Ware River Harvest Proposal WR-21-1-1

Proposal Goals

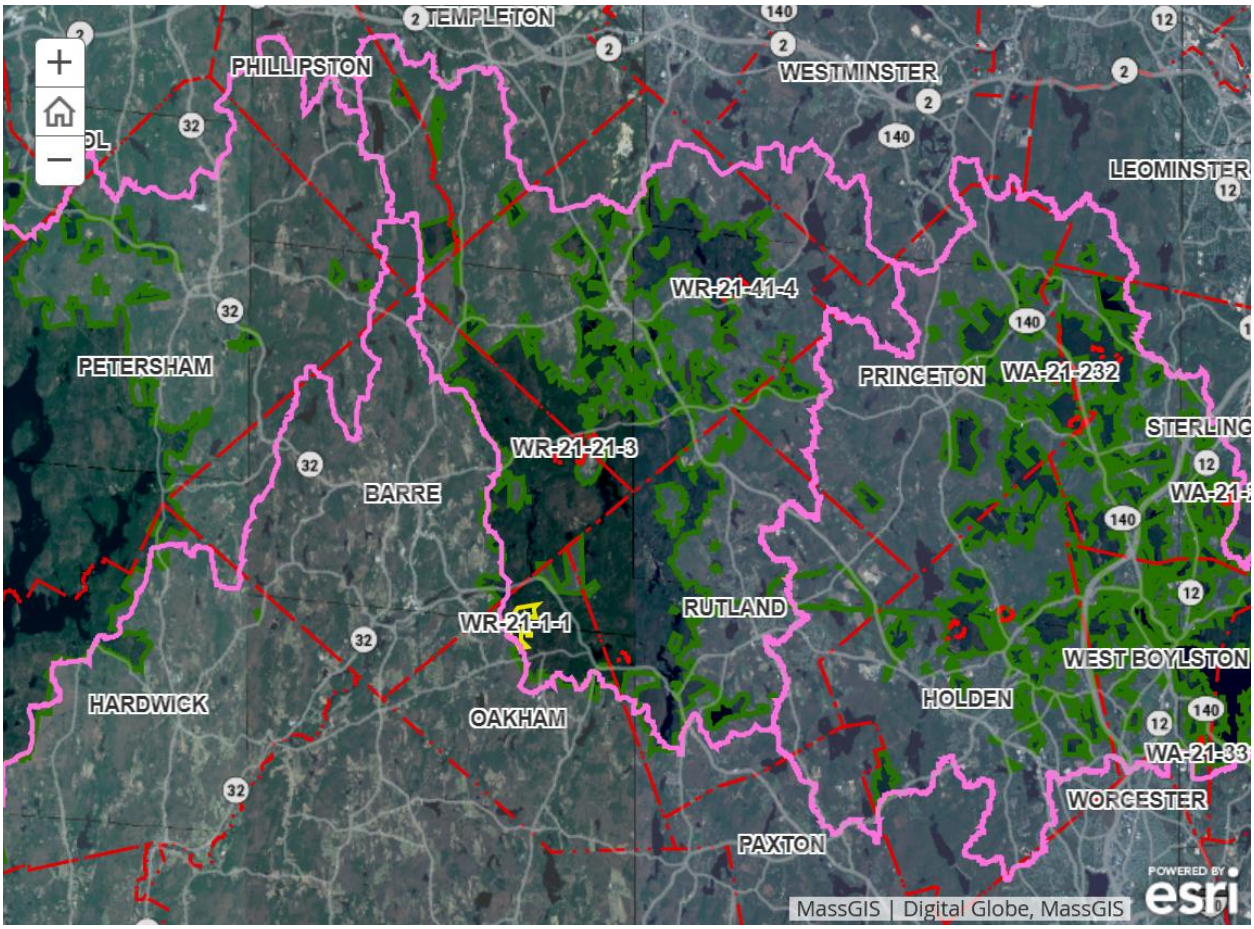
The goal for this proposal is to create regenerating areas as part of a study examining the effects of slash walls on reducing herbivory pressure on regenerating tree and other plant species.

Cornell University is spearheading this innovative new technique. To help get a visual sense of the proposed slash wall please watch https://www.youtube.com/watch?v=k3_aDNURj_8

Proposal Location

The proposal area is located in Oakham, west of Coldbrook Road, along Loop Road.

Total Acres: 169



General Description

	Overstory Type(s)	Acres
Dominant	White pine/hardwood	81
Secondary	White pine/hardwood	46

Secondary

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

Secondary	Dry site - blueberry/huckleberry

Description of forest composition/condition:

White pine/hardwood stands dominate the northern and southern portion of the lot. A 40-acre mixed oak stand is located in the center of the lot. There is an 18-acre Norway spruce plantation in the northeastern corner of the lot, adjacent to Coldbrook Road.

There is no record of a harvest on most of the lot in the last 30 years, though old stumps are present. The very southern tip of the lot was part of lot # 167, a shelterwood harvest that was completed in 1989. The spruce stand was thinned as part of lot #217 in 1995.

Gypsy moth damage and mortality is present throughout the lot.

The white pine/hardwood stands are dominated by mature, low to medium quality, sawlog-sized eastern white pine. Red maple, white oak, red oak, hemlock, black birch, black cherry, aspen, paper birch, and white ash are also present in the overstory. The stands average approximately 145 square feet of basal area per acre. The quality of overstory oak varies greatly with some good quality stems present. The quality of other hardwoods and hemlock is low. Regeneration is abundant and consists of seedling and sapling size red maple, white pine, red oak, white oak, black oak, Norway spruce, and black birch. Hazelnut, striped maple, hawthorn, high and low bush blueberries are also present.

