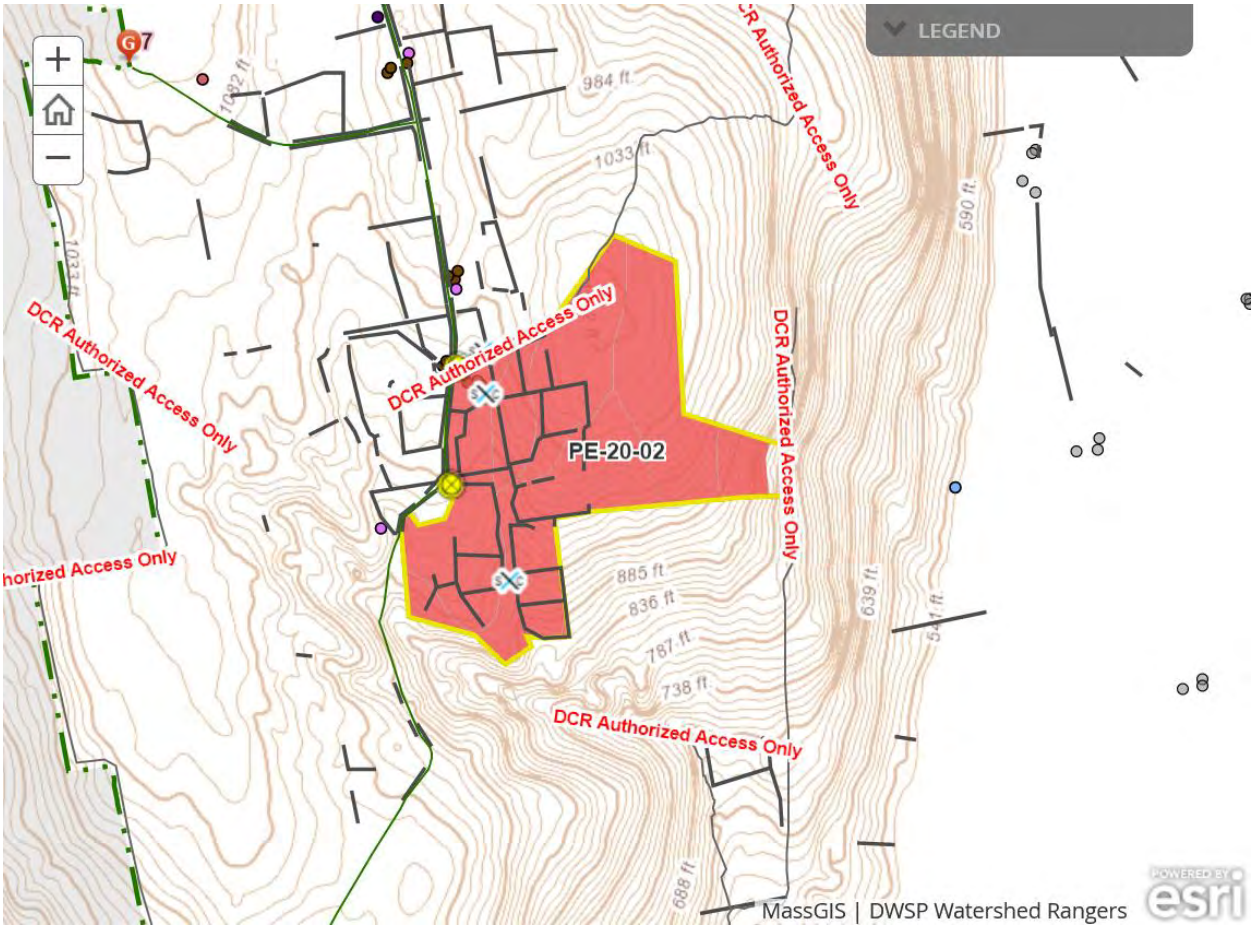


Cultural Resources

Comments on Cultural Resources:

Historic features such as stone walls and cellar holes will be avoided and/or protected as per current DWSP policy. Almost all the proposed area has been logged at least once during the 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, if possible, the wall will be crossed where previously disturbed or at a section that is low and made of tossed stone. Features that may get obscured by snow or vegetation will be flagged. Main skid trails with unstable soils will be armored with slash to avoid excessive rutting. If applicable, DWSP will follow any additional recommendations from DCR's Archaeologist regarding the protection of sensitive sites.

Surface stone is prevalent overall except the southeastern part of the proposal where stone might have been removed for a field back in the 1900's. Microtopography is pronounced over much of the rest of the area. Some of the walled areas are fairly flat as is the northeastern corner.



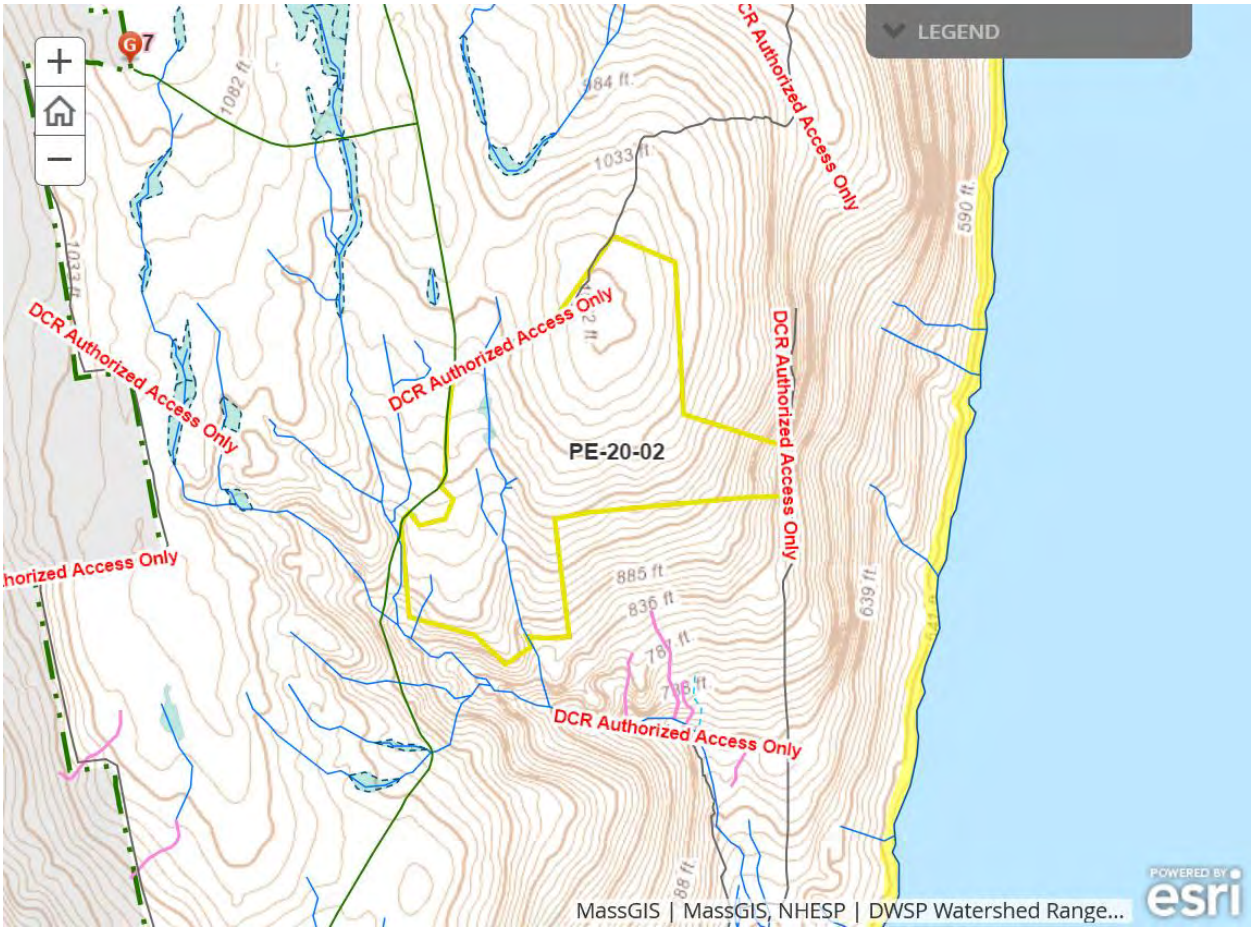
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

The usual wildlife species occupy this area. Deer seem fairly abundant and moose signs were also seen so at least moderate browsing is expected. Norway spruce, though non-native, is not an aggressive or invasive species and is providing good conifer habitat for several dependent wildlife species. No vernal pools within this area.

Comments on Rare Species/Habitats:

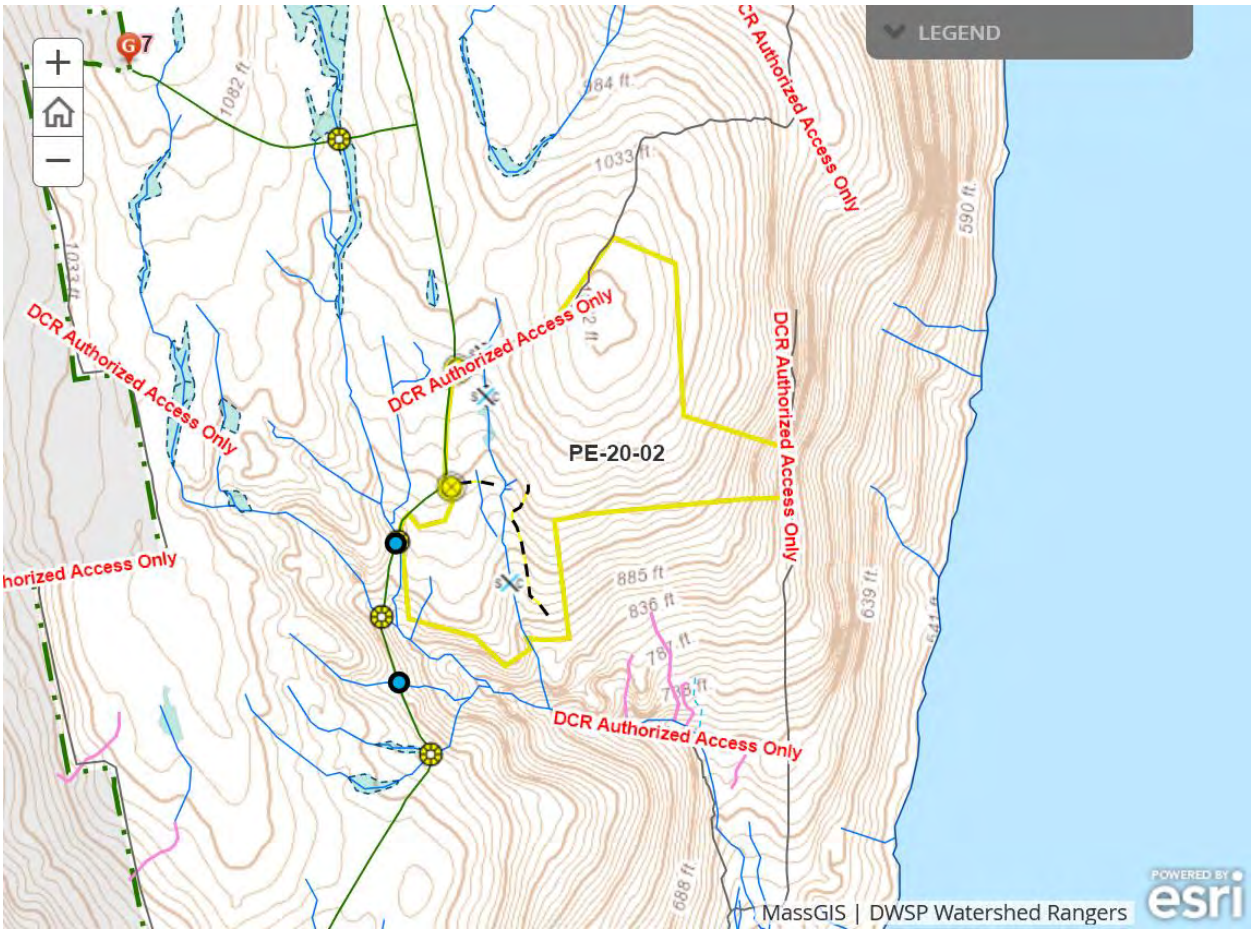
None are known to be present within the proposed area.



Environmental Quality Engineering

Comments on EQ Issues:

There are three known stream crossings which might be needed on this proposal. The northern most crossing is an existing stone culvert in the old road sometimes known as Airplane Road. The middle crossing is further south on the same seasonal stream, below a small pool. There is an existing ductile iron pipe here but it is in poor condition and might need to be replaced. There is probably not enough flow at these first two crossings to be able to sample here most years year round. The third, southern most crossing is a new location to avoid having to use the existing degraded skid trail to the southern landing. A 300' section around the stream on the existing trail is wet and water flows on the west side during wetter parts of the year. There is enough flow during most of the year at this new southern crossing to allow samples to be taken. All these crossings will be needed for the adjoining oak salvage, lot S11SQ (PE-19-2 S).



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

Culverts needed: Yes

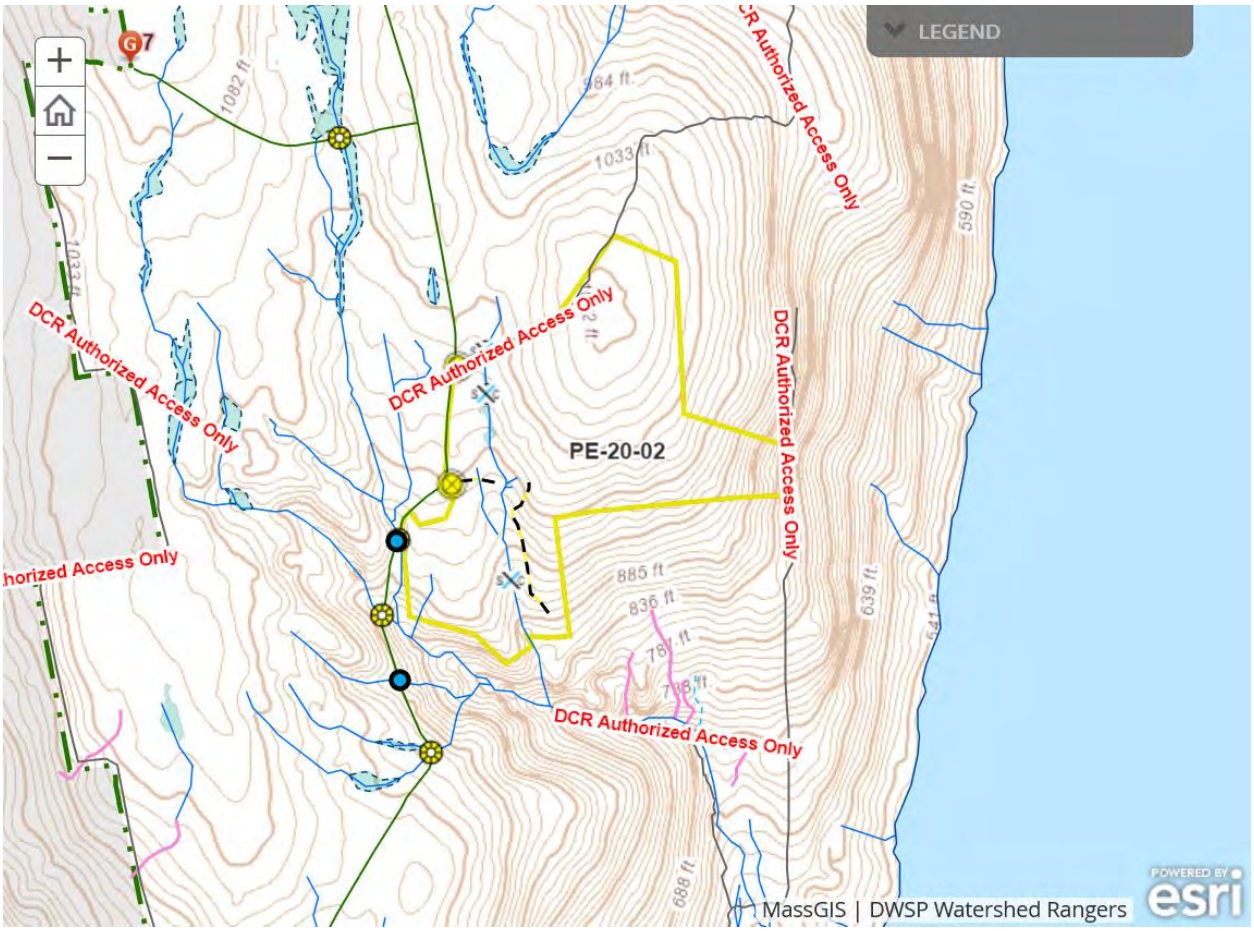
Work needed on permanent bridges: No

Beaver issue: Yes

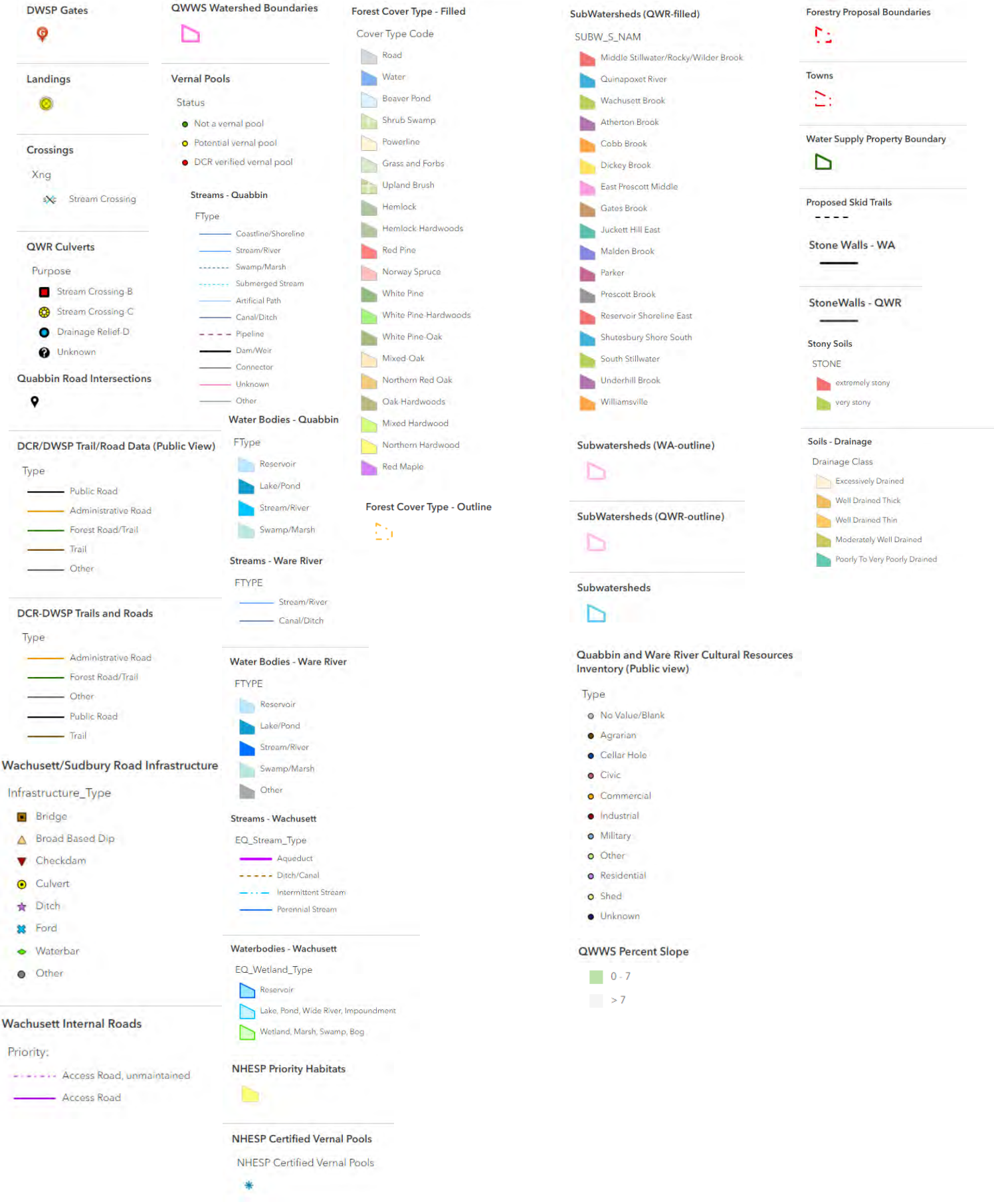
Further comment on access needs:

Juckett Hill Road from the proposal are north to the gate 8 road will need grading and some gravel to allow trailer access to landings. Both landings will need improvement to allow trailers to turn around. The northern landing will need a 12" culvert installed just past where the access road turns off (Airplane Road) to allow seasonal water to drain. Another 12" culvert installed just

before the intersection in Juckett Hill Road would allow seasonal high water and ditch to drain from west to east. Currently, there is a large rock outcrop that blocks drainage on the west side and water ends up getting in wheel tracks and degrades a long stretch of Juckett Hill Road to the south.