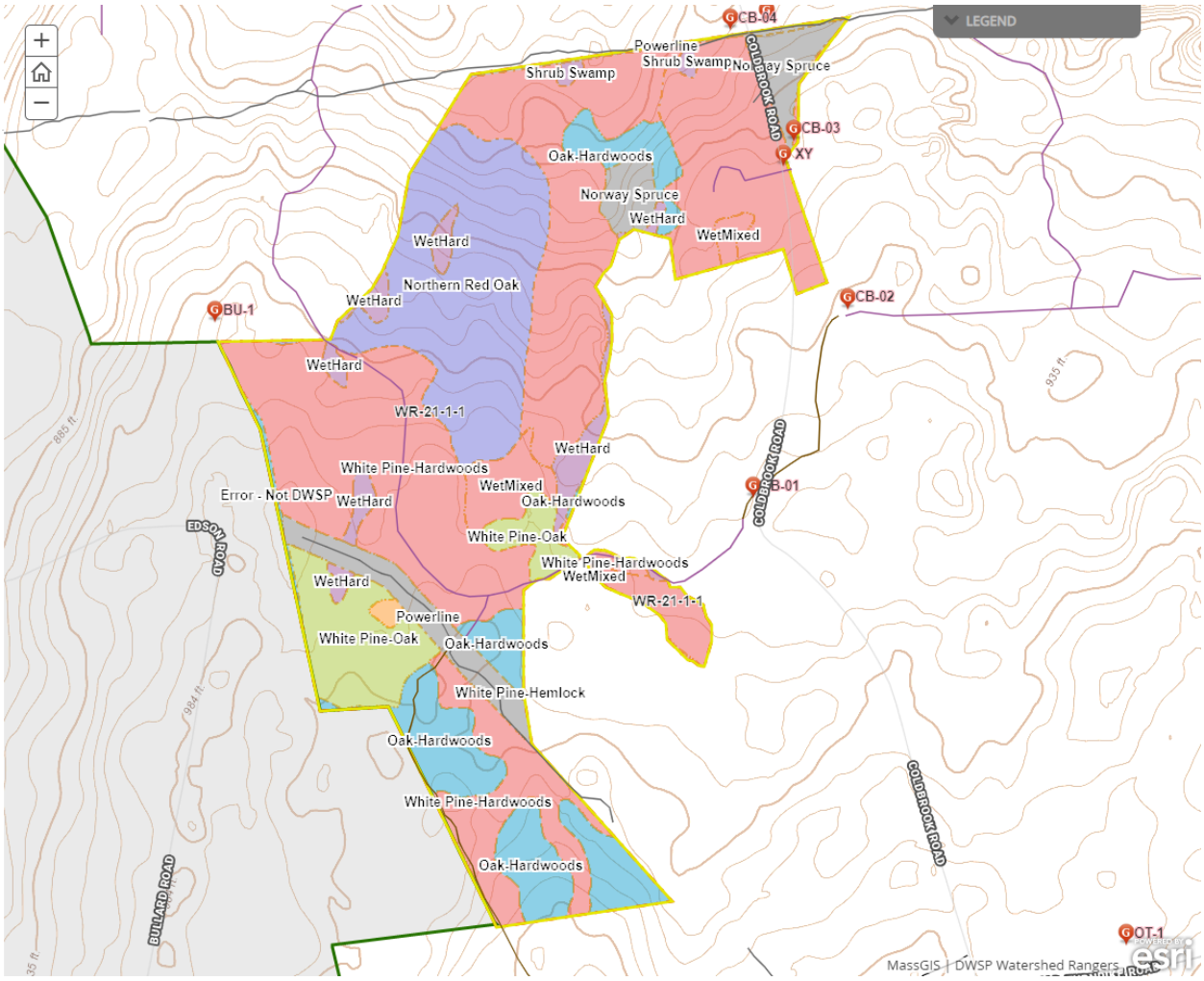
The mixed oak stand is dominated by mature, medium to good quality, sawlog-sized red, white, and black oak. White pine, red maple, and hemlock are also present. The stand averages approximately 120 square feet of basal area per acre. Regeneration consists of black birch, white pine, red maple, and Norway spruce. Gypsy moth damage is present in this stand. Mortality appears to be patchy, but will be evaluated again during the next growing season.

The Norway spruce stand is dominated by mature, medium to good quality, sawlog-sized Norway spruce. Low quality black cherry, white pine, red maple, and aspen are also present in the overstory. Non-spruce species comprise less than 10% of the stand. The stand is fully stocked with approximately 170 square feet of basal area per acre. Some areas were thinned as part of lot 217. The thinned areas have some pole sized black birch present in the understory. The

unthinned areas are lacking regeneration. Buckthorn is heavy in spots. Grape, burning bush, and bittersweet were also observed.

Assessment of Terrestrial Invasive Species:

Buckthorn is present throughout the lot. Bittersweet and burning bush were also observed in the spruce plantation.