DWSP FY 2020 Forestry Proposals – Master Legend for story maps



Quabbin Harvest Proposal PE-20-14

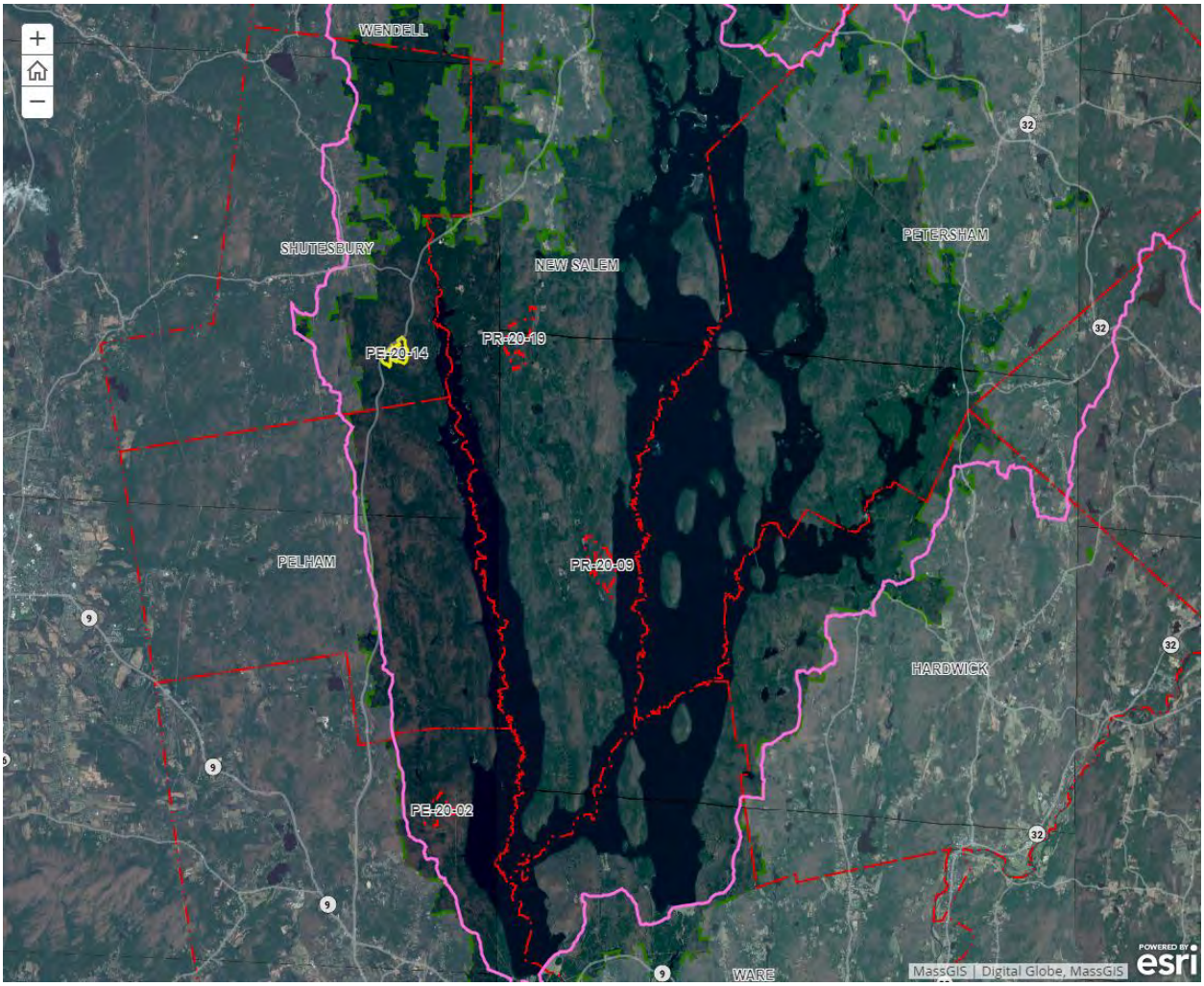
Proposal Goals

This proposal seeks to accomplish DWSP Forestry's broader goals of forest resistance and resilience through age and species diversity by treating areas with poorly formed white pine, low diversity regeneration, and few age classes.

Proposal Location

This proposal is located along the eastern side of the Daniel Shays Highway (Rte. 202) between Shutesbury Road 2 in Pelham and Prescott Road in Shutesbury.

Total Acres: 69



General Description

	Overstory Type(s)	Acres
Dominant	White pine/hardwood	40
Secondary	White pine/oak	18
Secondary	Oak/hardwood	11

	Understory Type(s)

Dominant	Tree seedlings/saplings dominate the site

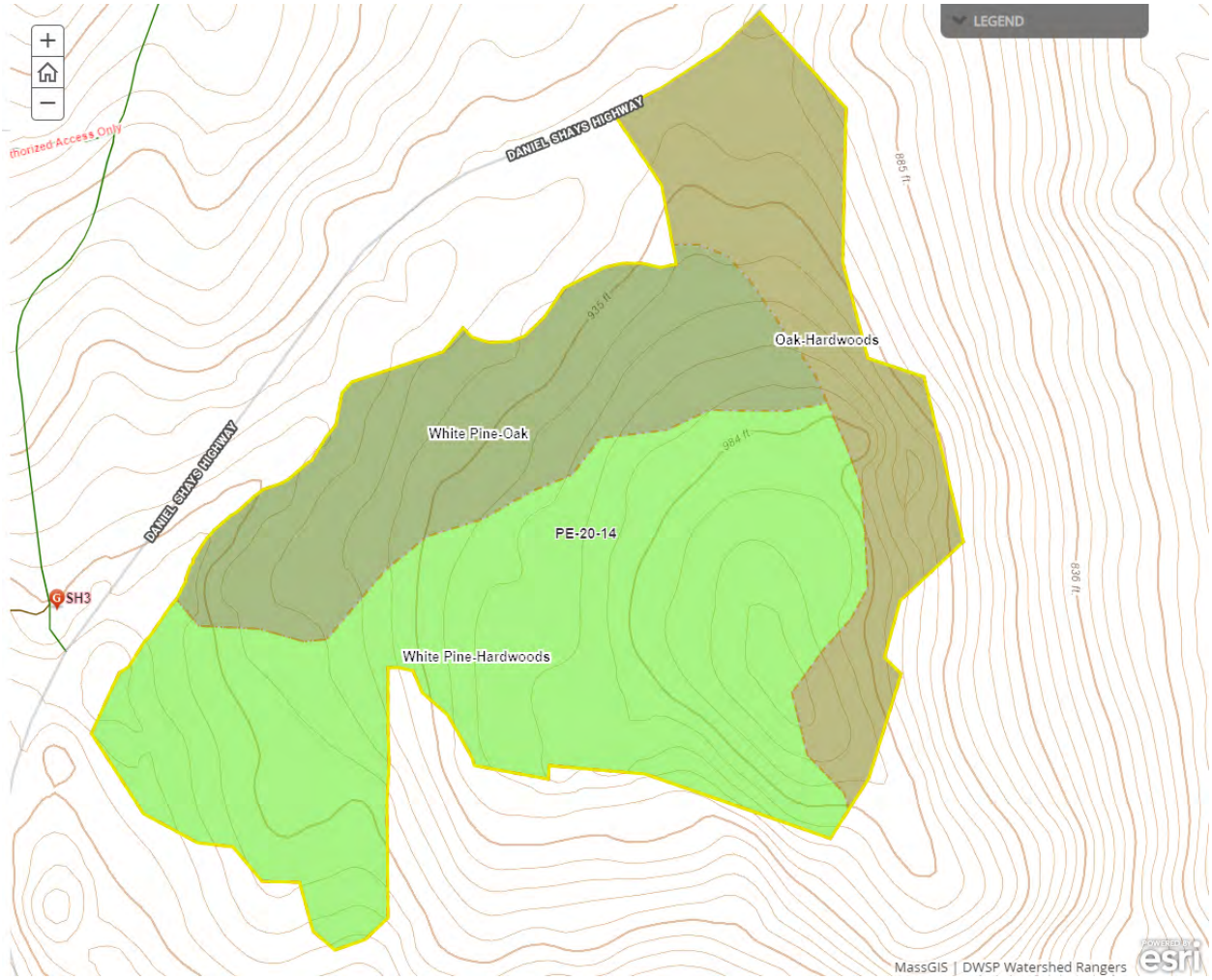
Description of forest composition/condition:

The proposal is dominated by eastern white pine, northern red oak, and eastern hemlock. The white pine is of moderate to good quality and health, with signs of wind and lightning disturbance and quite a few large snapped trees. The overstory white pine is large, mostly >26", with the exception of the hilltop where the site index is lower and all of the canopy trees are shorter and smaller. The eastern hemlock health is very variable, with some pockets of healthy full crowns, and equal amounts of near dead to dead individuals/groups. The northern red oak in the canopy appears to be relatively healthy and likely experienced its first gypsy moth infestation in 2018 (of the 2015-present gypsy moth outbreak). Gypsy moth egg sacks were present in low to moderate numbers on oak throughout the stand. I would expect the site to experience near to full defoliation spring of 2019. Canopy northern red oak is mostly > 18 ", with the exception of the hilltop in the southeast corner of the lot. Stocking ranges through from ~ 60 ft² per acre to 100 ft² per acre.

The proposed area has two established age classes with the plurality of the area occupied by mature overstory, and a smaller area occupied by 15-20 year old white pine regeneration in smaller (0.1 - 0.2 acre) gaps. This regeneration is the result of two previous harvests. A hardwood harvest was performed in the northern section of the lot in 1982 (Quabbin lot 0296), removing primarily red maple and birch. The western half of this lot also received a hardwood harvest in 1982 (Quabbin Lot 0364) primarily removing red and white oak; this sale overlapped most of the previous. Both harvests appear to have been primarily intermediate thinning but included the mentioned smaller regeneration openings that are now occupied by mostly white pine regeneration, with a minority of the openings also containing black birch regeneration. The other primary location of free-to-grow white pine regeneration is along old skid roads, which are not mapped to be reused for this harvest.

Assessment of Terrestrial Invasive Species:

Japanese barberry and multiflora rose are present in small numbers at the landing, but invasives were not observed in the interior of the lot during a survey.

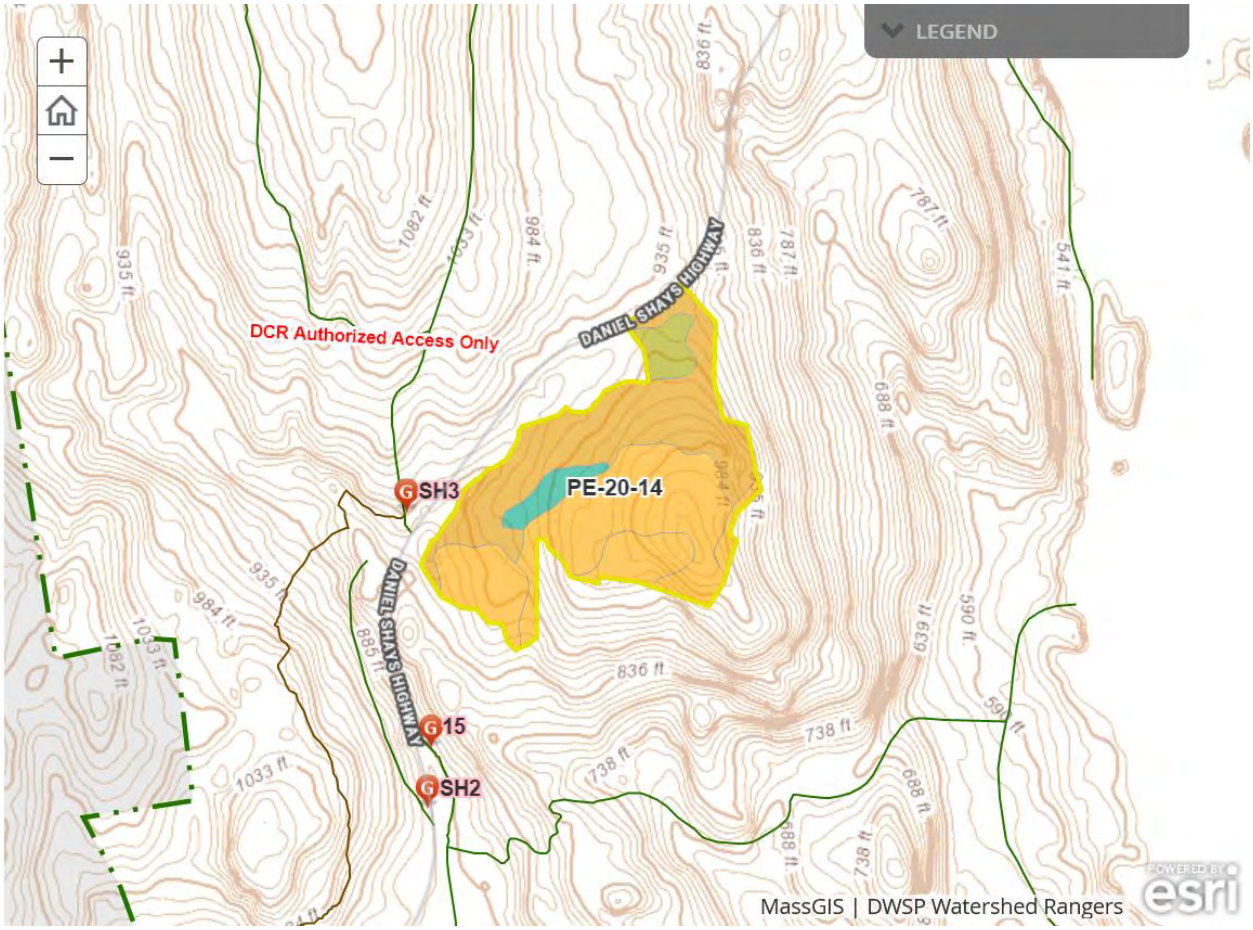


Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	35
Well Drained Thick	28
Moderately Well Drained	3

Poorly to Very Poorly Drained	3

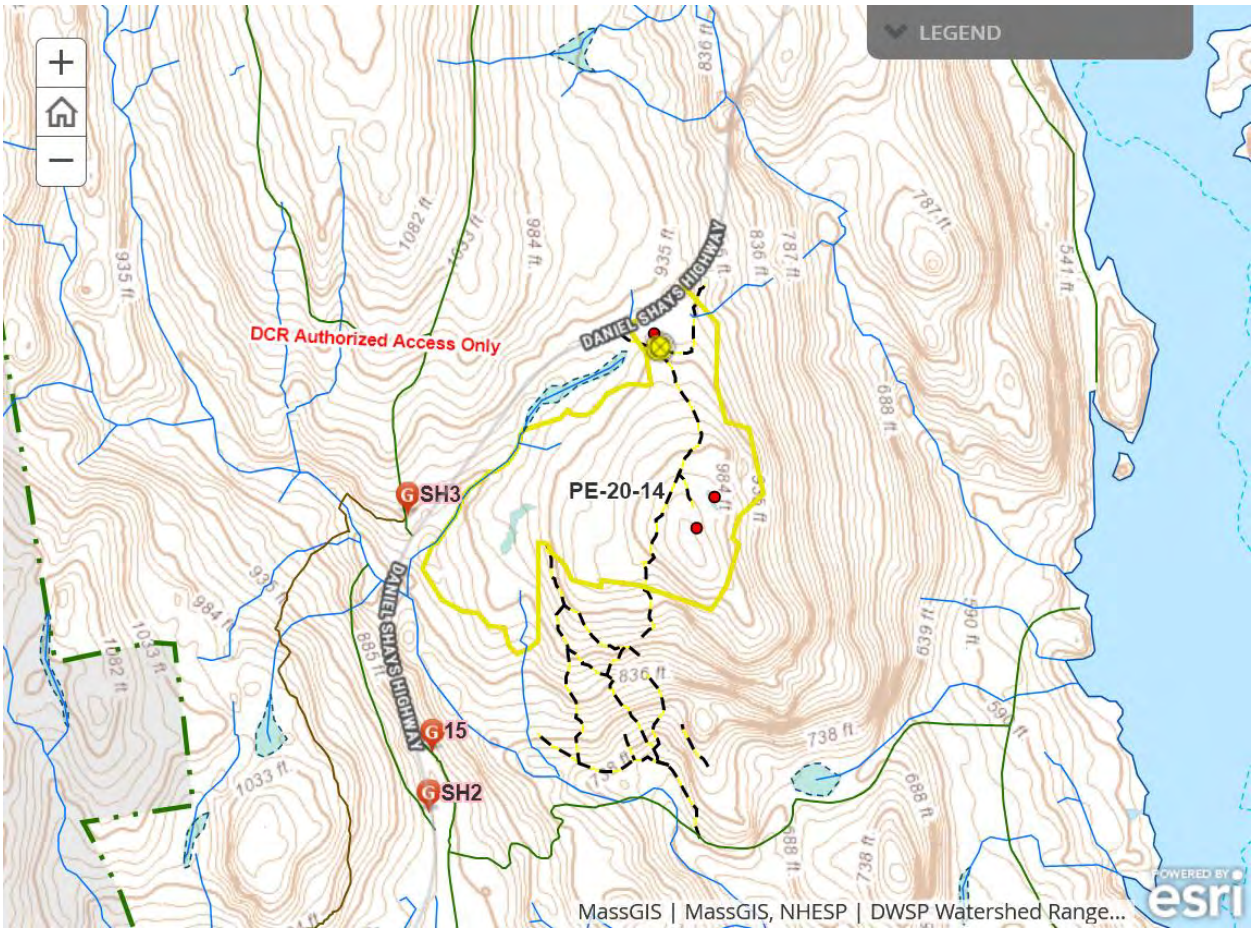
The soils are primarily complexes of Canton, Chatfield, and Hollis soil series coarse loamy to fine loamy soils. These soils are well drained thick to thin. Most of the poorer drained soils are being left out of this proposal due to difficulty in operations and species composition of those soils. Soils within the proposal typically support white pine, mixed oak, and northern hardwoods.



Wetlands

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

Wetland to north and west between proposal boundary and 202, will not be treated at this time. The lot's access road passes by a known vernal pool to get to the landing from 202 (the VP is present due to inadequate road drainage). Two vernal pools on the interior of the lot will be buffered by DWSP policy.



Silviculture

Acres in Intermediate cuts: **10**

Acres in prep/establishment cuts: **5**

Acres in Regeneration cuts: **15**

Average regen opening size: **0.75**

Maximum regen opening size: **2**

Description of advance regeneration in proposal area:

Browse of hemlock and non-black birch hardwoods is high, even some of the black birch is being browsed. There are some small (0.25-0.3 acre) openings with viable 15-20 year old white pine regeneration, and similar aged white pine regeneration pockets on old skid roads. Some remnant skid roads are also growing young black birch saplings. These openings would benefit from some further release. There is extensive suppressed, dying or dead white pine regeneration. Little to no hardwood regeneration beyond some black birch. Yellow birch seed sources translating to regeneration may benefit from deliberately increasing downed woody debris.

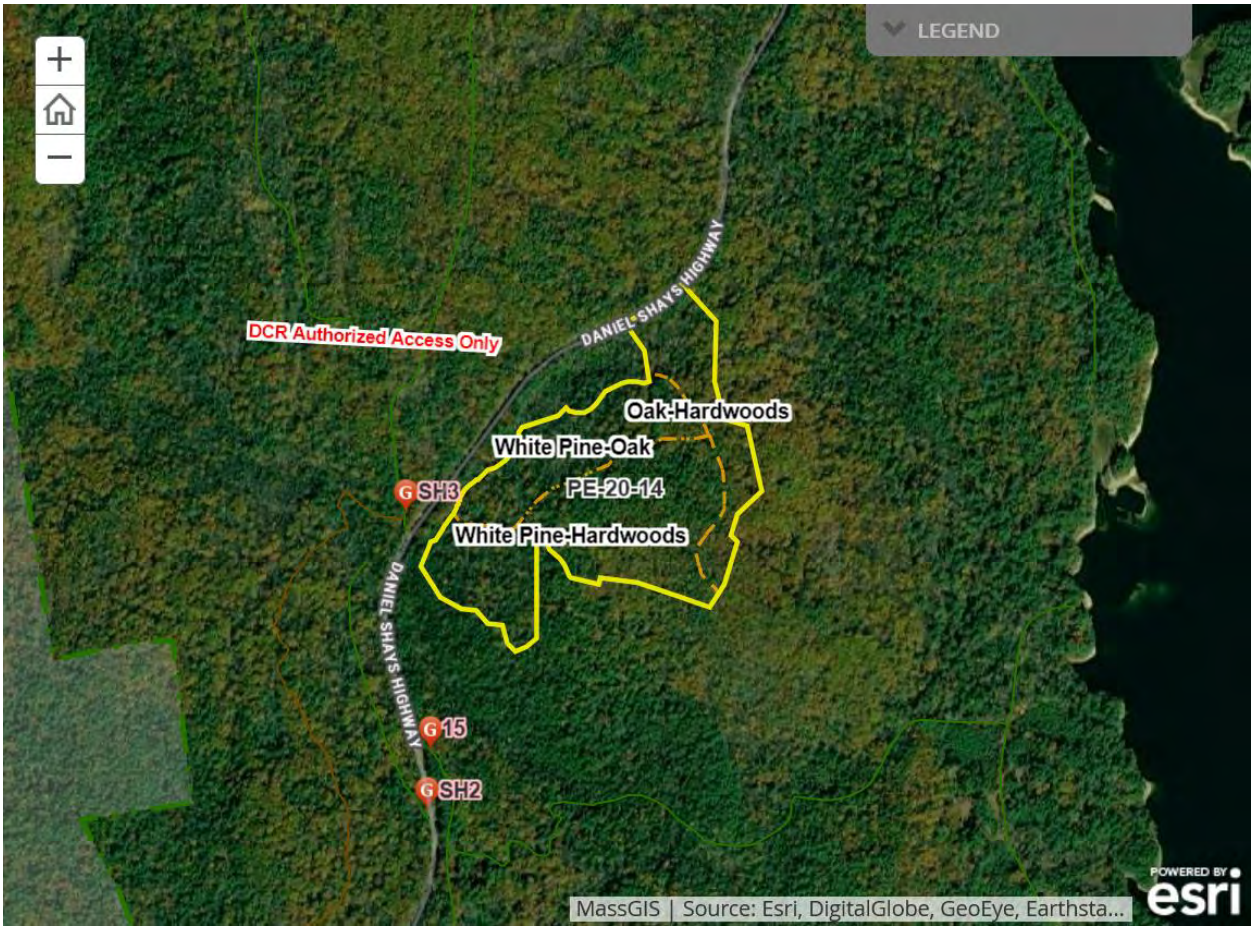
General comments on silviculture proposed:

A majority of the proposal will be treated with intermediate (0.3 acre) to larger (2 acre) regeneration openings with retention. Species retained will favor hardwood species currently present in the canopy but missing in the regeneration (Northern red and white oak, paper and yellow birch, red maple). Openings will be placed to maximize the release of existing viable white pine regeneration. Or, where no viable regeneration is present, oriented to maximize seeding potential of the healthiest canopy seed sources.

Yellow birch is present throughout as codominant or suppressed individuals. The codominant individuals may be serving as a viable seed source but there is little evidence of successful yellow birch regeneration. Codominant and dominant canopy position yellow birch will be preferentially released as part of small (0.25-0.3 acre) regeneration openings and downed woody debris will be increased nearby by culling lower quality stems. Poorer health, lower quality hemlock will be targeted for increasing downed woody debris.

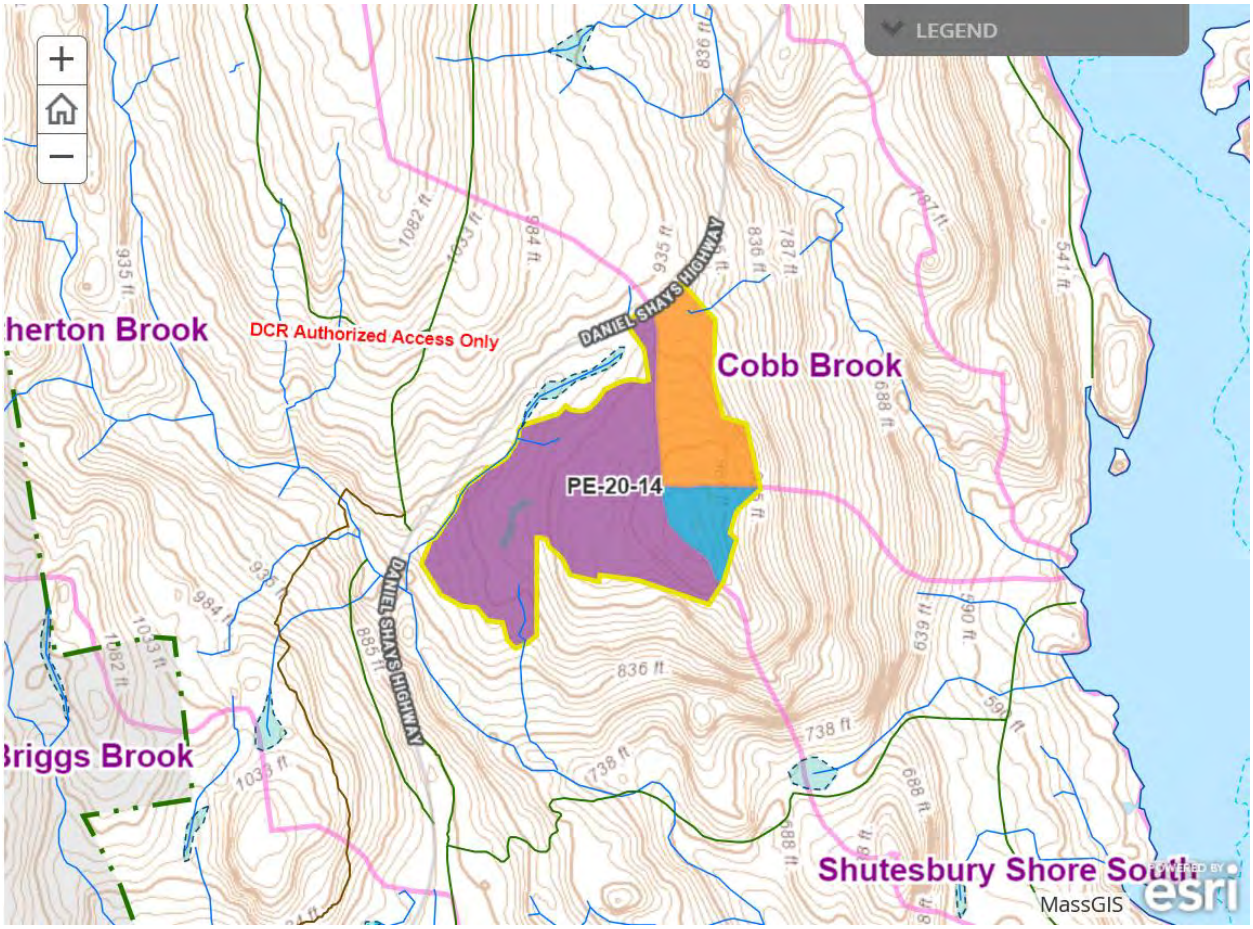
Areas between regeneration openings will be treated with intermediate thinning to improve the vigor of remaining stock for the next harvest. The southeast corner of the lot, at the hilltop where the site index is lowest, will also be primarily treated with improvement thinning since the basal area there is lowest and light is available for regeneration.

Areas of tallest white pine in the central and southwest corner of the proposal are also generally areas with the highest stocking (≥90 ft^2 per acre). These areas will be treated with establishment cuts for irregular shelterwood with reserve to try and recruit a new cohort of regeneration while maximizing retention of tall white pine at the site.



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
47 (Atherton Brook)	1658.1	39.4	414.5	47
46 (Cobb Brook)	535.7	5.8	133.9	16
20 (Shutesbury Shore South)	283.9	21	71	6



Harvesting Limitations

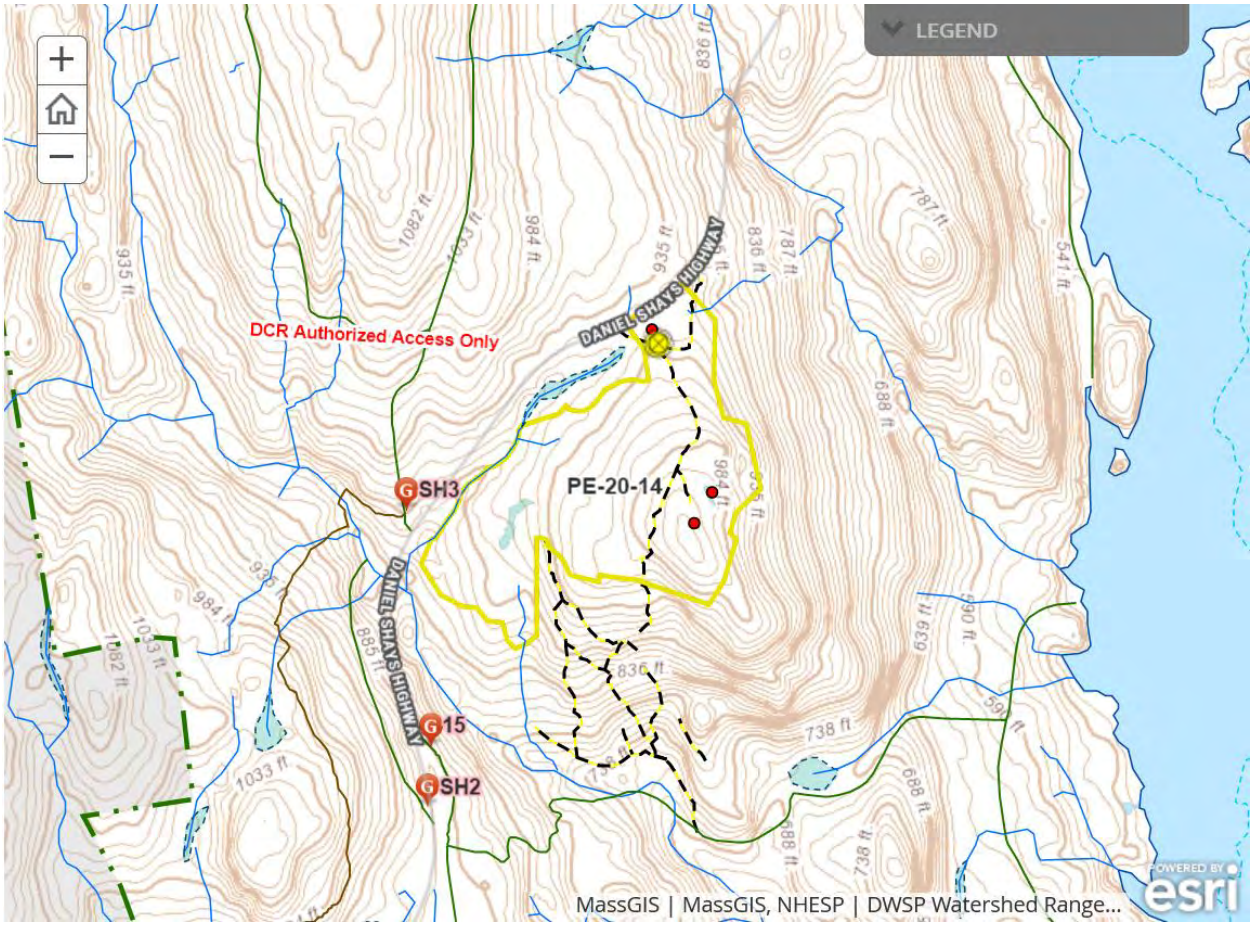
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

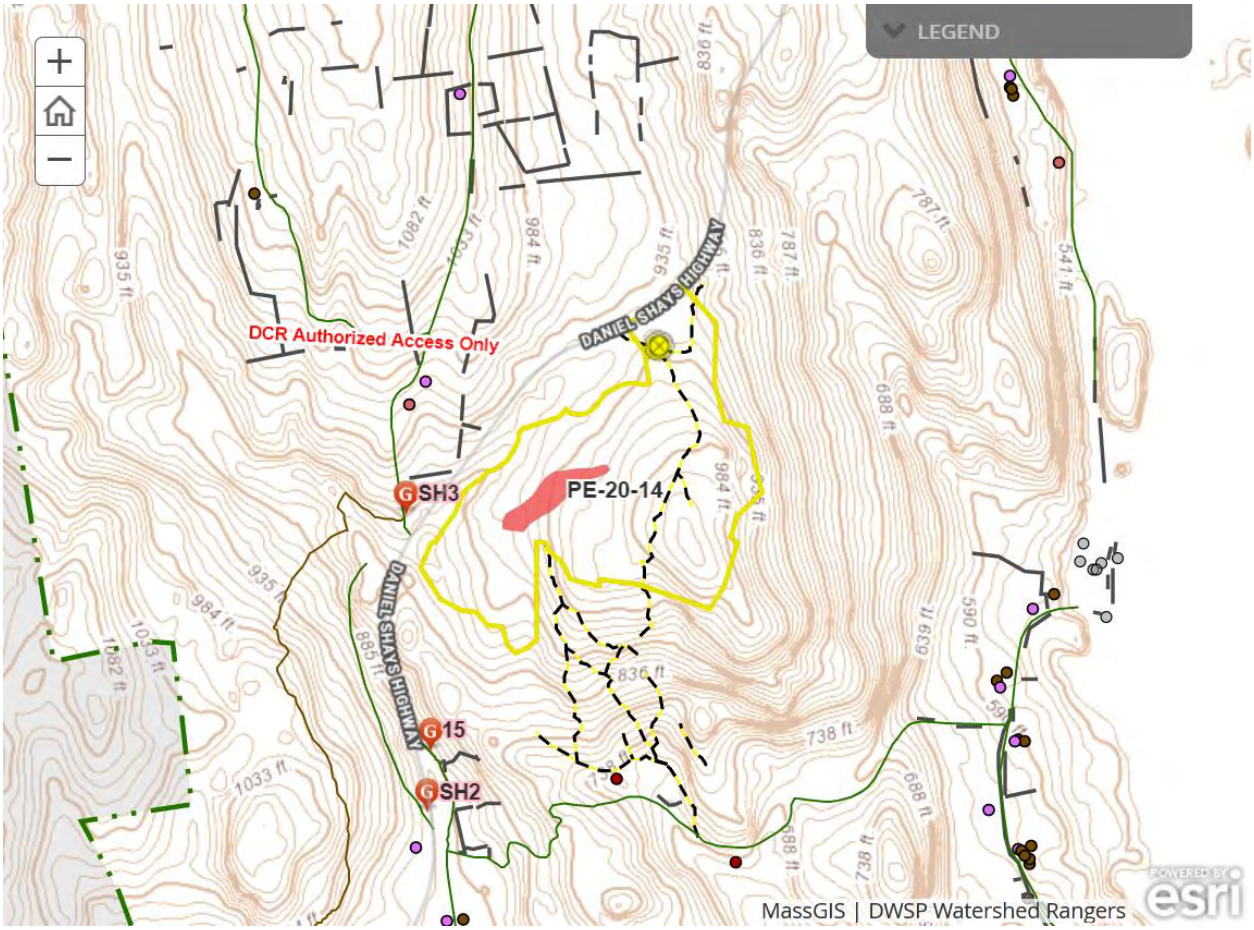
None.



Cultural Resources

Comments on Cultural Resources:

There are no known cultural resources within the proposed harvest area. If any cultural resources are found during subsequent activity on the site they will be mapped, protected and referred to the DCR Archaeologist for further comment.



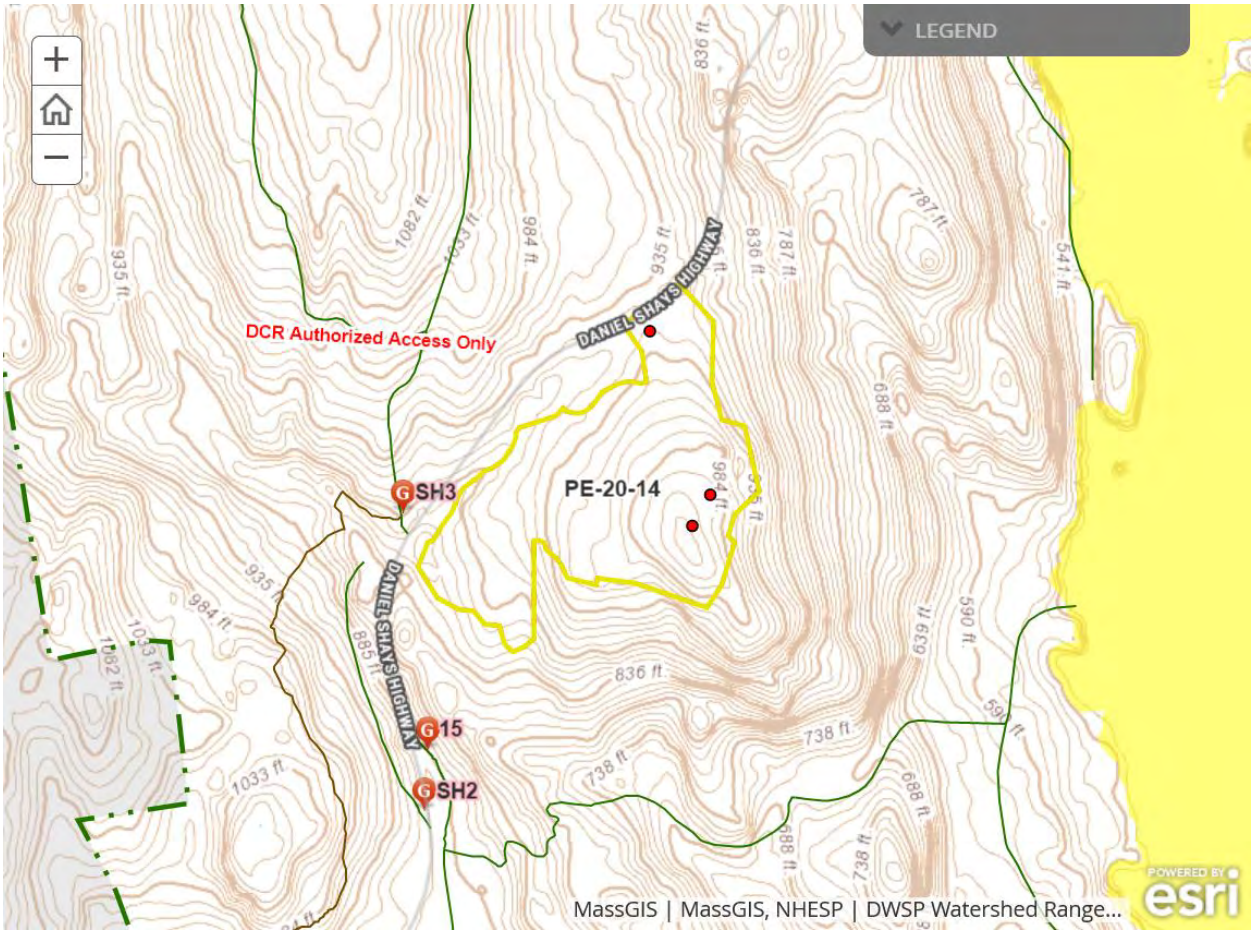
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

Sign of deer and moose browsing, and tracks and pellets observed in the snow.