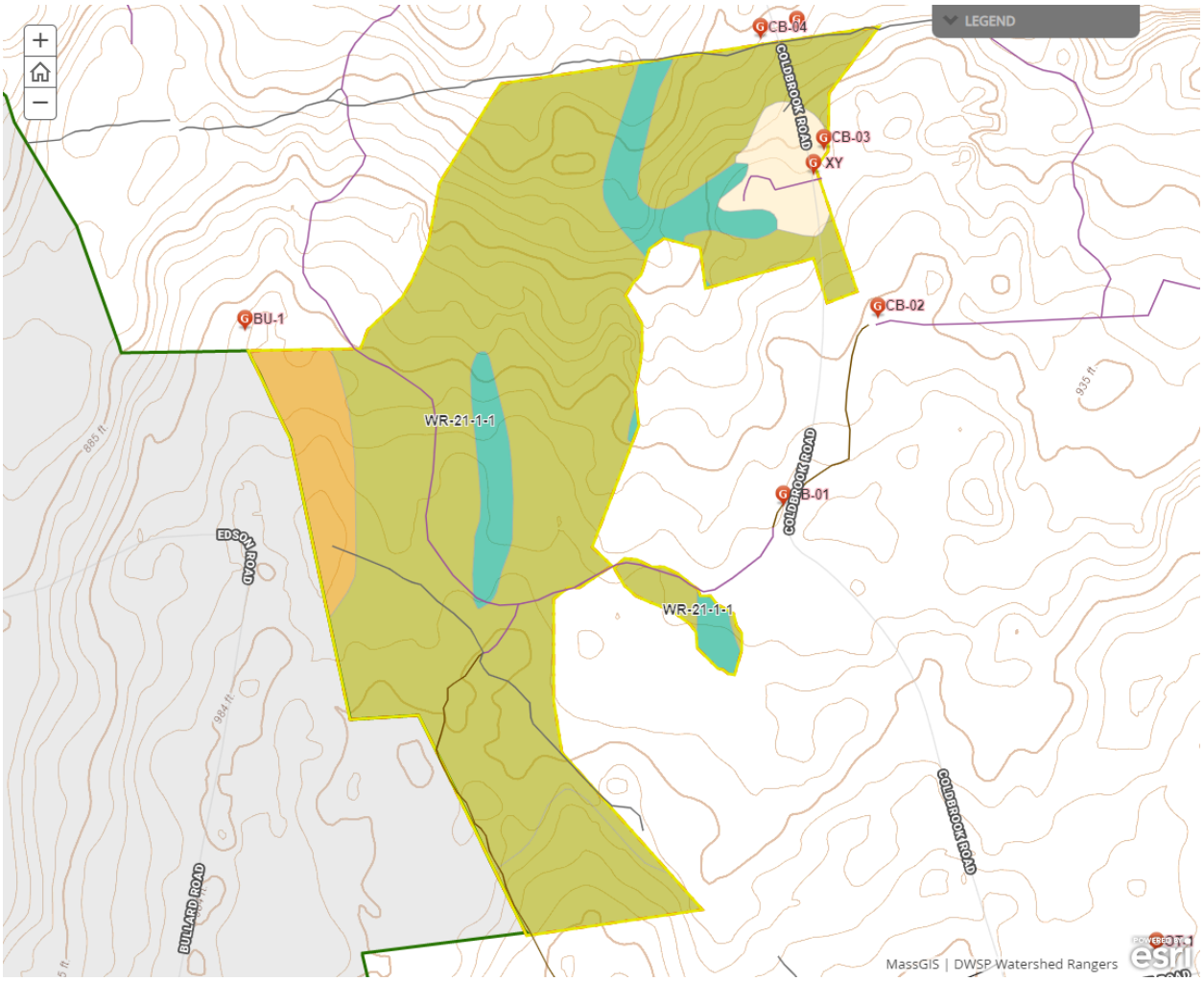


Soils

Drainage Class	%

Excessively Drained	4
Well Drained Thin	0
Well Drained Thick	6
Moderately Well Drained	80
Poorly to Very Poorly Drained	10

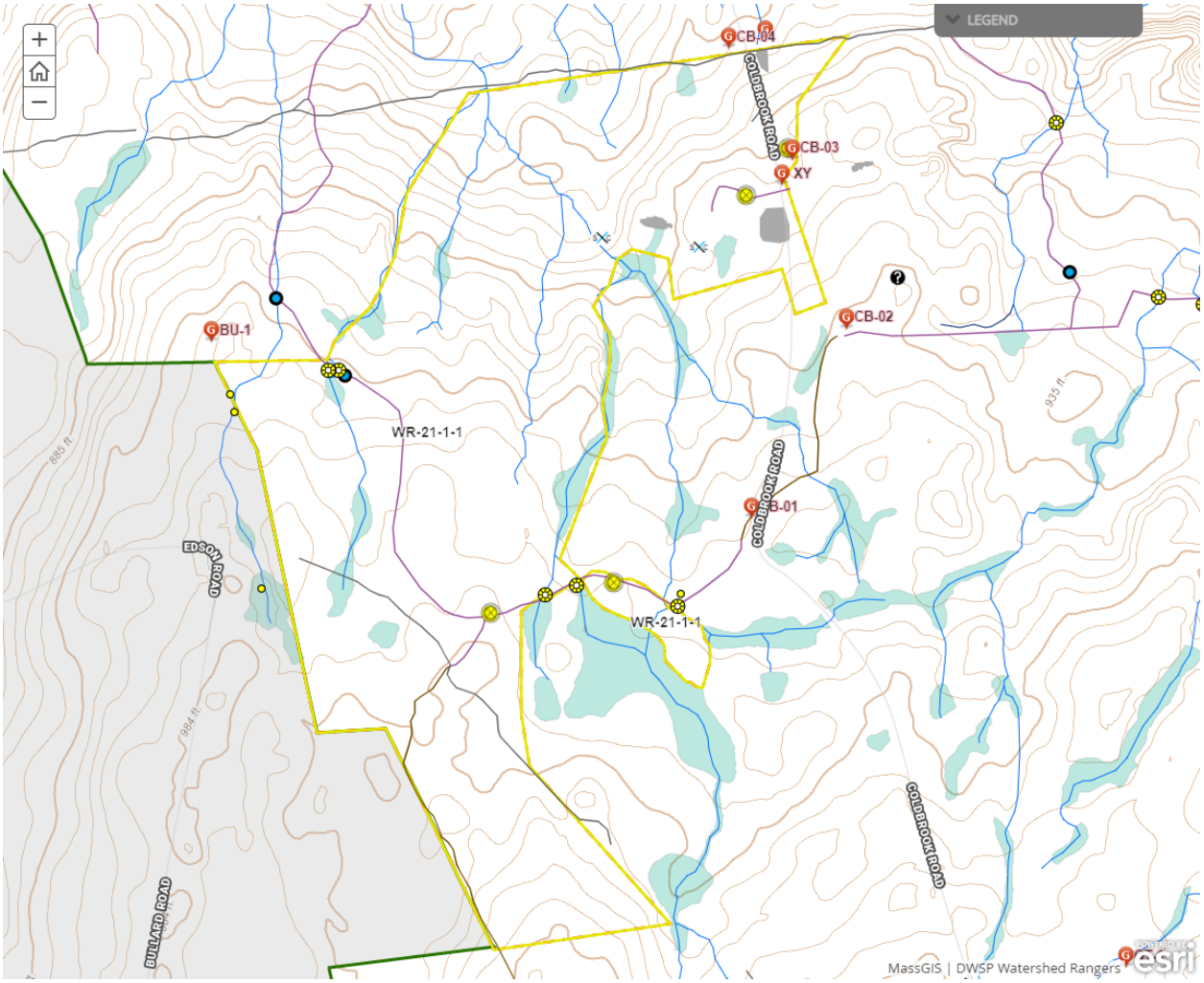
927C - Montauk-Scituate-Canton association - moderately well drained - 125 acres
918B - Ridgebury-Whitman association - poorly to very poorly drained - 15 acres - these soils are found along the brooks that run through the lot and will be avoided except for a potential stream crossing.
926C - Charlton-Chatfield association - well drained thick - 10 acres along the western edge of the lot adjacent to the property line
253B - Hinckley loamy sand - excessively well drained - 7 acres on the eastern edge of the lot adjacent to Coldbrook Rd.



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**

Wetlands associated with brooks are present. Several potential vernal pools are along the western edge of the lot, possibly on private property.



Silviculture

Acres in Intermediate cuts: **0**

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

Acres in Regeneration cuts: **50**

Average regen opening size: **2**

Maximum regen opening size: **25-30**

Description of advance regeneration in proposal area:

Regeneration varies over the lot. The white pine/hardwood stand and the mixed oak stand both have plenty of regeneration already established. Regeneration is sparse under the Norway spruce plantation. Moderate browse was observed throughout the lot.

General comments on silviculture proposed:

The white pine/hardwood and mixed oak stands at the southern end of the proposal area will be part of a multi-state research project looking at building slash walls for deer exclusion as part of the Oak Resiliency Project. A unique twist at this site will be the presence of moose, which so far have not been tested against a slash wall in other regions taking part in this study.

A 25 to 30-acre opening will be created with approximately 5 to 10 square feet of basal are per acre of overstory trees retained. Retention trees will be a the best formed, most vigorous overstory trees, as well as trees with unique wildlife characteristics such as large cavities. The opening will straddle the power lines in that area with approximately the same acreage of opening on either side of the power lines. A 10-foot-tall slash wall will be constructed during the harvesting operation around the portion of the opening to the south of the powerlines. The wall will be constructed of trees from the harvested area and will be built by the logger; the cost of construction will be offset by the value of the wood at the time of bidding.

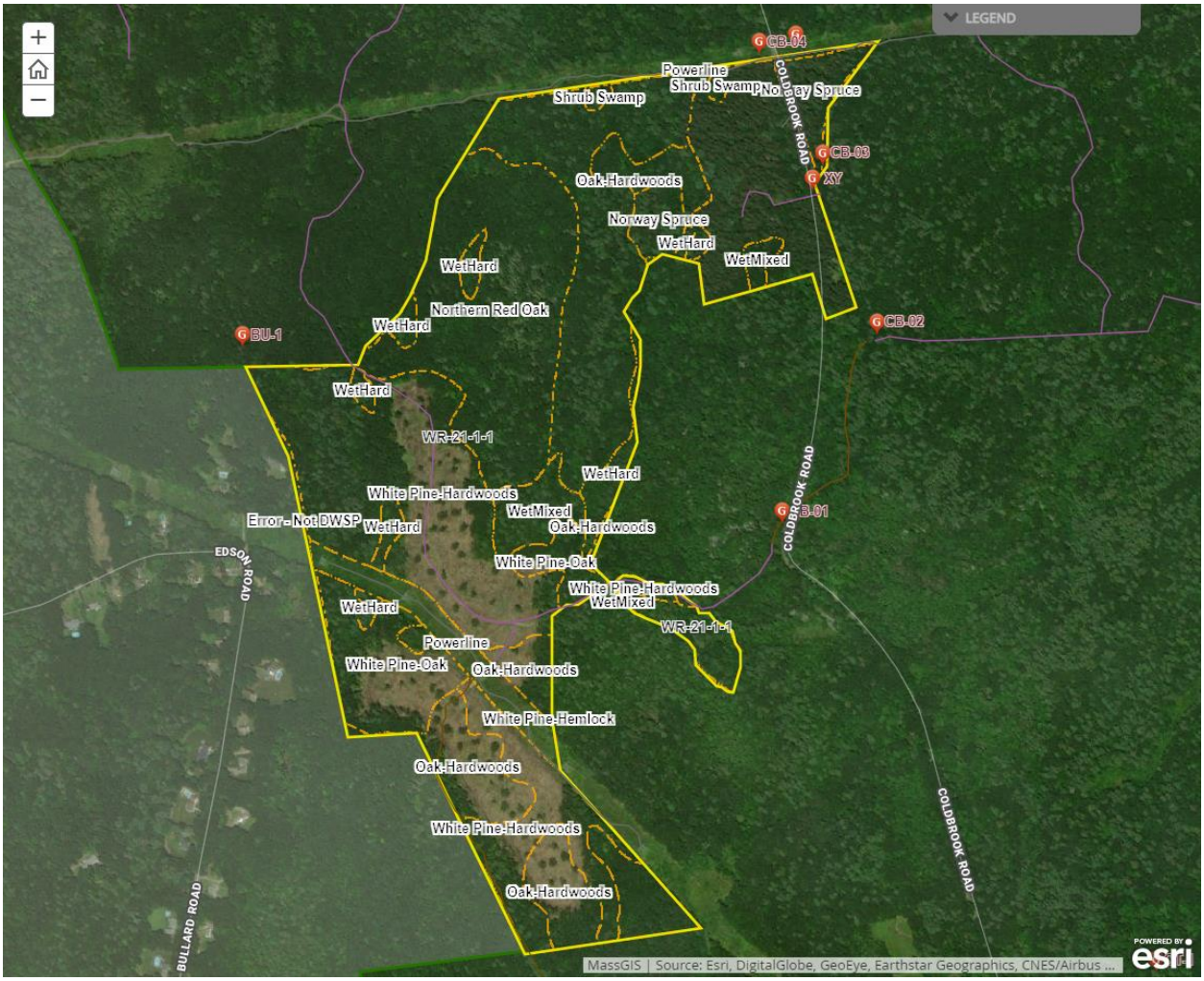
All deer and moose will be driven out of the area inside the wall. The slash wall will have to be located at least 100 feet from the property boundary in order to comply with Massachusetts slash laws. The portion of the opening located to the north of the powerlines will be the control and will remain open. Pre-harvest and post-harvest vegetation surveys will be used to determine the effect of excluding deer and moose from harvested areas on tree regeneration, shrubs, and wildflowers and to assess the feasibility of using slash walls as a tool on DWSP property. To learn more about slash walls, visit this website: http://blogs.cornell.edu/slashwall/technical-resources/

White Pine hardwood stand outside of the study area: Regeneration openings will be established in this stand. Areas with the poorest quality white pine will be targeted for openings. Openings of different sizes and shapes will be established, generally ranging in size from 1 to 2 acres. The average opening size will be approximately 1.5 acres. Approximately 30% of the stand area will be in openings. In all groups snags will be retained wherever possible and 5 to 10 square feet of basal area per acre of live trees will also be left. Live retention trees will either have unique

wildlife characteristics, such as large cavities, or will be well formed and vigorous white pine or hardwood.