Comments on Rare Species/Habitats:

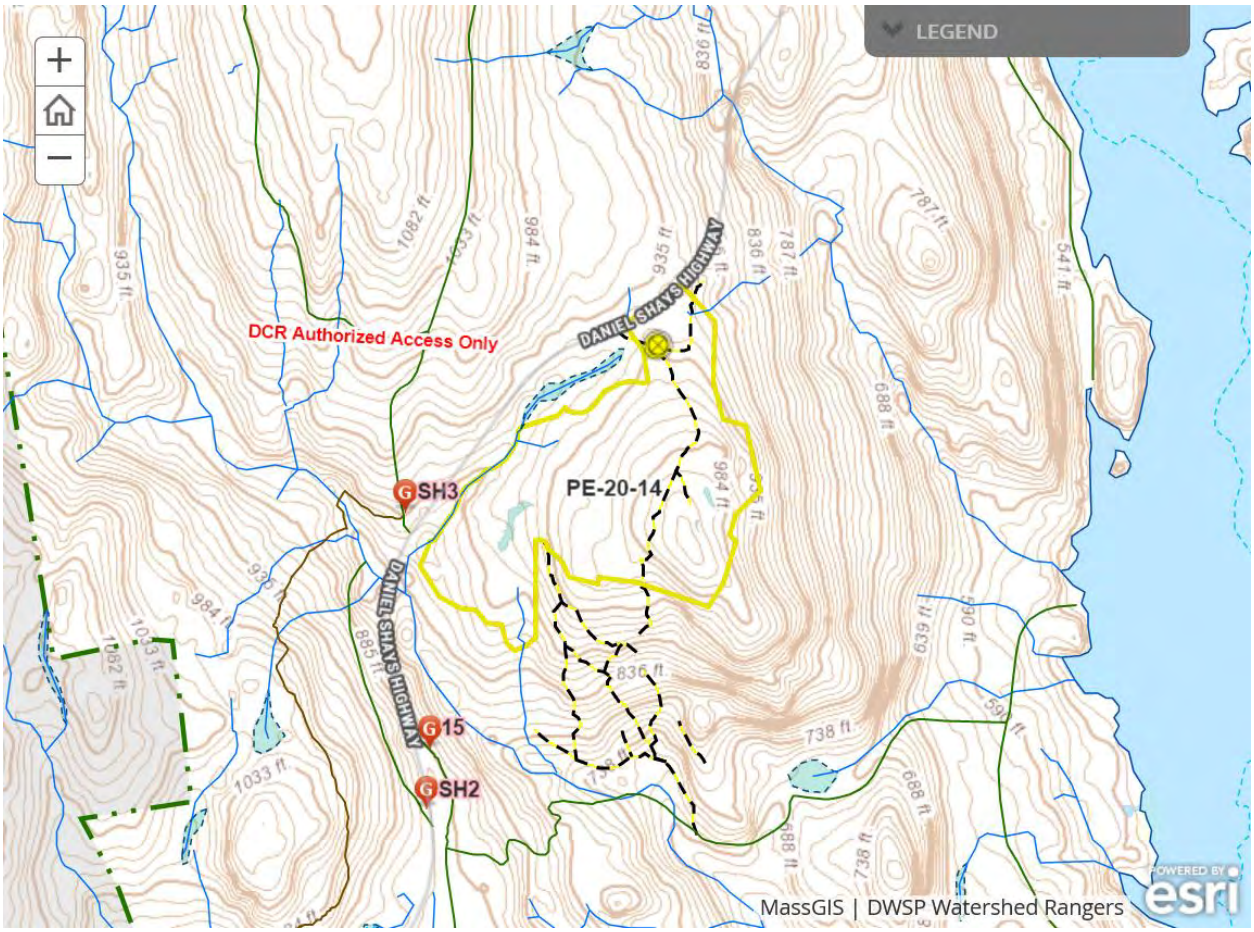
No Rare Species or Habitats are known to be within the proposed area. Should any be found in subsequent activity, DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.



Environmental Quality Engineering

Comments on EQ Issues:

No crossings of perennial streams are proposed.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

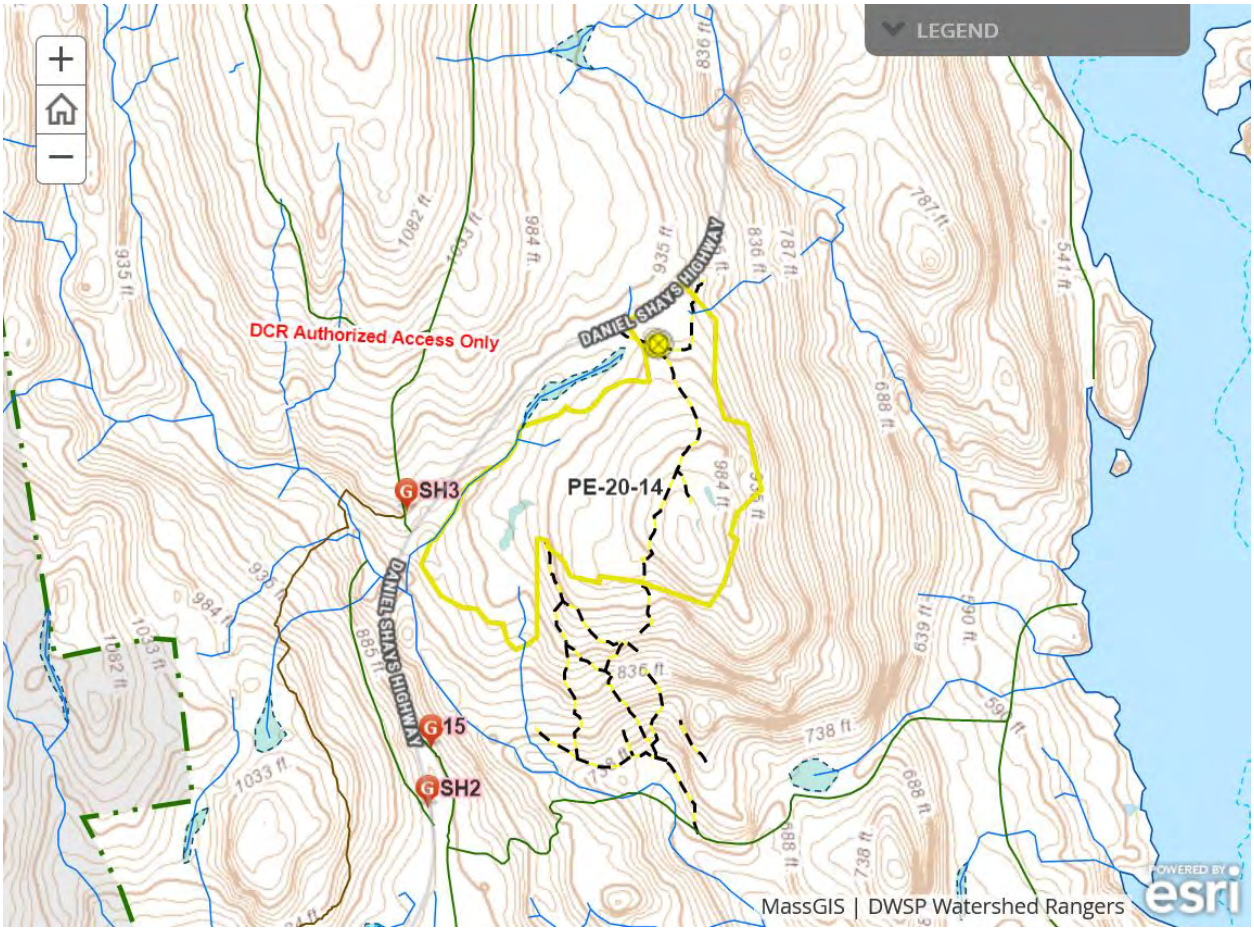
Culverts needed: Yes

Work needed on permanent bridges: No

Beaver issue: No

Further comment on access needs:

The access to the main landing will need gravel, and potentially gravel at the landing. Culvert/drainage work would be helpful on the access road, but must be sensitive to the adjacent vernal pool present.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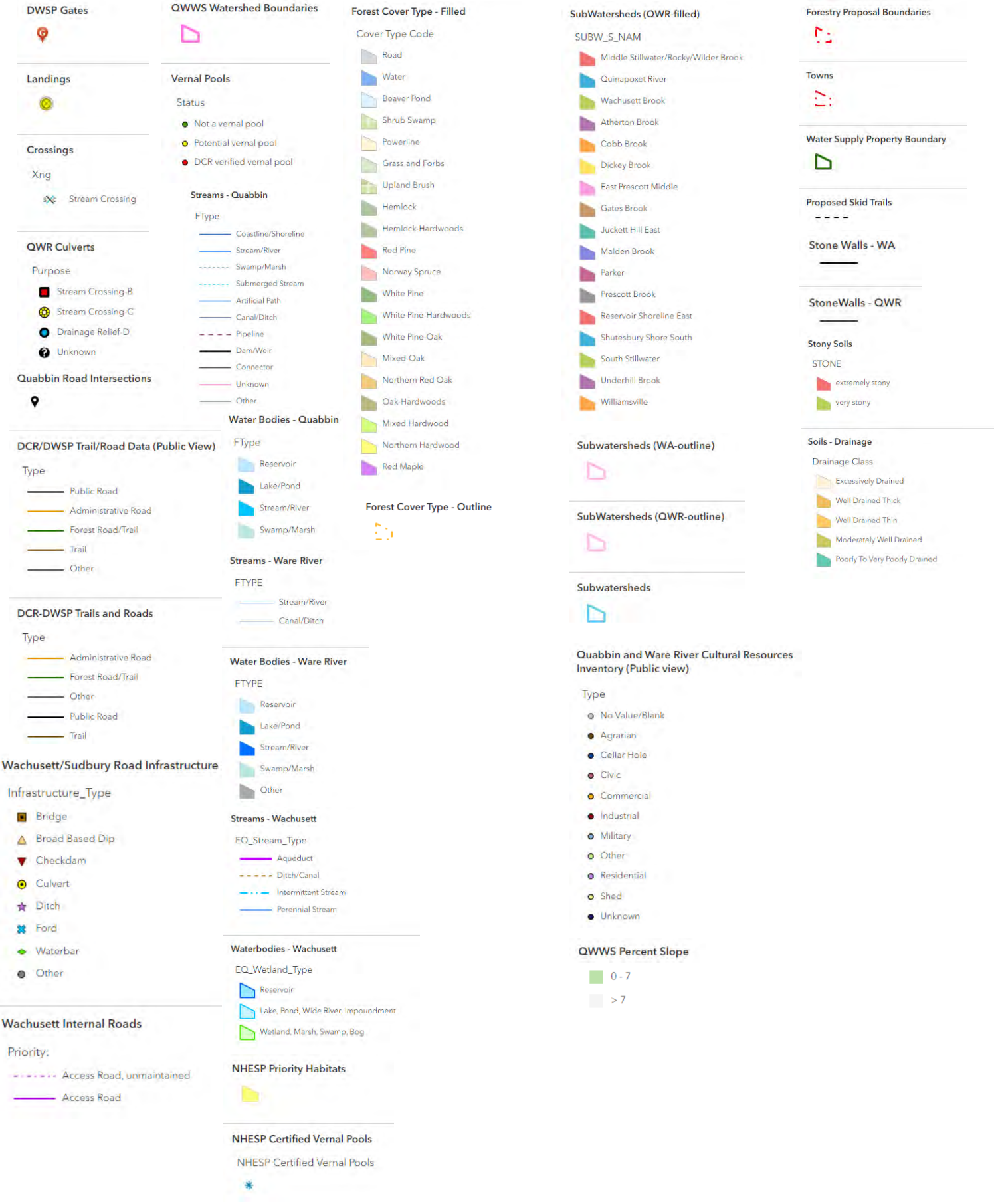


Quabbin Harvest Proposal PR-20-09

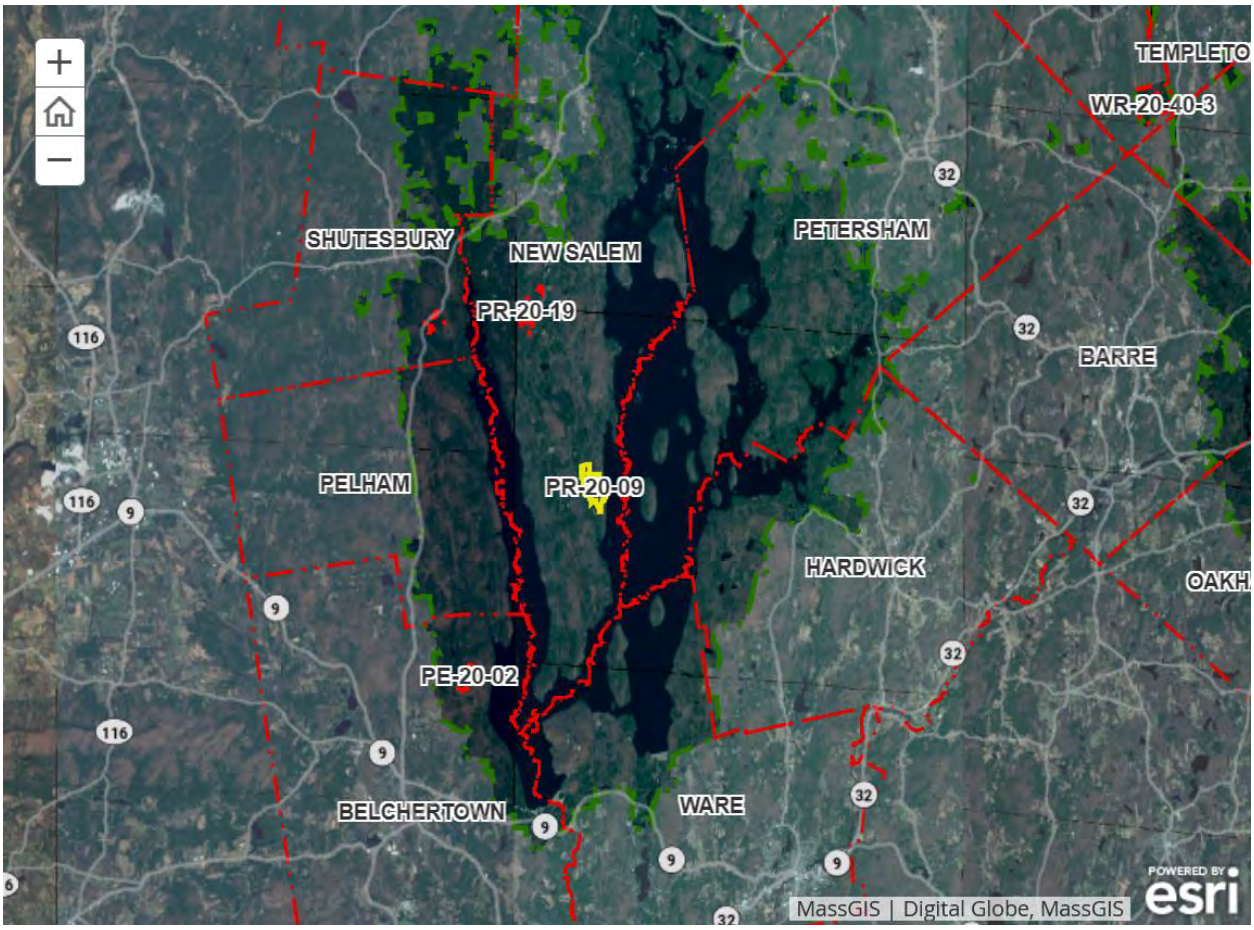
Proposal Goals

An extended period of no forest management is the primary reason for selecting the proposal area. Forestry records indicate no management on the eastern half and as far back as the 1960s for the western half. The purpose of the proposed project is to broaden the diversity of structure and species so the forest is poised to weather the challenges brought by climate change.

Proposal Location

The proposal area lies along the east side of Prescott Brook about 2,000 feet south of Kelly Hill Road and 500 feet east of Prescott Brook Road. About 2/3 of the land faces west with the remainder overlapping a ridge facing east. Specifically, the proposal area is bounded to the south by a small nestled wetland, to the east by steep slope/large surface stone, reservoir shore and past harvest boundary, to the north by an old property line and to the west by Prescott Brook, wetland, seep and steep slope.

Total Acres: 152



General Description

	Overstory Type(s)	Acres
Dominant	Oak/hardwood	59
Secondary	Oak, mixed	68
Secondary	Northern red oak	25

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

Description of forest composition/condition:

Generally speaking the entire area is covered with high canopy forest. However, height varies with the tallest forest located on the richer lowland/mid slope and the shortest on the droughtier upper slope/ridge top. Red oak is widespread; in addition to pure stands it mixes with white pine, red maple and other oaks (black and white) on the lower slopes, and mostly other oaks and hickory in uplands. Inclusions to the broader oak/hardwood cover are pockets of white pine-hardwood and remnants of a softwood plantation (white/red pine) just north of the Prescott brook crossing. The southeast part of the area was hemlock/hardwood cover that is now oak/hardwood with the decline/mortality of hemlock over recent decades.

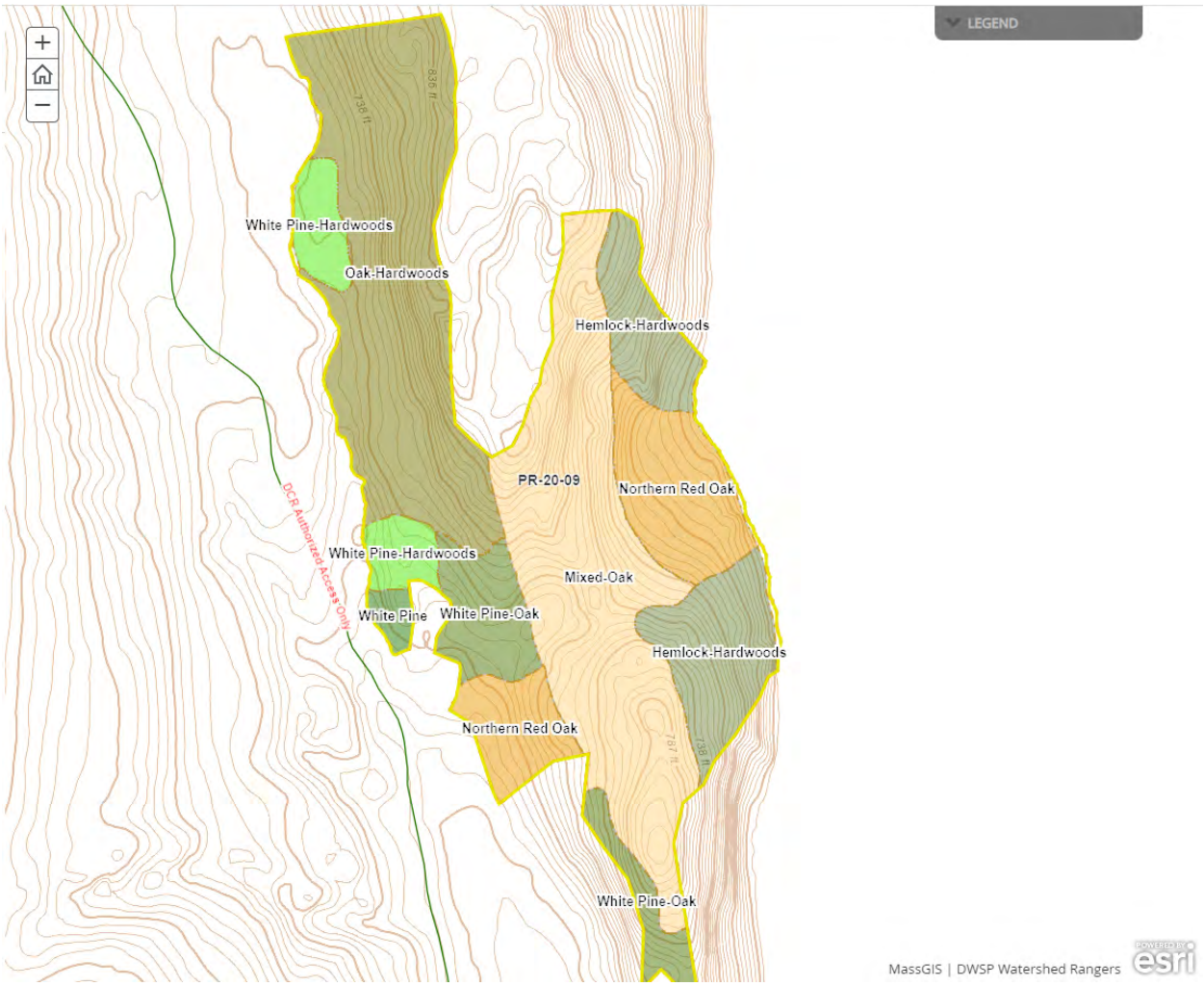
Roughly half the area has had no active forest management since state ownership. About a quarter was thinned in the in the mid 1960s. The most recent work was a mid 1990s seed stage shelterwood in the softwood plantations either side of Prescott Brook Road. A portion of the east boundary abuts a series of patch cuts completed in 1998 (one of the earliest examples of this type of management at the Quabbin).

Generally, the west aspect is dominated by dense white pine regeneration as opposed to the east side which is sparser and mostly black birch. Although the regeneration numbers are good, most has developed under a closed canopy overstory making it difficult to release without significant damage. The exception is the remnant softwood plantation where canopy gaps were made (mid 90s), however the locale's rich soils (arable) tended toward dense hayscented fern ground cover which is a major deterrent to natural regeneration. That said, black birch, red maple, white ash, cherry and hornbeam are the most common regeneration species.

There has been heavy mortality of oak, likely due to gypsy moth, the extent of which became apparent upon full leaf out (May 2019).

Assessment of Terrestrial Invasive Species:

Field observation identified (listed in highest to lowest frequency) Honeysuckle, Japanese Barberry, Multiflora Rose and Oriental Bittersweet. Distribution is typical of the watershed with the greatest diversity and density found in and around areas of past human habitation, the vast majority of which are along watershed access roads. Radiating away from access roads, generally speaking, diversity and density declines, with the exception being in areas of wetter soil (seeps, intermittent brooks) where invasives take on more of a serpentine pattern matching the flow of water. Parts of the proposal area's western edge have infestation that has affected development of native forest. A primary concern is that the infestation keeps moving east affecting growth/development of native forest.



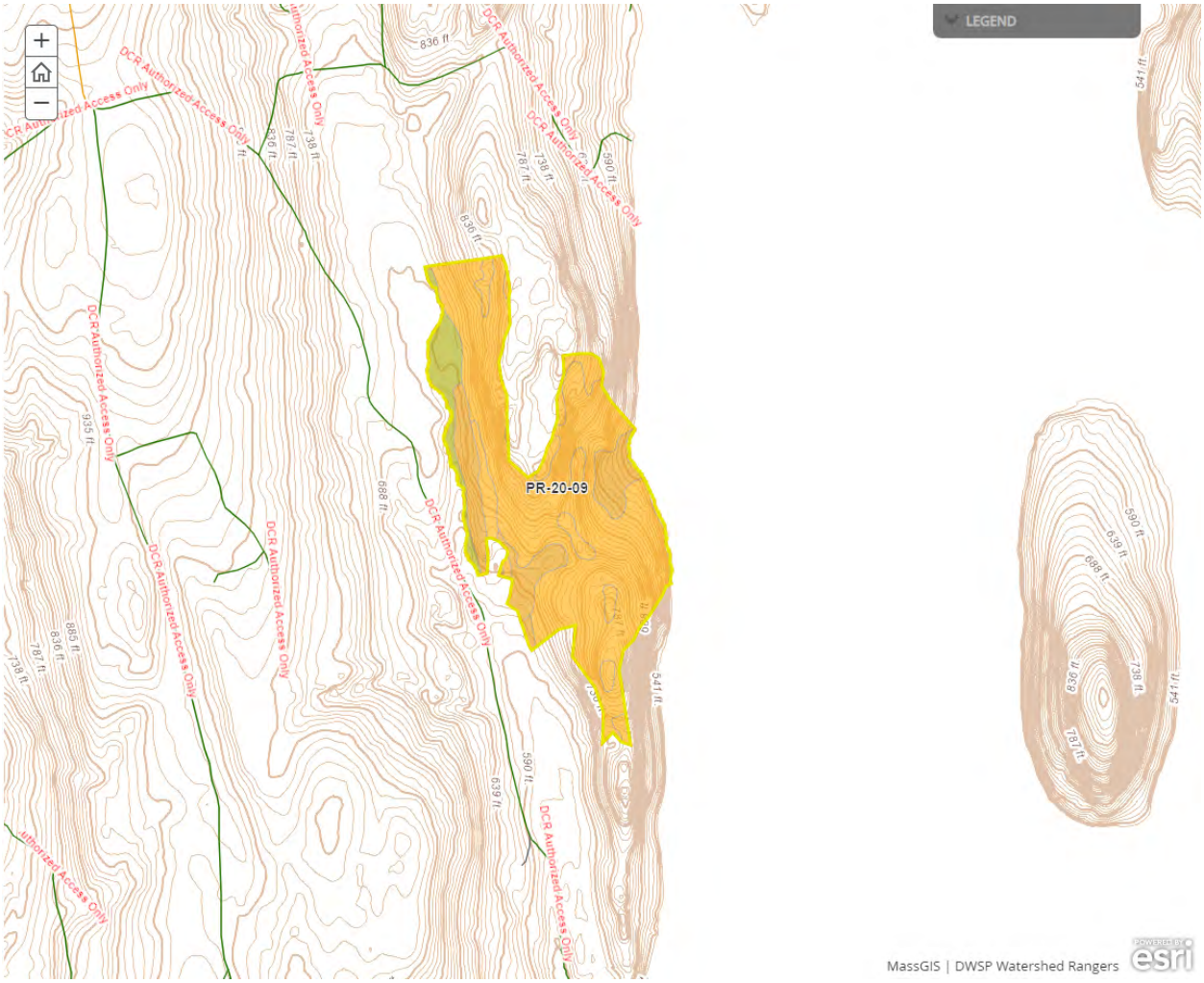
Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	75
Well Drained Thick	20

Moderately Well Drained	5
Poorly to Very Poorly Drained	0

Rocky Chatfield - Hollis soils cover most of the area including the mid and upper slopes.

Lower slope and bottom land section is a mix of well drained thick and moderately well drained soils classified as Canton and Newfield fine sandy loams; both of which are quite stony.

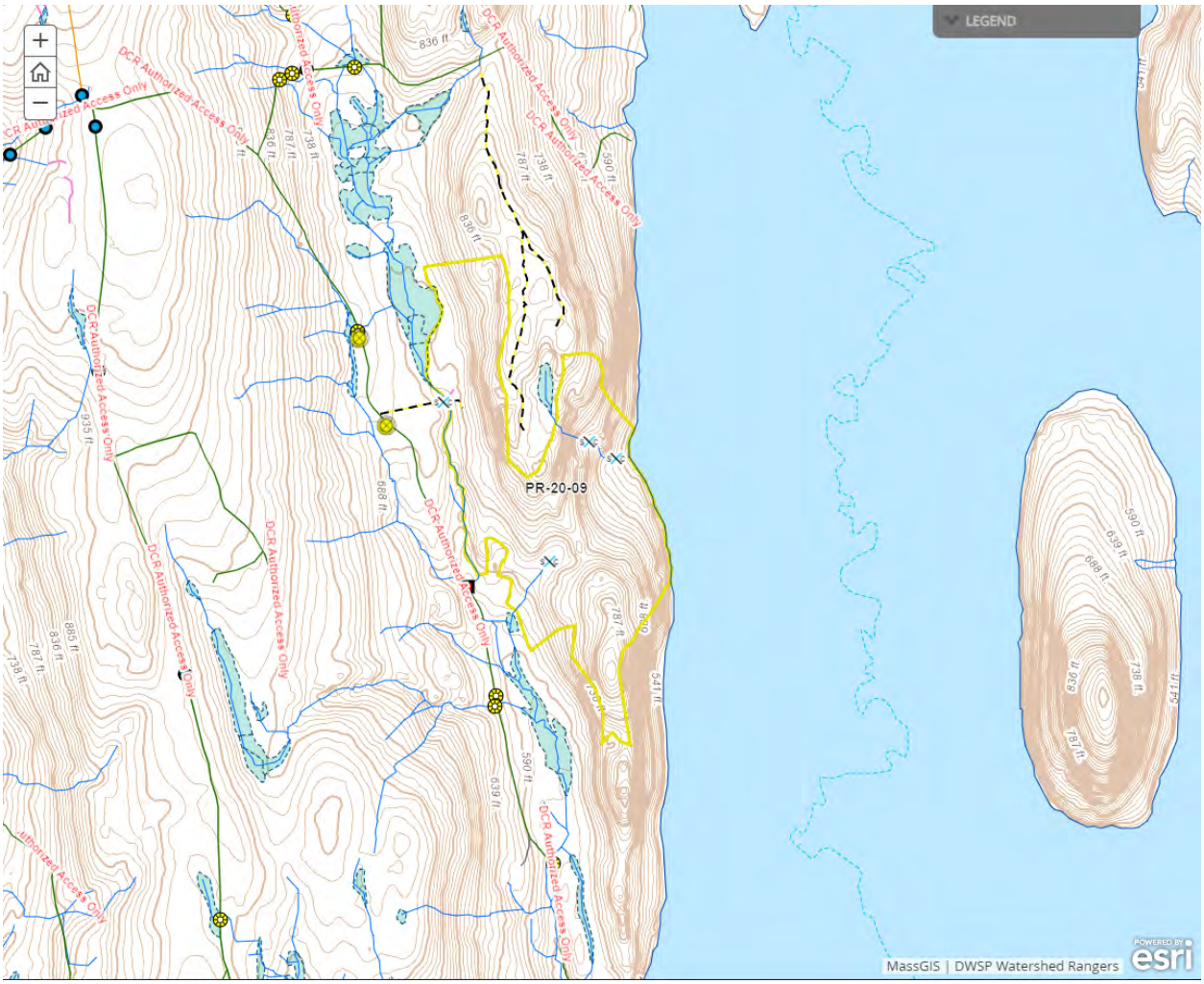


Wetlands

- Wetlands present? - **No**

- 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** **(Riparian Zone Mgt)**
- Is logging in wetlands planned? - **No**

Prescott Brook would be crossed at a previously used location. The crossing structure is gone, but the foundation/abutments are present. Temporary skid bridges would be able to span the abutments. Three intermittent brook crossings using temporary structures are also planned.



Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **27**

Average regen opening size: **1.5**

Maximum regen opening size: **4.5**

Description of advance regeneration in proposal area:

Dense seedling/sapling white pine covers much of the west aspect. The east side is less dense and composed of seedling/sapling black birch, red maple, ash, sugar maple and white pine.

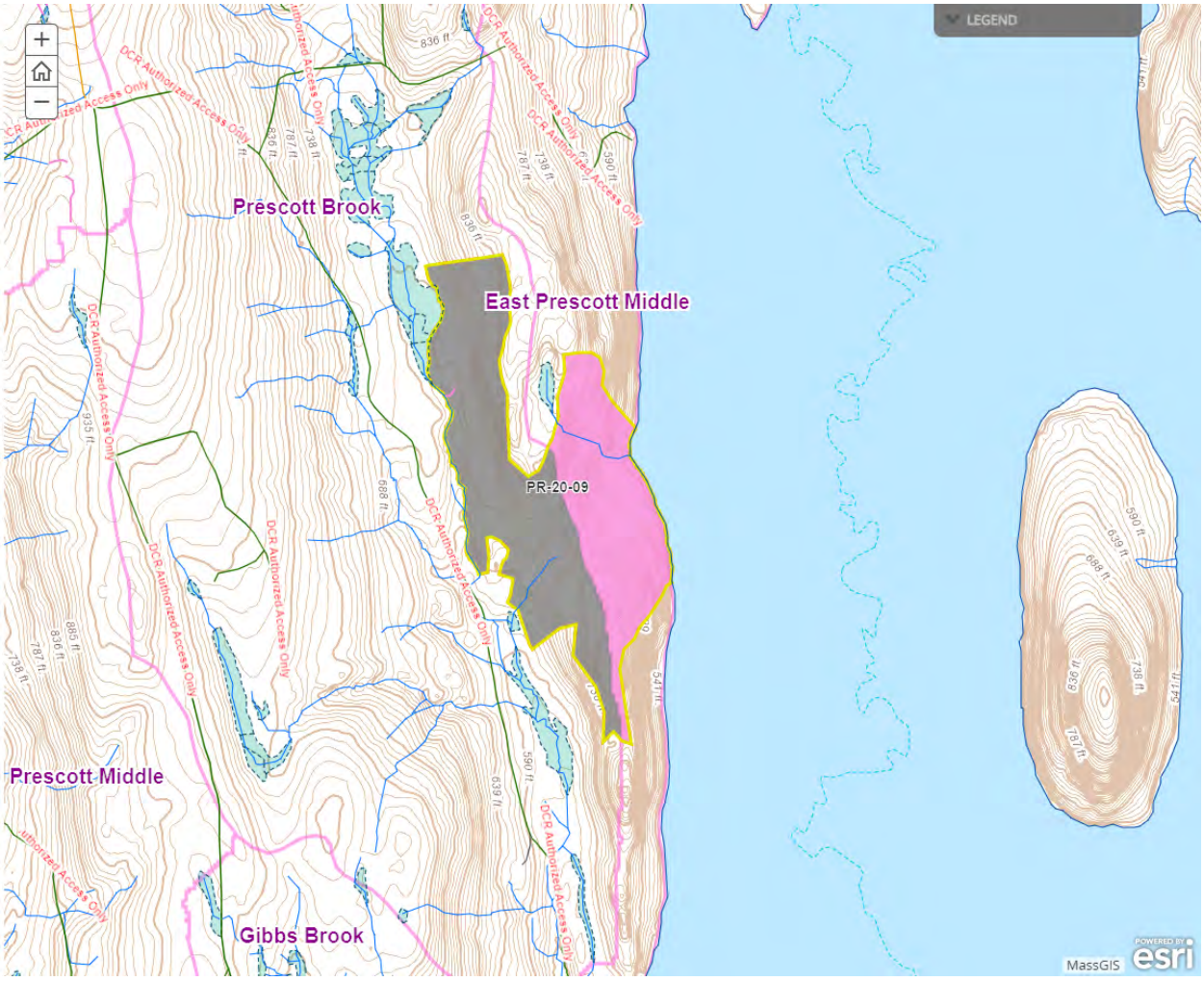
General comments on silviculture proposed:

The goal of the proposed silviculture is to create a new forest age class that is identifiable and free to grow. Larger openings would be sited in drier soil types that historically exhibit a higher probability of more diverse and timely regeneration capacity. A significant variable to the planned silviculture is oak mortality due to gypsy moth infestation. Minor infestation (<33%) would not alter planned silviculture; higher levels would prompt consideration of shifting silviculture to salvage, resulting in much larger openings and potentially minimal separation between openings. Assuming low infestation, opening placement would be prioritized by vigorous advance regeneration, poor form/quality, terrain and aspect. About 75% of openings will face west with the remainder facing east, northeast or south.

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
8 (East Prescott Middle)	319	15	65	50
74 (Prescott Brook)	1694	134	288	102

For subwatershed Prescott Brook (74), the "acres regenerated in the last ten years" figure is unusually high due to planned red pine removal on the west side of the subwatershed and potential oak salvage in the south end of the subwatershed (west side of Prescott Brook Road).



Harvesting Limitations

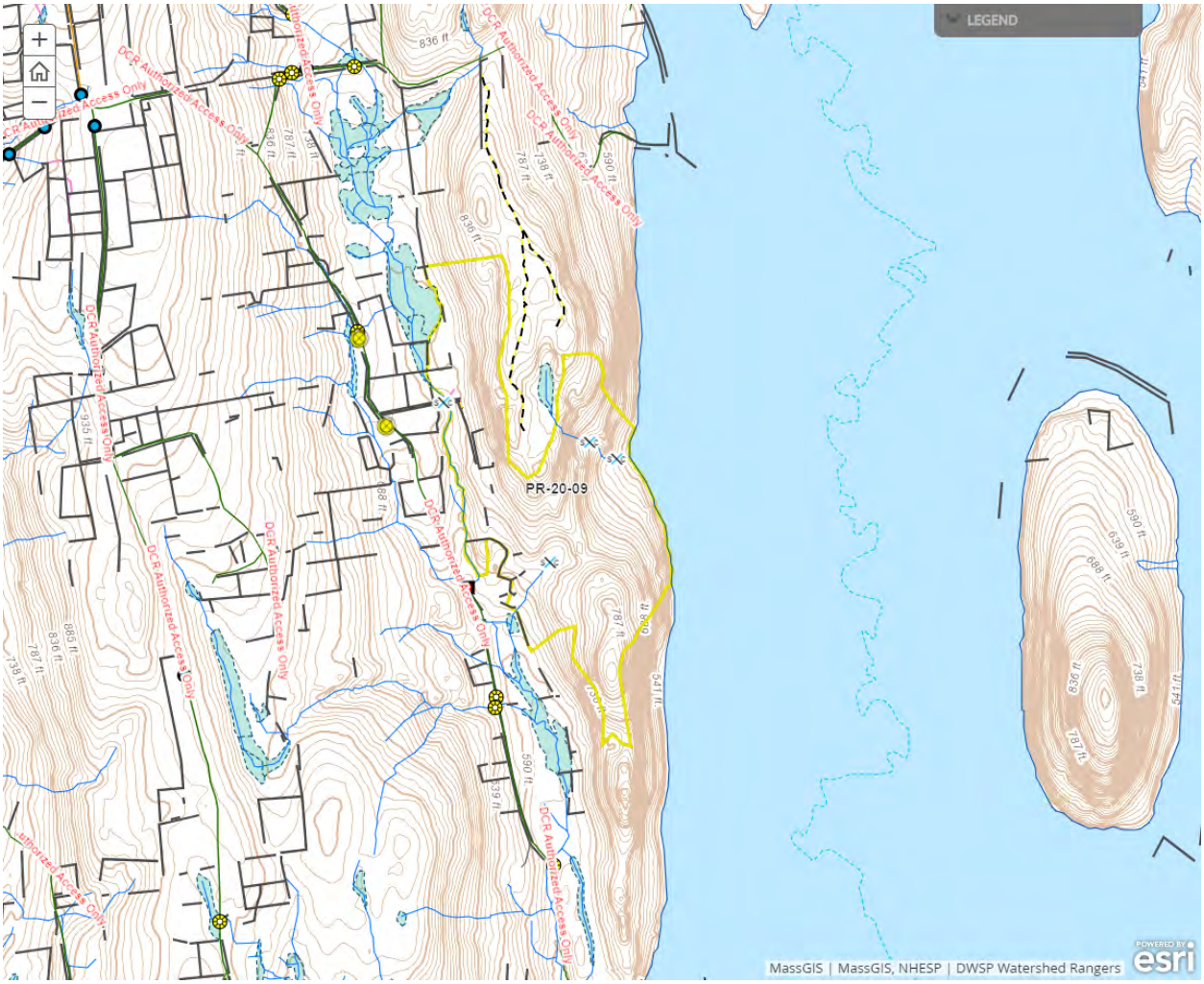
Forwarder required: **Yes**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

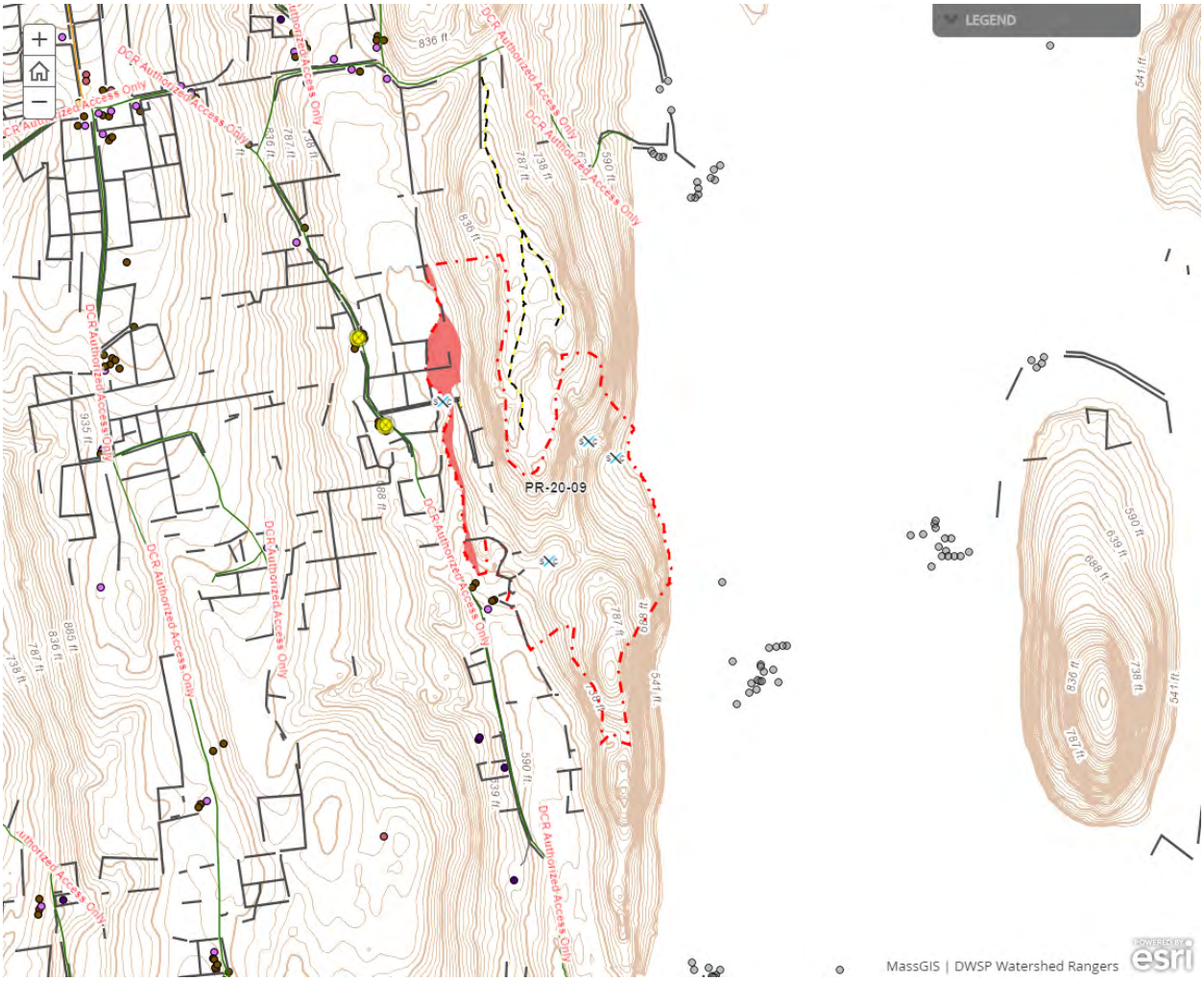
Forwarding system would be best for the Prescott Brook crossing and minimizing impact to cultural resources (mainly stone walls).