Mixed Oak stand outside of the study area: It appears that there could be significant damage and mortality to overstory oaks in this stand due to gypsy moth. This will be reassessed during growing season. Severely damaged and dead oaks will be removed, particularly where they exist in groups over a quarter acre in size. The groups created will follow our oak savage guidelines. If damage and mortality is not significant, several regeneration openings of ½ to 2 acres will be established targeting gypsy moth damaged oaks, low quality hardwood, and low-quality white pine inclusions. In all groups snags will be retained wherever possible and 5 to 10 square feet of basal area per acre of live trees will also be left. Live retention trees will either have unique wildlife characteristics, such as large cavities, or will be well formed and vigorous white pine or hardwood.

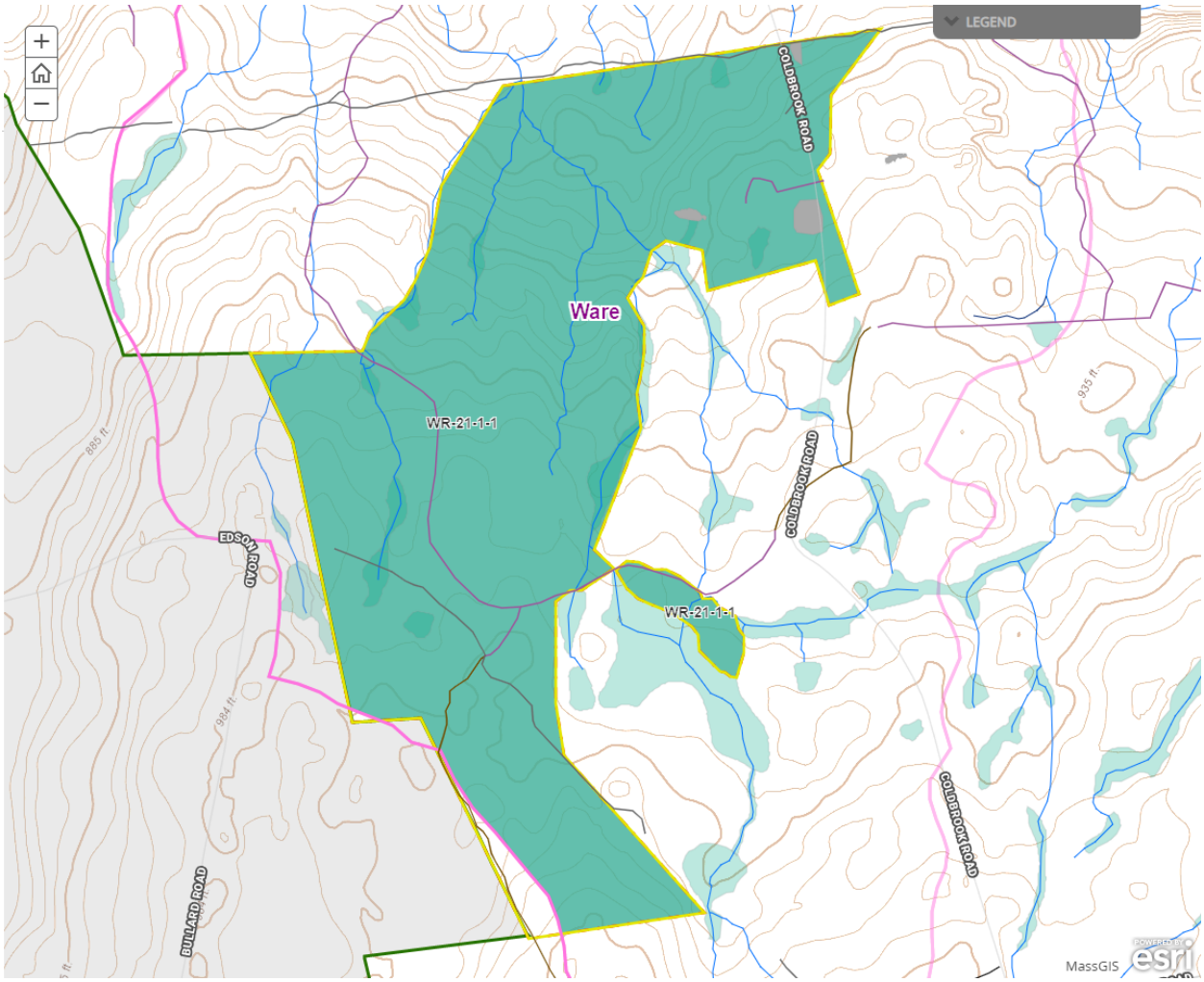
Norway Spruce plantation: This plantation has reached maturity and under typical plantation management would be removed when possible. However, DWSP recently set policy to avoid spruce plantation regeneration cutting in order to maintain dense conifer cover on the landscape. Hazard tree removal will continue to be an option; a 0.3-acre patch of spruce adjacent to Coldbrook Road died three years ago and had to be felled by DWSP staff to mitigate the public hazard. The Oakham tree warden has expressed an interest in seeing the portions of spruce plantation removed adjacent to Coldbrook Road; such removals will be considered case by case. Unfortunately, there is little native regeneration established through much of the plantation, and several invasive shrub species are established in and adjacent to it.



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
8063 (Ware River Intake)	2713	41	637	169