Cultural Resources

Comments on Cultural Resources:

A spring house was found at the bottom of the brook on the east side of the proposal area (brook flows directly into reservoir). 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.



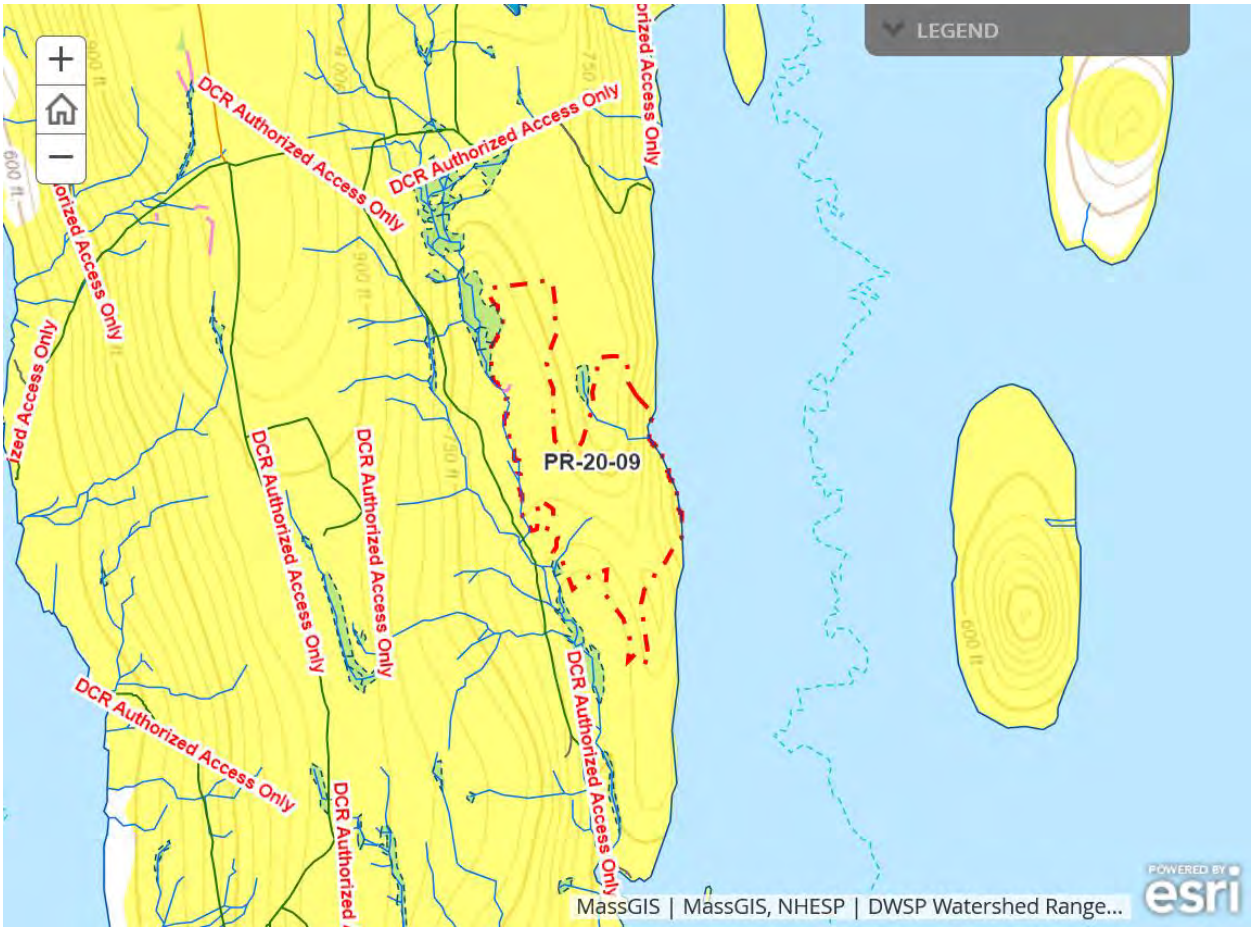
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

No comments...

Comments on Rare Species/Habitats:

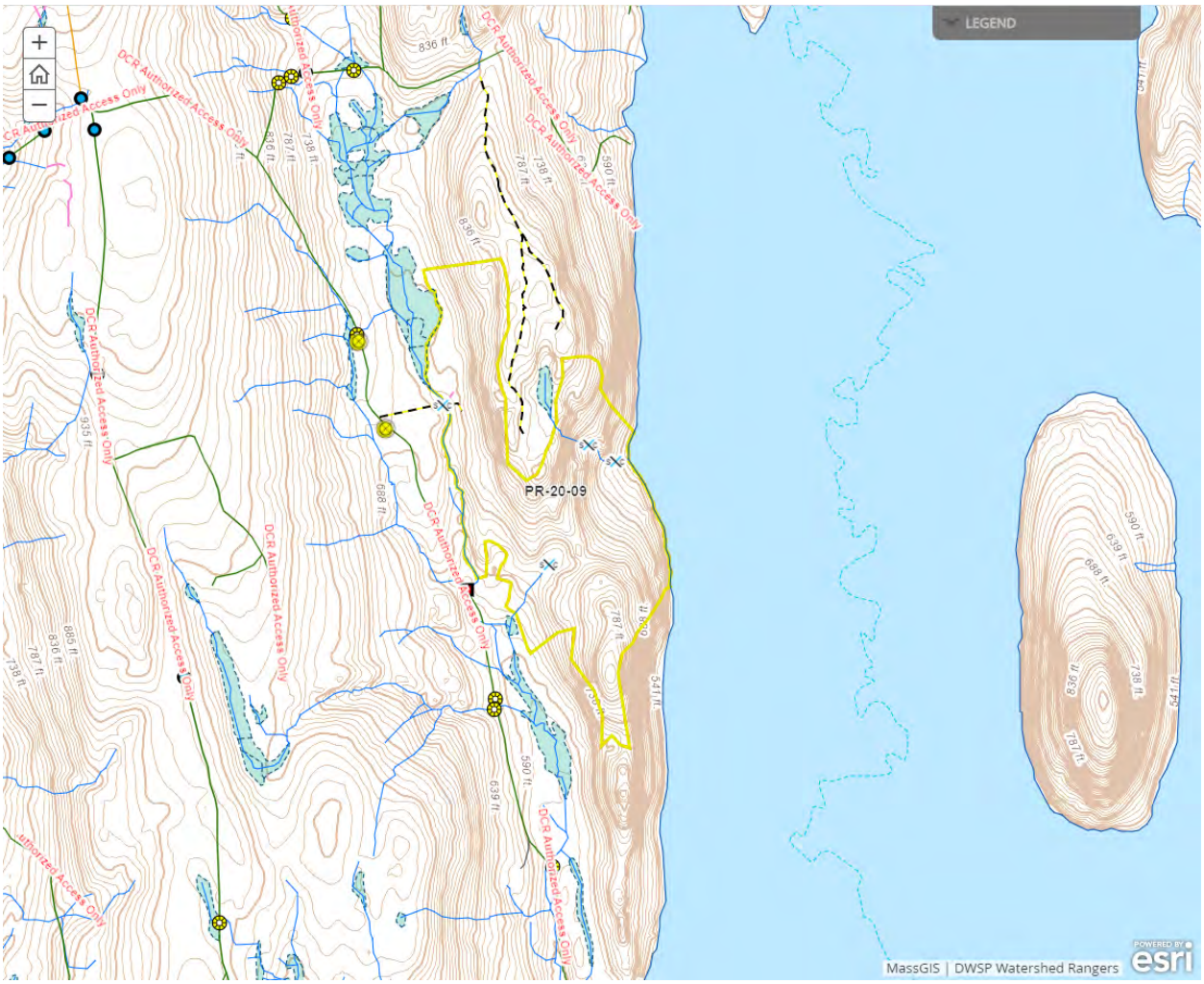
NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.



Environmental Quality Engineering

Comments on EQ Issues:

The Prescott Brook crossing presents a good opportunity for DSWP's short term stream monitoring program associated with watershed forestry projects.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

Culverts needed: No

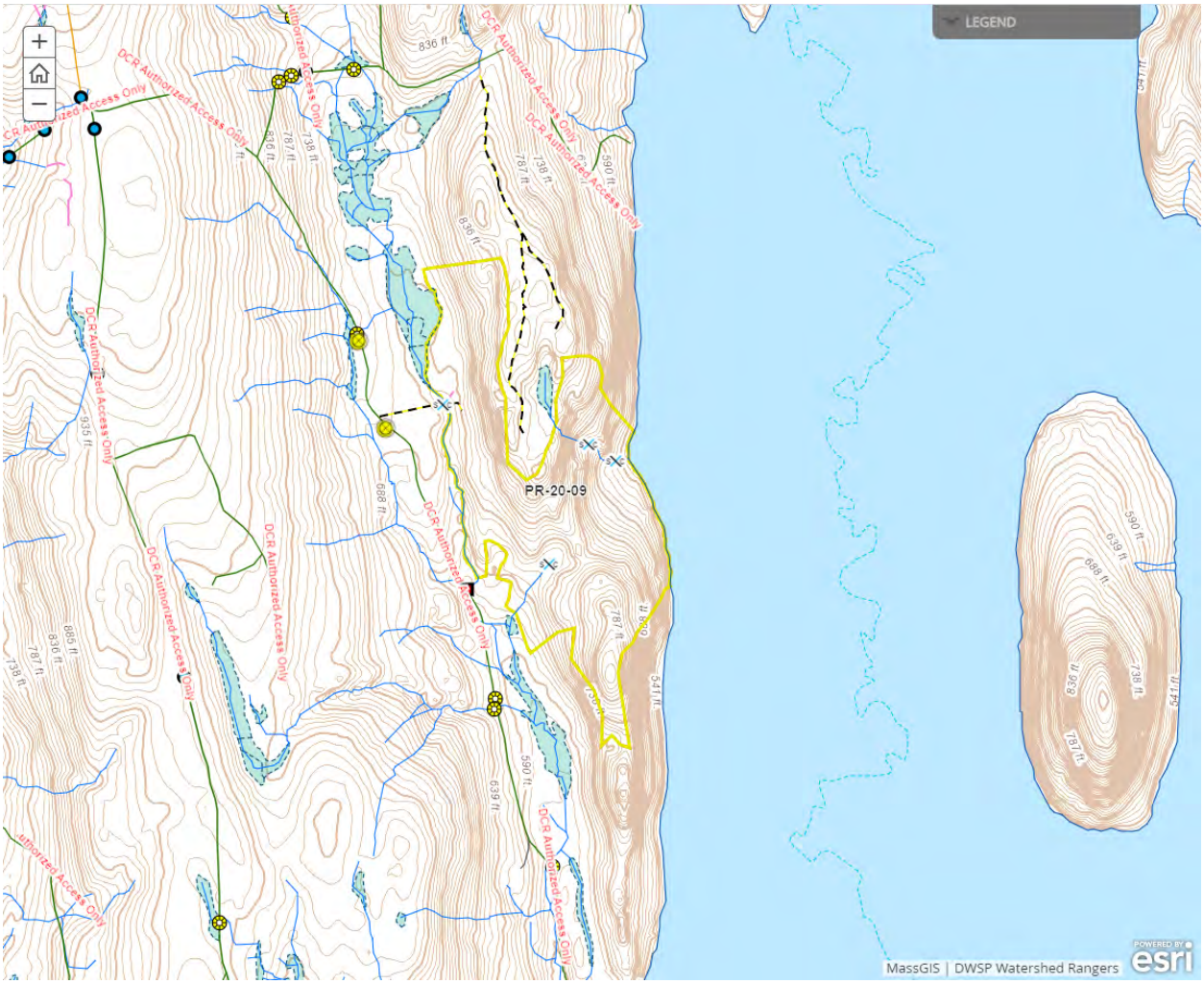
Work needed on permanent bridges: No

Beaver issue: Yes

Further comment on access needs:

Gravel needed to set the landing for supporting log trucks.

Slightly north of the landing (on west side of Prescott Brook Road) is a wetland that has been impounded by beaver in years past. There is a deceiver device to prevent water from flowing onto the road, which is monitored and maintained regularly.



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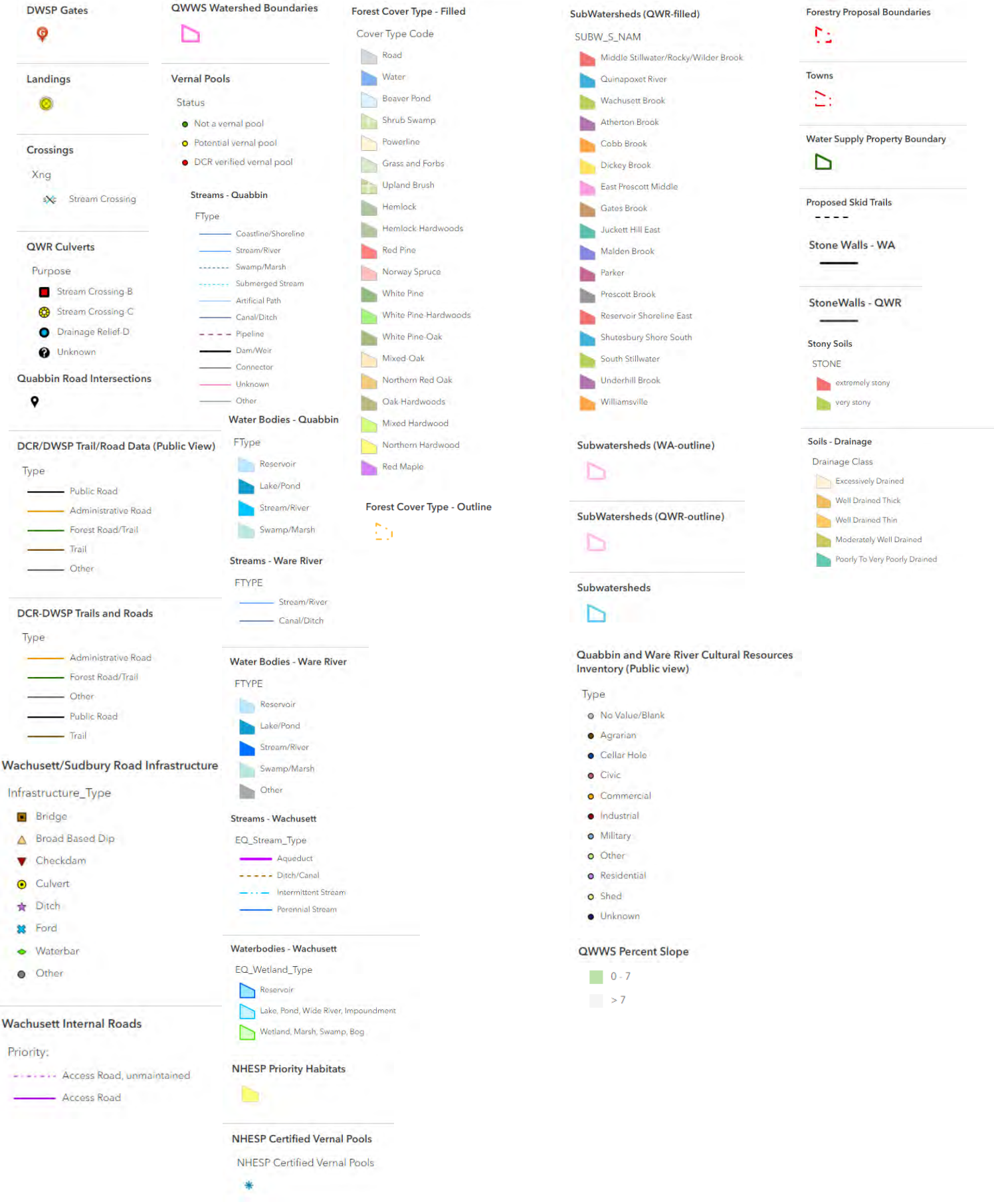


Quabbin Harvest Proposal PR-20-19

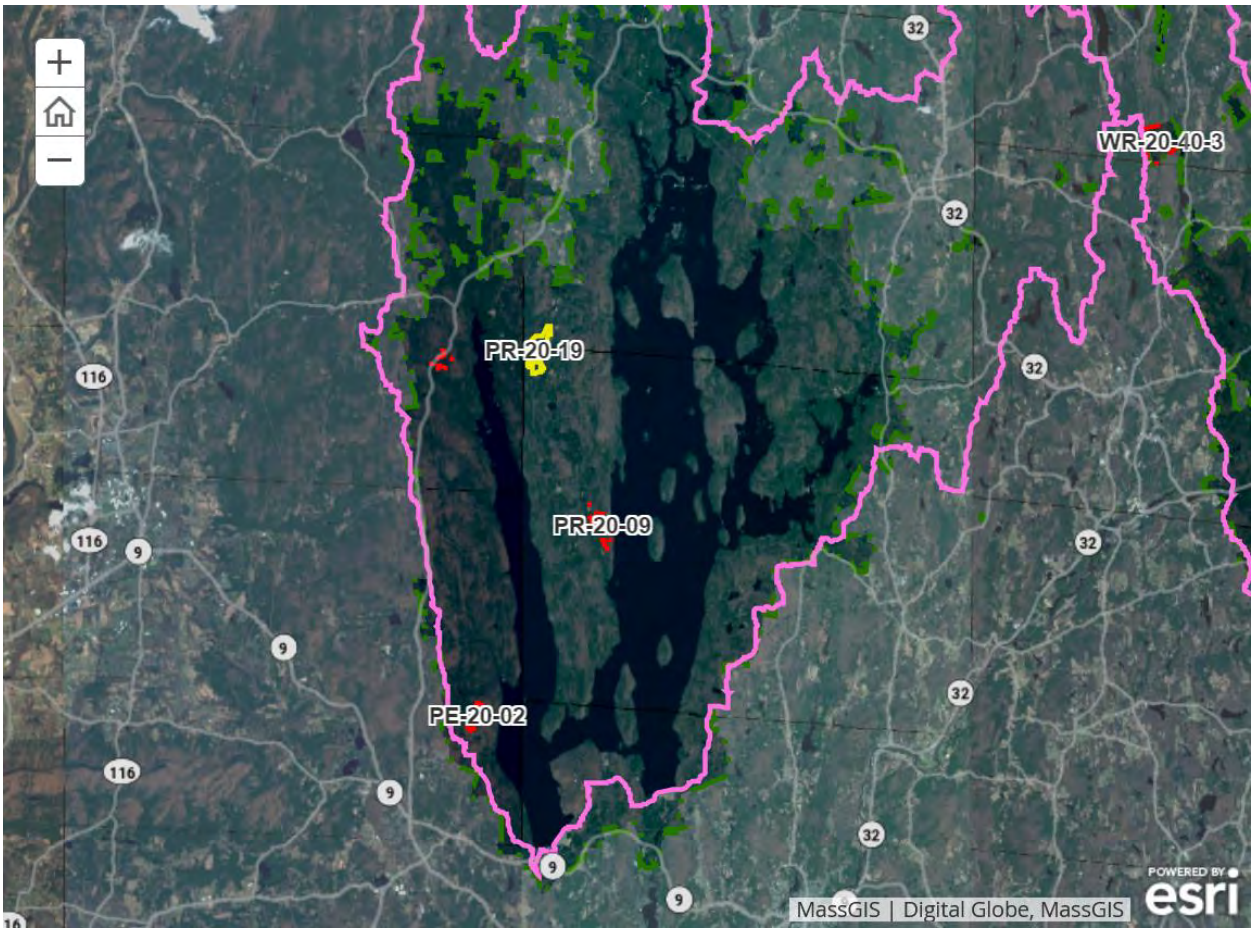
Proposal Goals

The area has been selected to continue fostering diversity of forest composition. The northern half has well established regeneration that would benefit from additional light blocked by overstory competition. The southern half has sparse understory and would benefit from development of a regeneration layer. Both sections have small inholdings of red pine in poor health that should be removed.