8063 - Ware River Intake Subdistrict - 157 acres in this proposal



Harvesting Limitations

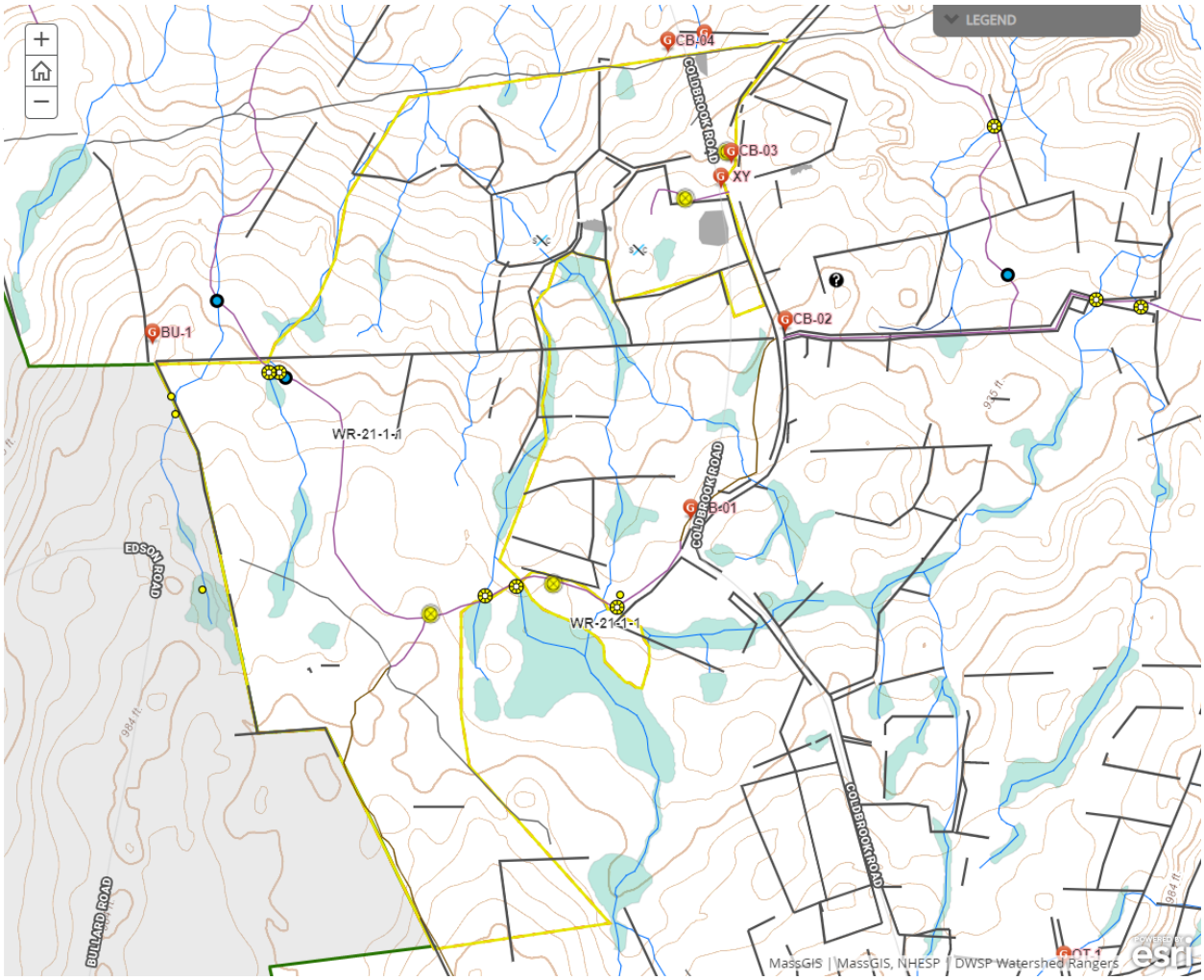
Forwarder required: **No**

Feller/processor required: **No**

Steep slopes present: **No**

Comments on harvesting limitations:

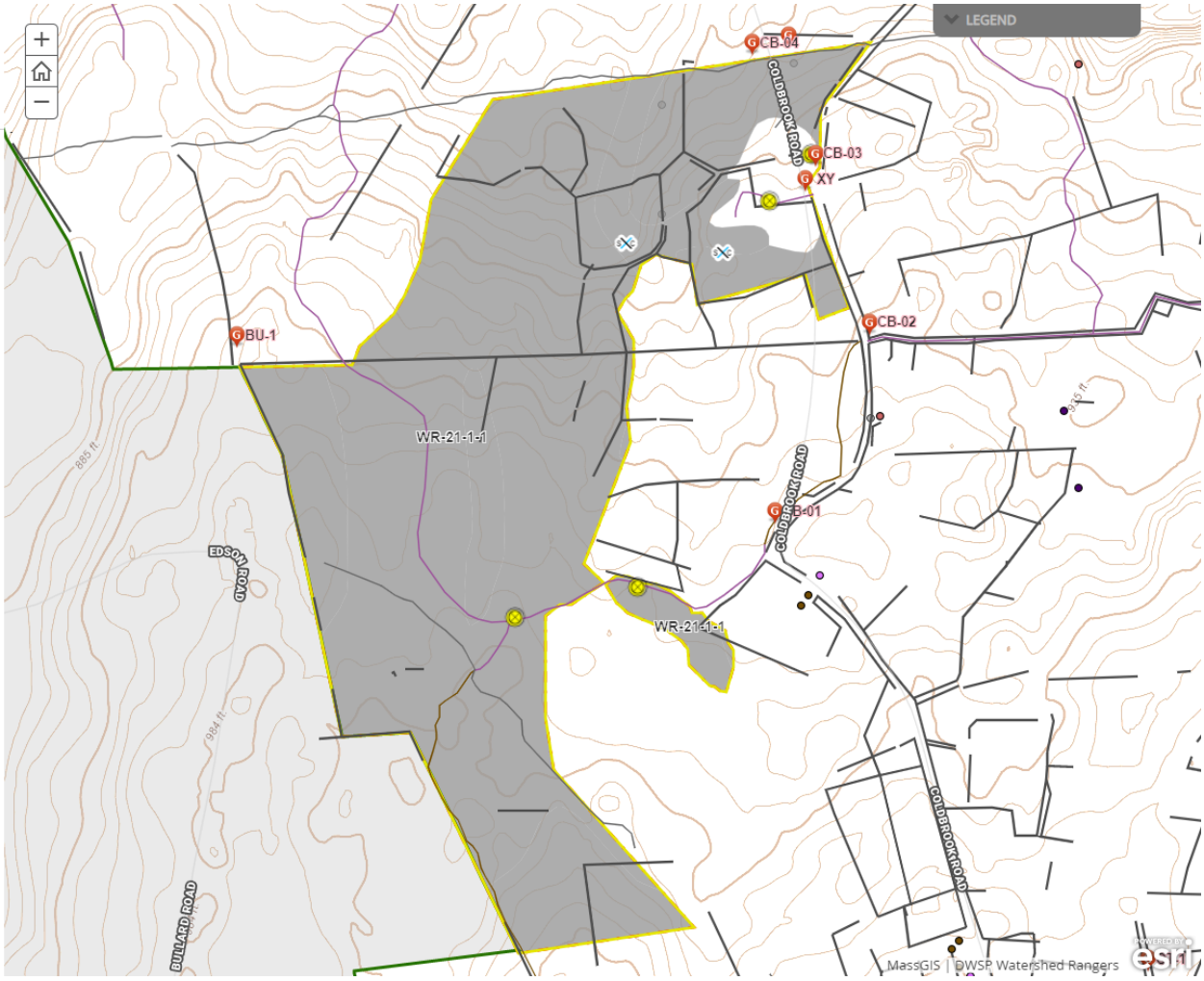
This area is being considered as a demonstration site for slash wall construction for deer exclusion as part of the Oak Resiliency Project. Typical harvesting specifications will need to be heavily modified in order to mandate construction of a slash wall. A negotiated, rather than bid, sale might be the best way to achieve a positive outcome.