Proposal Location

The proposal is located between Fish Hill Road and Barnes Road along the west side of North Prescott Road (Gate 20). It is bounded on the south and west by Dickey Brook, and north by a watershed divide.

Total Acres: 154



General Description

	Overstory Type(s)	Acres
Dominant	White pine/hardwood	121
Secondary	Northern hardwoods	30
Secondary	Red pine	3

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

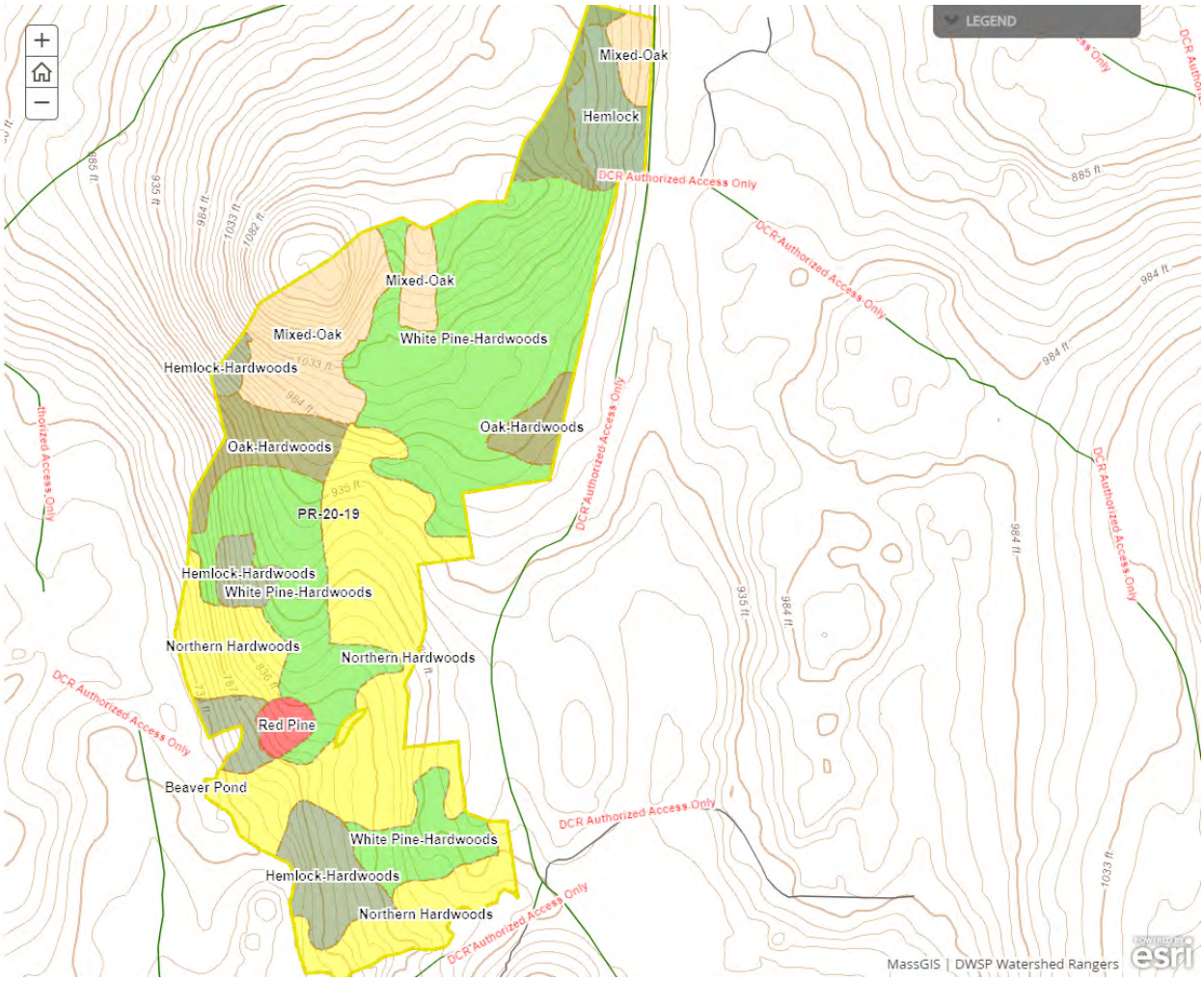
Description of forest composition/condition:

The northern three quarters of the proposal area overlaps (and extends a little further north and west) a summer 2000 seed prep harvest. That harvest created a two age structure composed of overstory white pine and mixed hardwood (red maple, birch, ash, oak, and cherry). Most of the understory is black birch saplings/poles. Overstory timber quality is quite variable ranging from average to low-quality white pine and average to better quality hardwood. A small inholding (2 acres) of red pine covers the southerly tip of the 2000 harvest area.

Two main forest types encompass the southern quarter. High canopy white pine/hardwood covers the upper slope. Descending, cover transitions to high canopy red oak/northern hardwood. In addition, the lower slope has a mid-canopy of hemlock. Little understory exists due to a generally closed canopy. Black birch sapling/poles are found in small gaps from a 1977 thinning. The section is also home to quarter acre red pine plantation.

Assessment of Terrestrial Invasive Species:

Generally speaking, field observation has lead to the conclusion that the highest concentrations of invasives are found in and around remains of old homesteads and water resources. To the east, much of the proposal abuts arable soil areas historically used for row crops by former residents. The central part of the proposal area is home to a few intermittent brooks that have varying densities of Japanese barberry and honeysuckle within/alongside them. There is at least one known location of Asiatic Bittersweet and multiflora rose near an intermittent brook at the north end of the area.

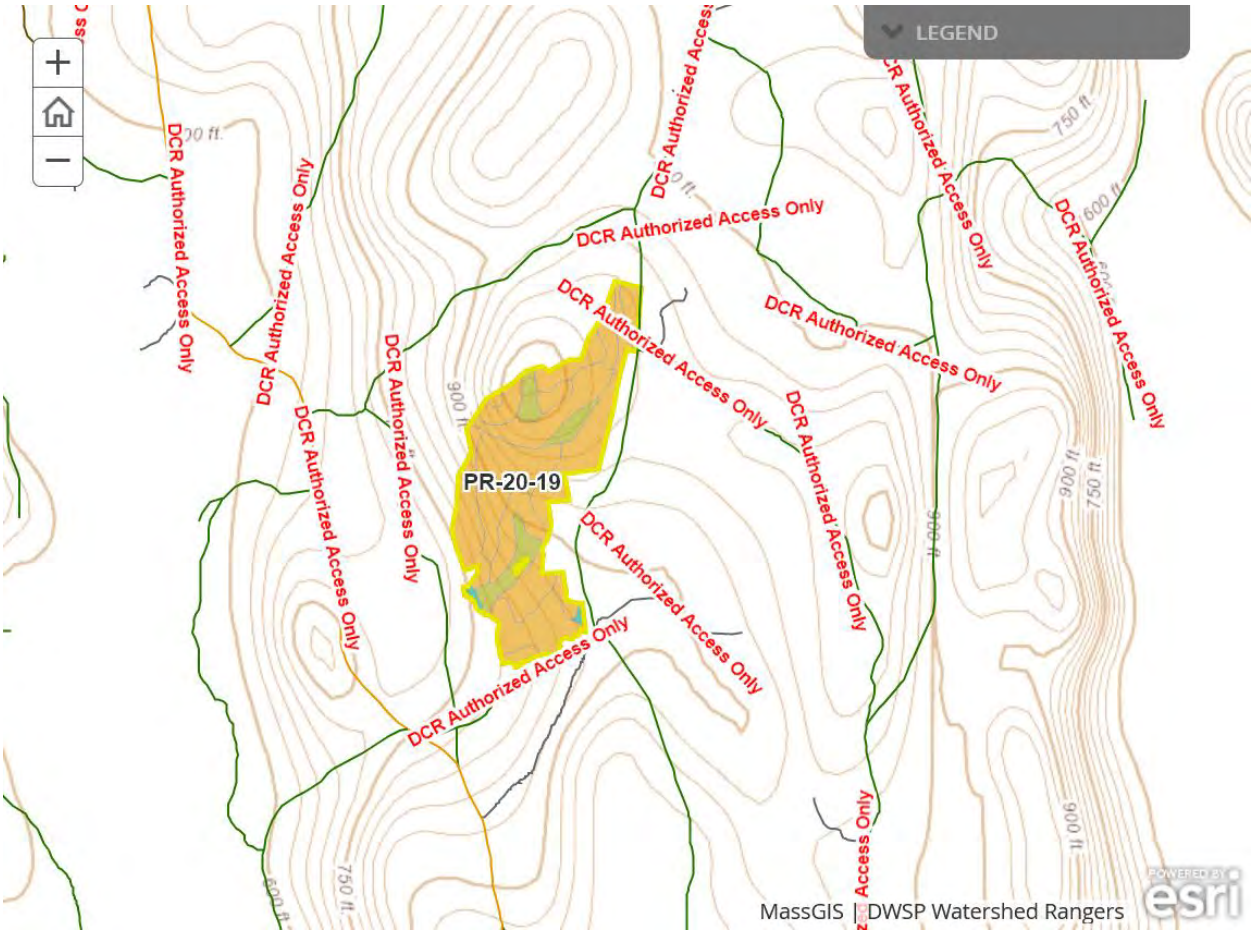


Soils

Drainage Class	%
Excessively Drained	0
Well Drained Thin	0
Well Drained Thick	85
Moderately Well Drained	10

Poorly to Very Poorly Drained	5

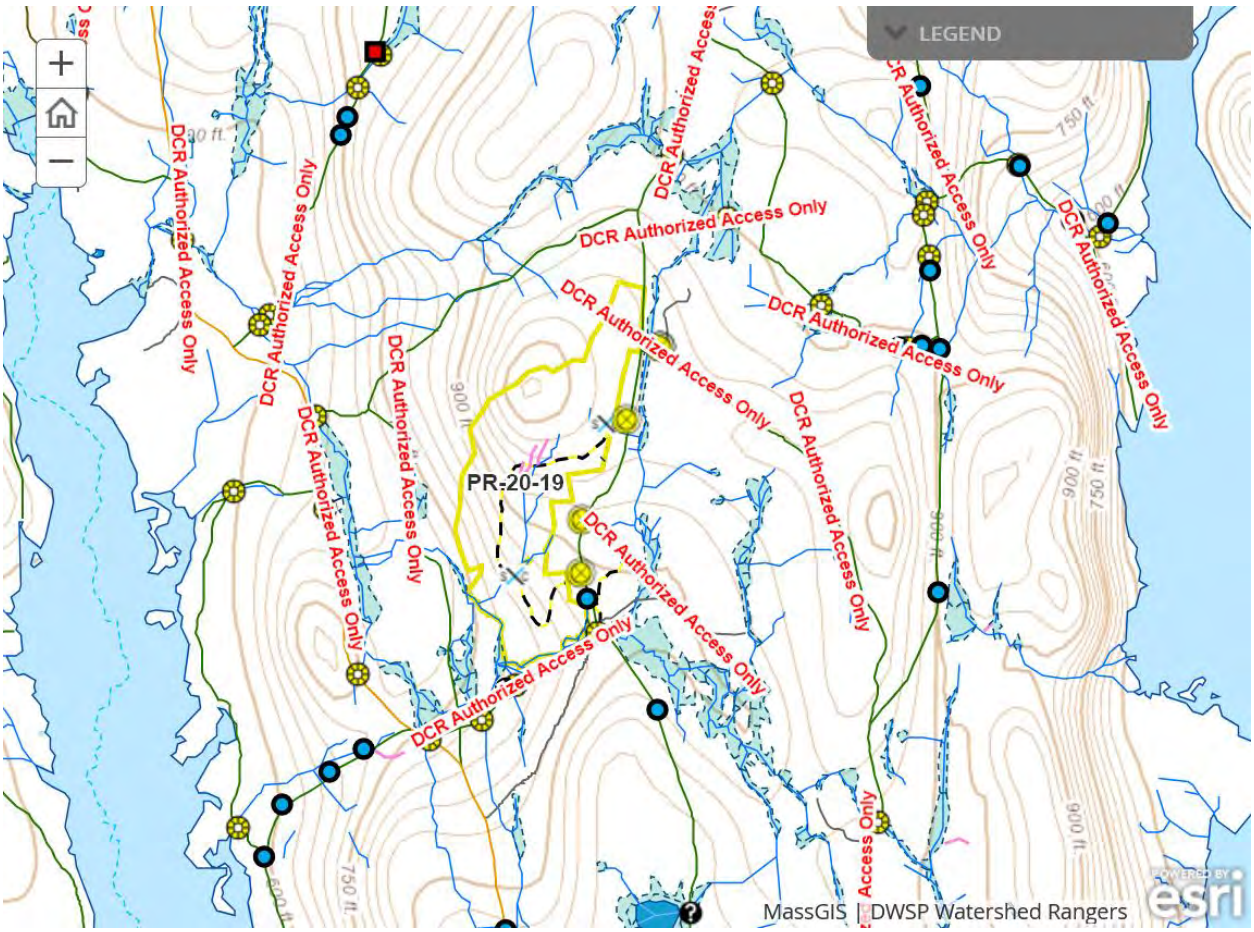
The rocky Canton-Chatfield-Hollis soil series encompass most of the area. Moderately well drained portions are covered by a stony Scituate fine sandy loam. Poorly drained soils are split between Ridgebury gravelly loam and Whitman stony mucky loam.



Wetlands

- Wetlands present? - **Yes**
- Streams present? - **Yes**
- Vernal pools present? - **No**
- Seeps present? - **Yes**
- 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 will be no more than two stream crossings. Hopefully this will drop to one with the possible relocation of a main skid road. Both crossings would be over intermittent water courses.



Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **25**

Average regen opening size: **1**

Maximum regen opening size: **4.5**

Description of advance regeneration in proposal area:

The northern three quarters has dense sapling/pole black birch, red maple, white pine, ash and cherry. Generally, regeneration is light in the southern quarter, although the southeast portion does have a dense broadcast of sugar maple seedlings that are worthy of release. The remainder of the south quarter has small gaps of mainly black birch sapling/poles.

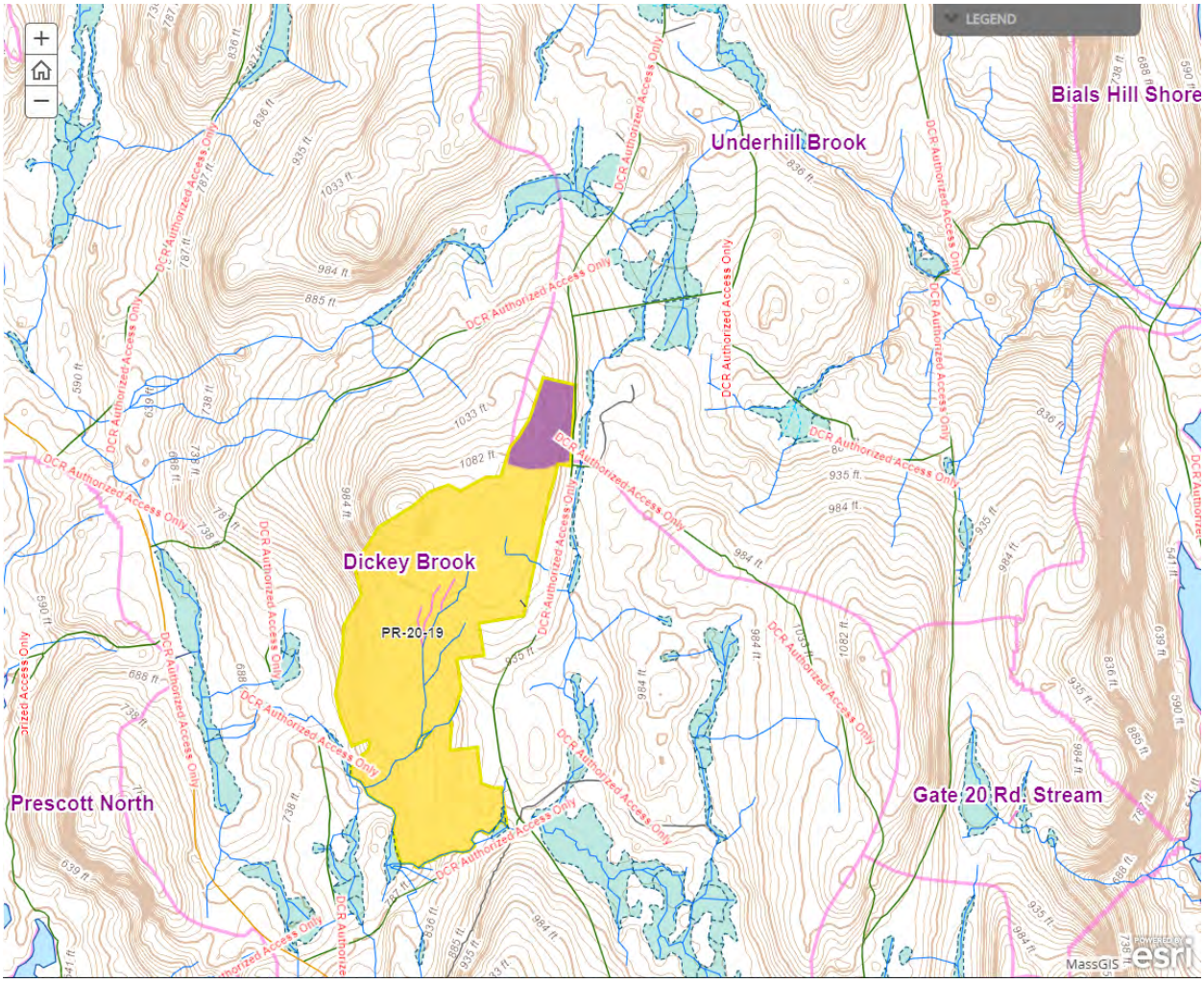
General comments on silviculture proposed:

Broadly, the primary goal is to foster young forest development. It will be achieved by creating canopy openings that allow young forest to develop unencumbered by direct overstory shade. Some openings may favor the well established pole-sized regeneration that has been developing since the 2000 harvest. Other openings will likely be placed to remove the small red pine inholds paving the way for native trees to colonize these plantations. Additional priorities for opening placement are areas of poor quality overstory and/or advance regeneration.

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
57 (Dickey)	2779	55	640	145
45 (Underhill)	1365	58	283	9

The proposed acreage of regeneration cuts falls below the 25% threshold.



Harvesting Limitations

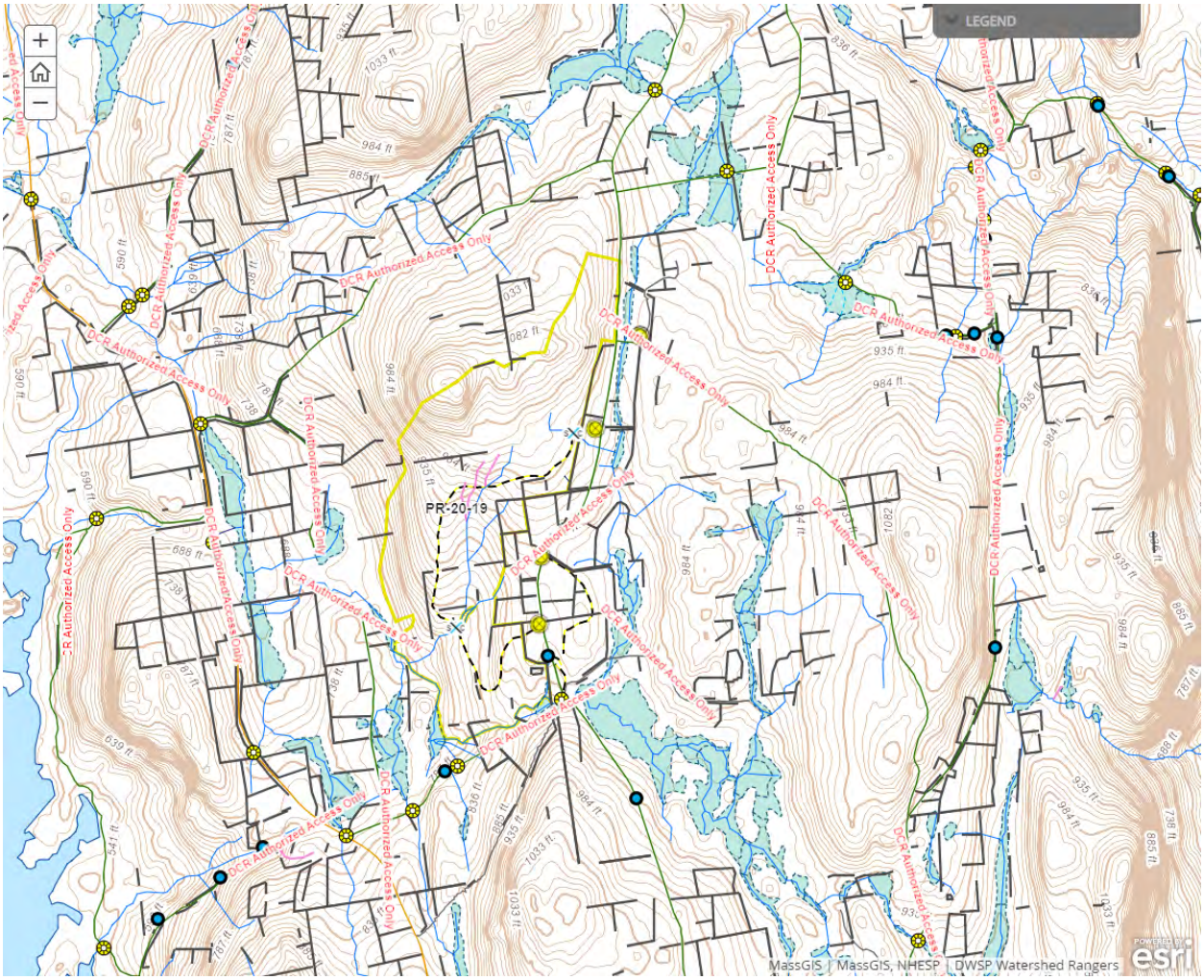
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

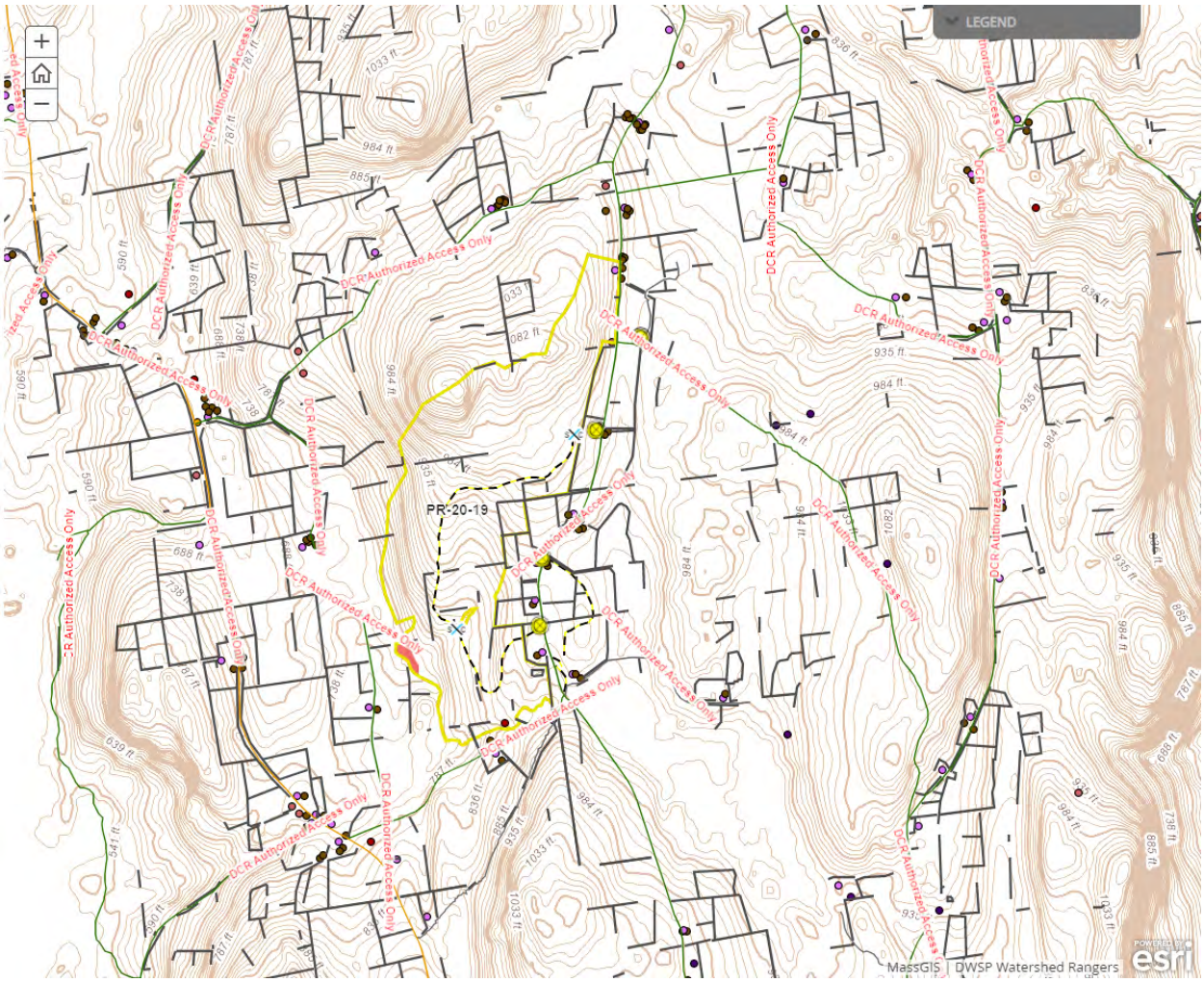
The proposal area may end up as two separate projects with different harvesting systems. The northern half may need a chipping operation to reasonably handle the significant stocking of poor quality timber. This would have to be weighed against existing pulp markets and potential impacts to cultural resources, namely stone wall.



Cultural Resources

Comments on Cultural Resources:

There is a cellar hole in the very northeast corner of the area (along the gate 20 road). The very southeast corner of the area is home to a stone wall dam likely associated with an old mill on Barnes Road. 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.



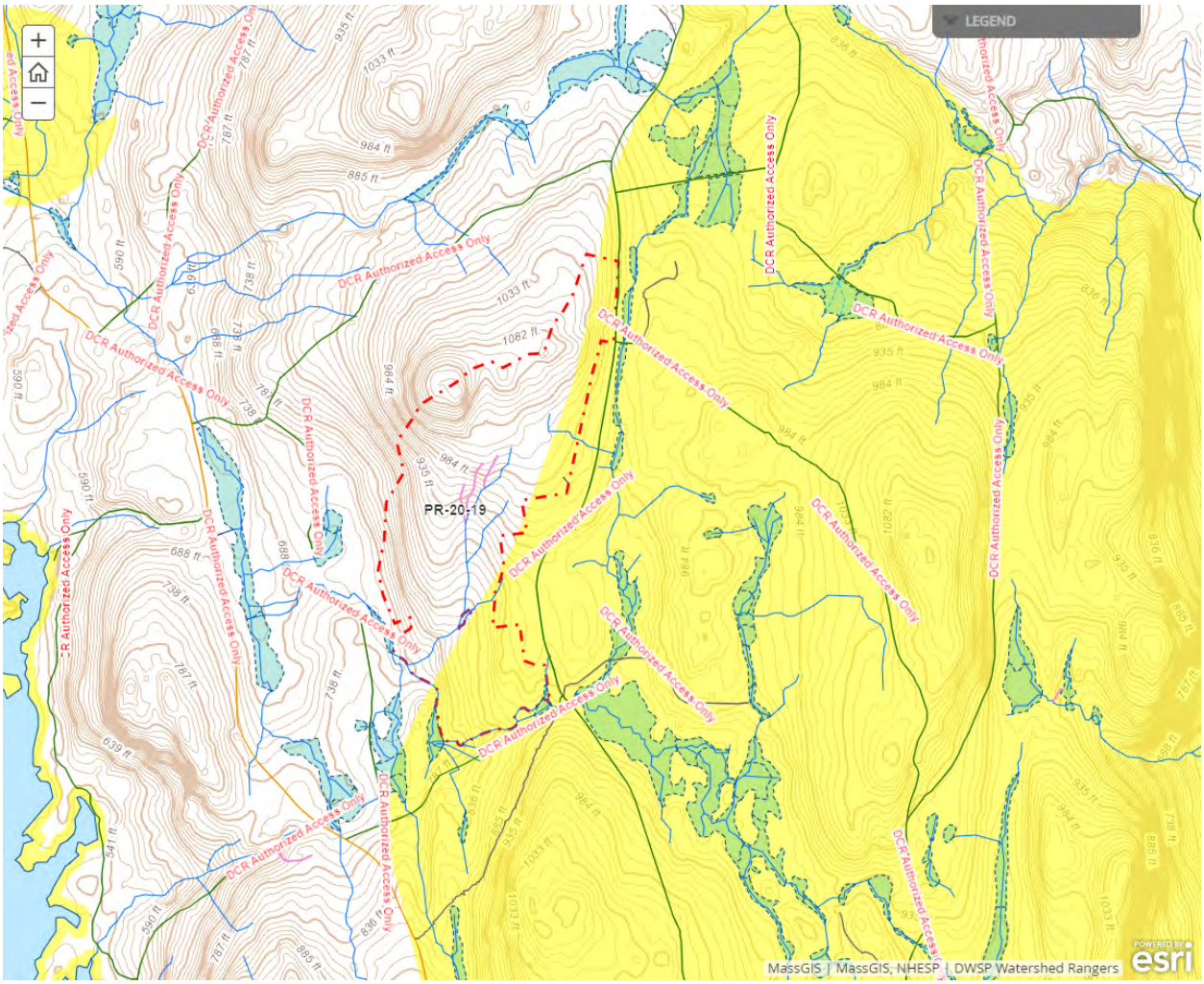
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

No vernal pools.

Comments on Rare Species/Habitats:

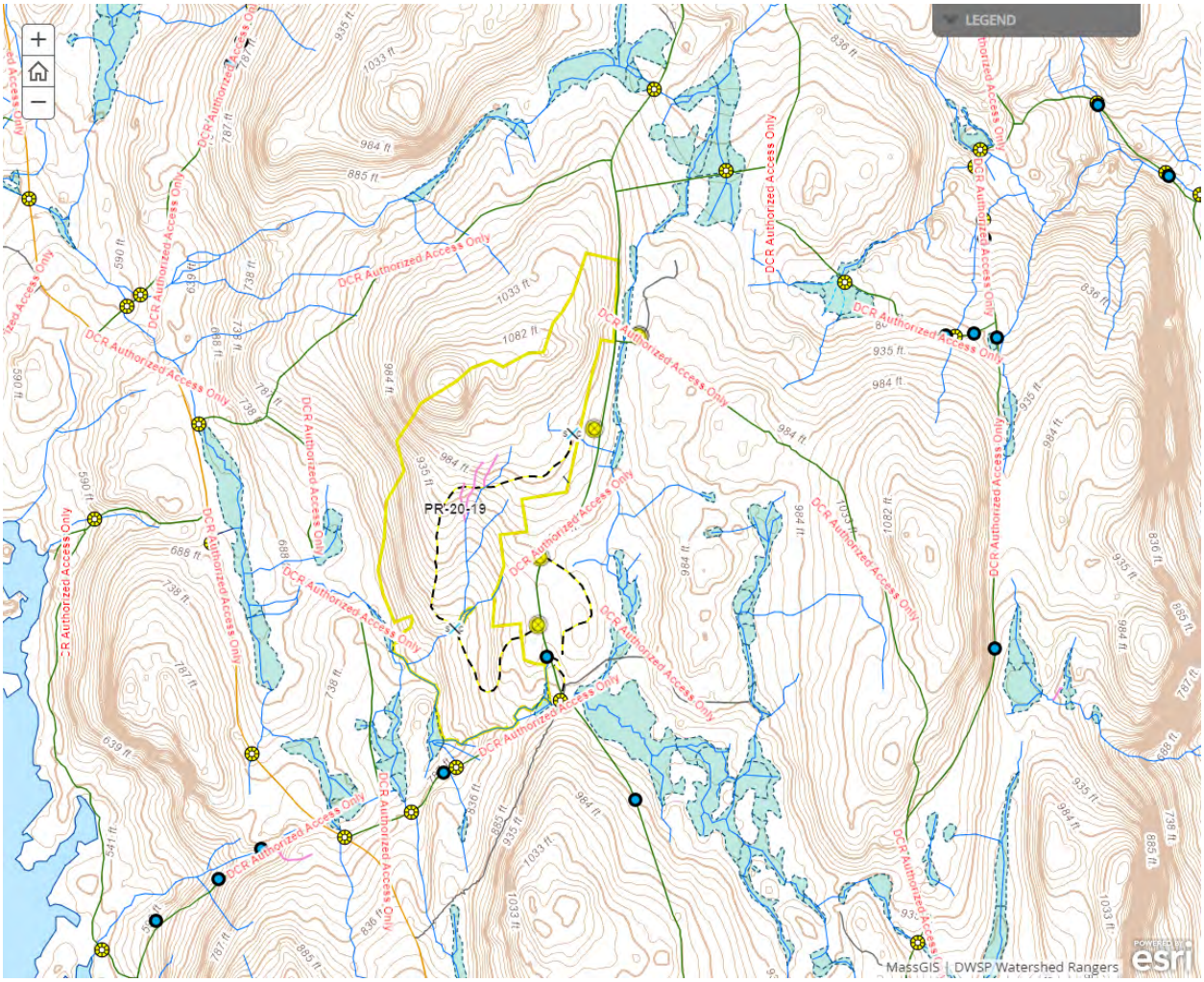
NHESP has determined that certain state-listed sensitive species or habitats may exist within the lot proposal area. To protect them from unnecessary disturbance, detailed information regarding affected species and their locations is not included in this report. DWSP will coordinate with NHESP and follow recommendations to protect these species during the proposed activity.



Environmental Quality Engineering

Comments on EQ Issues:

No stream crossings will be monitored here as they are dry much of the year.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

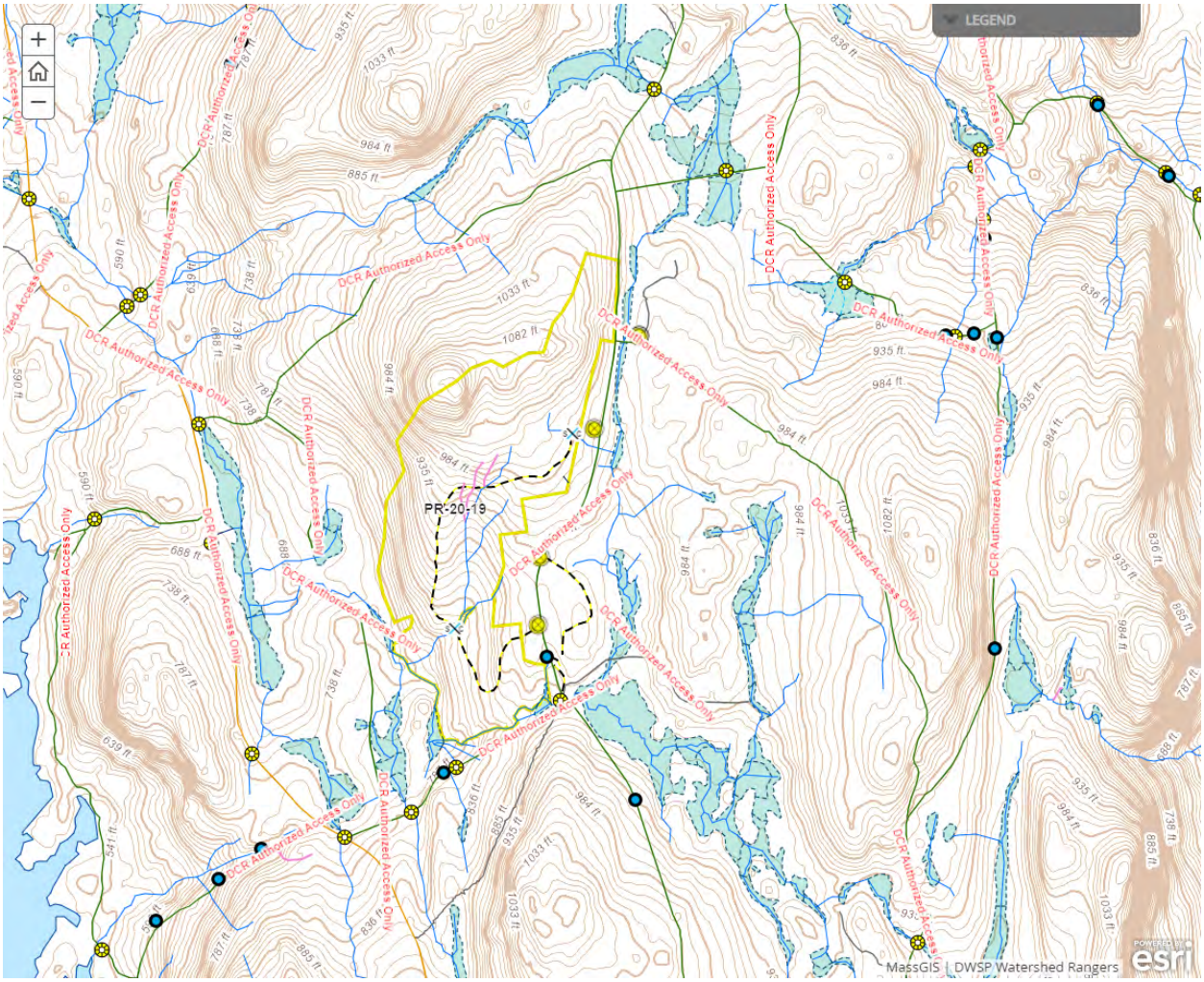
Culverts needed: No

Work needed on permanent bridges: No

Beaver issue: No

Further comment on access needs:

Landings may need gravel to support trucks.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