Cultural Resources

Comments on Cultural Resources:

A well house is present in the northeast corner of the lot, in the spruce stand where Coldbrook Road and the power lines meet. The area around the spring house is very wet. If any activity occurs in the vicinity, the whole area will be buffered. Several stone walls and cellar holes are also present.



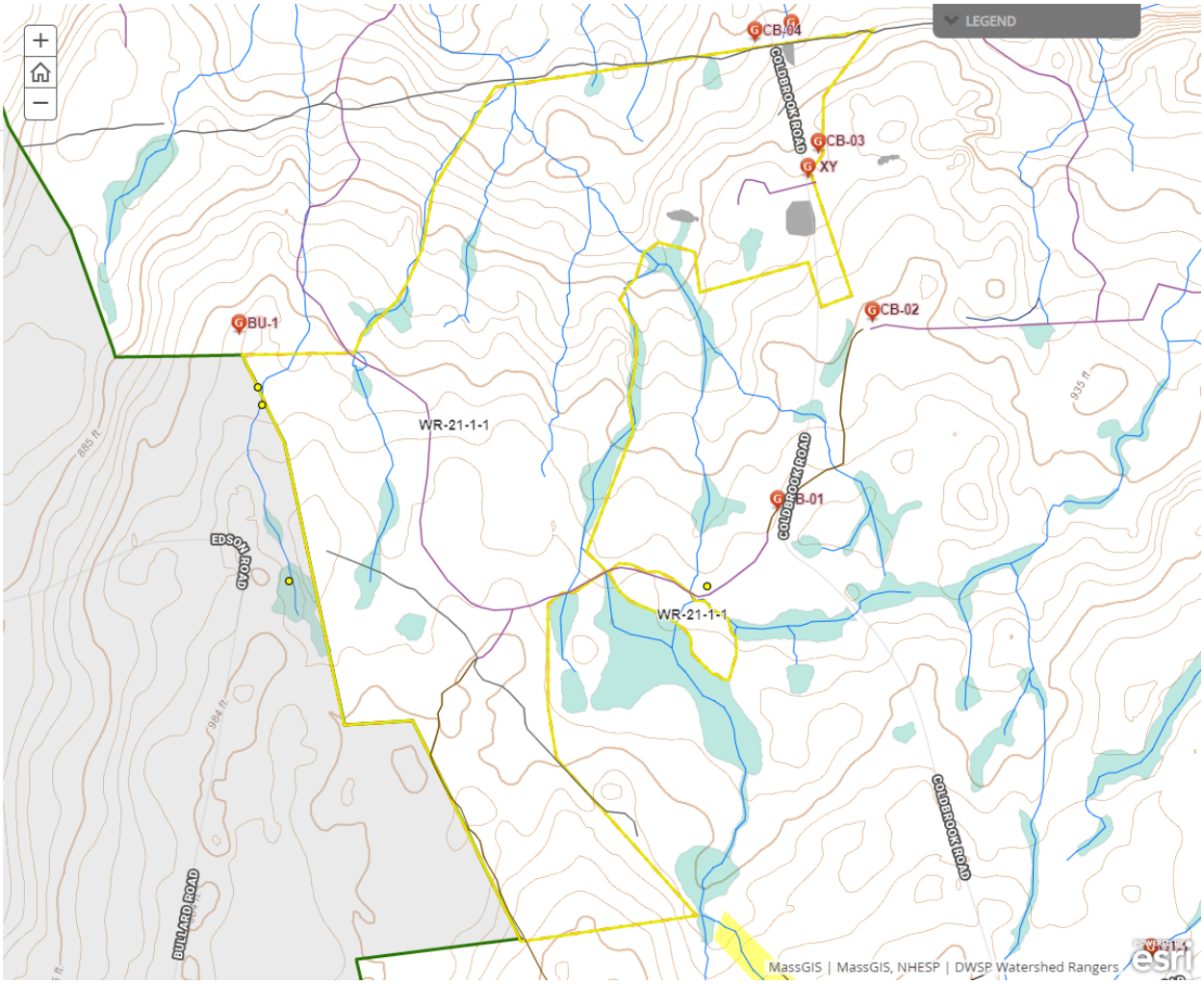
Wildlife Resources & Rare and Endangered Species

General Wildlife Comments:

No comments.

Comments on Rare Species/Habitats:

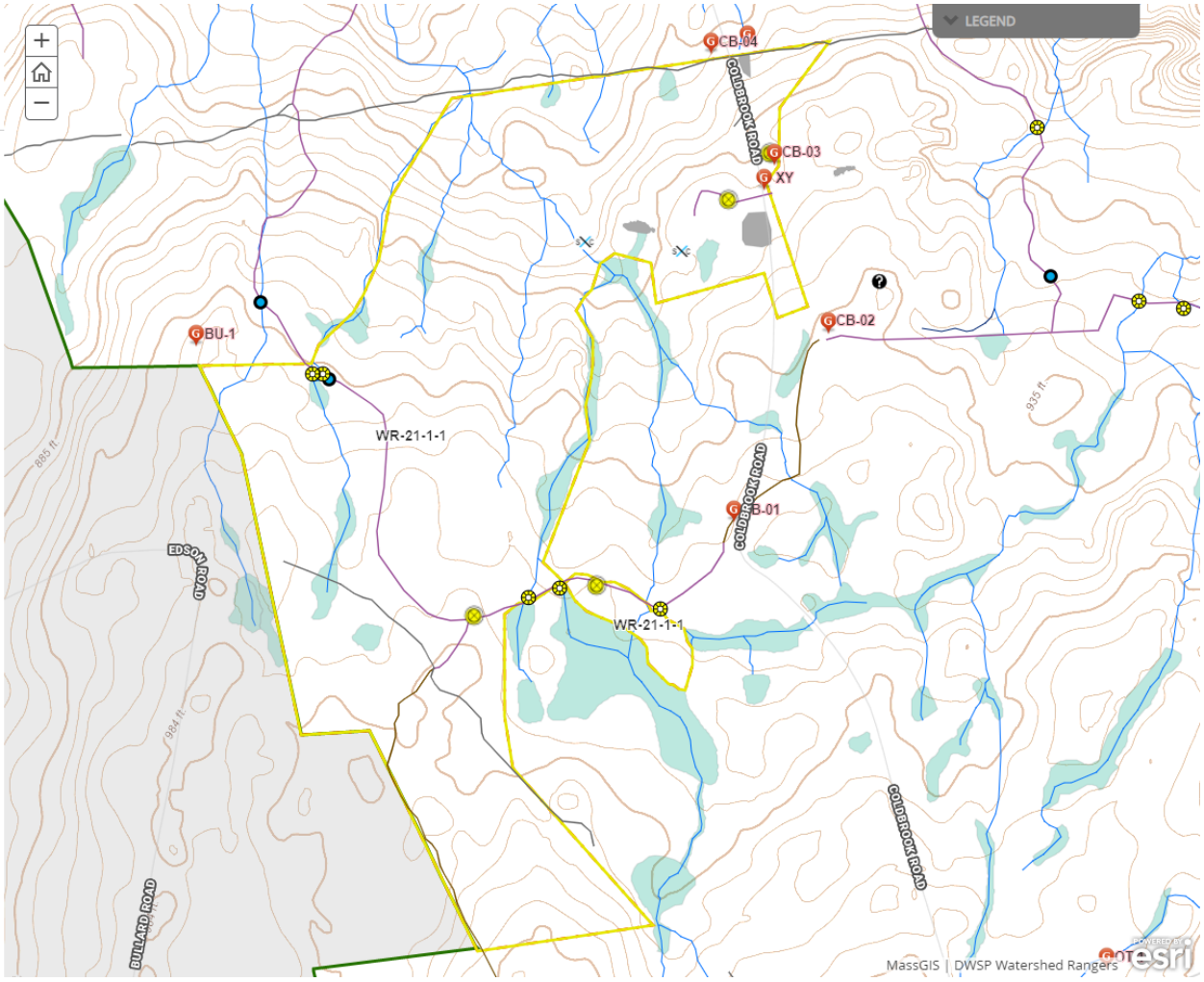
No known rare species or priority habitats on site.



Environmental Quality Engineering

Comments on EQ Issues:

No comments; no stream crossings.



Forest Access Engineering

Gravel needed: Yes

Landing work needed: Yes

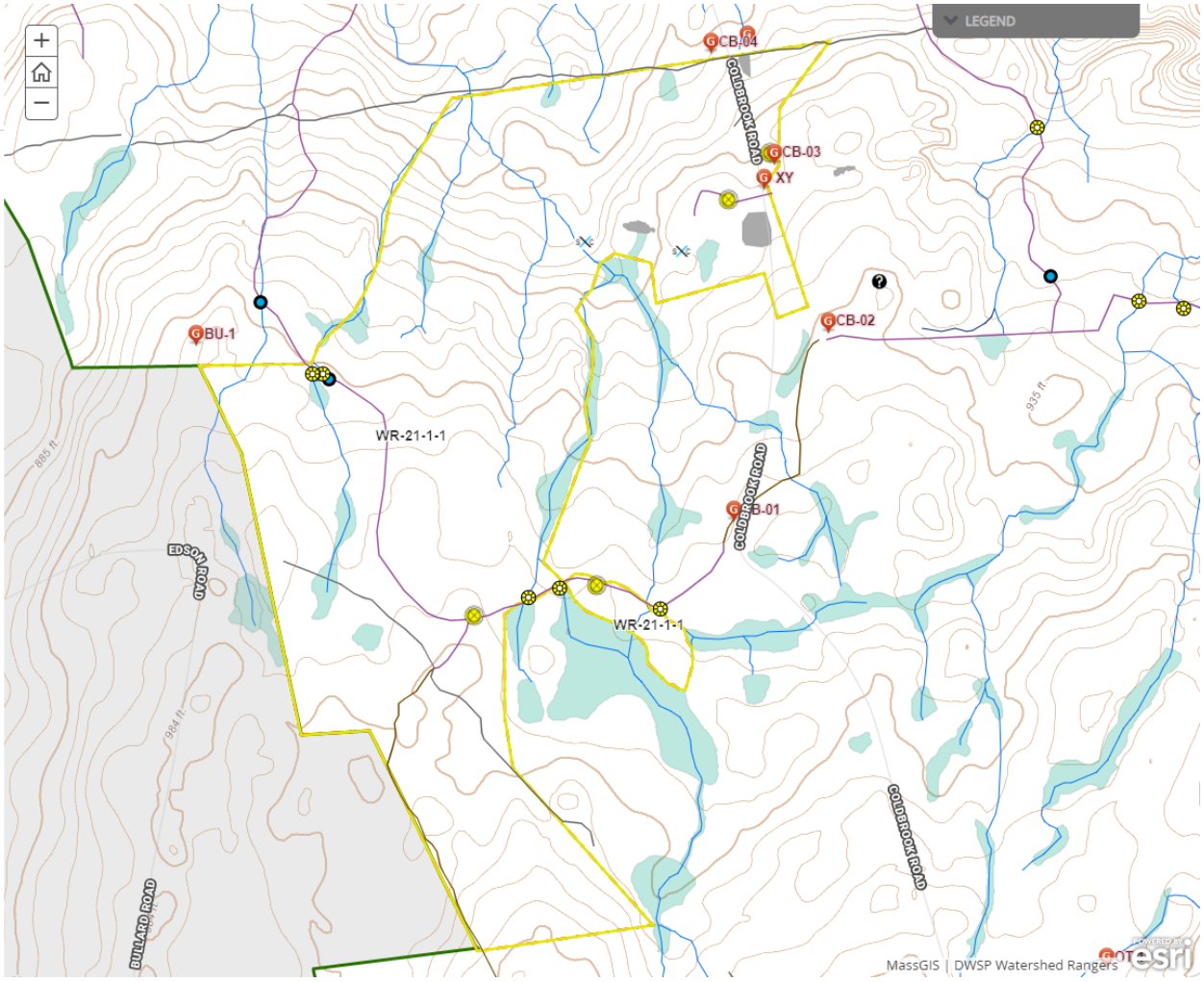
Culverts needed: No

Work needed on permanent bridges: No

Beaver issue: No

Further comment on access needs:

Loop Road will need some improvements to be accessible for trucks. The gate CB-1 will need to be moved further up Loop Road away from Coldbrook Road so that a truck could park in front of a closed gate without blocking Coldbrook Road.



DWSP FY 2021 Forestry Proposals – Master Legend for story maps