

Massachusetts Department of Conservation and Recreation
Division of Water Supply Protection, Office of Watershed Management
Forest Management Project Summary

Project Title: Jucket Hill Chestnut Oak

DWSP Harvest Permit Number: 2059

DWSP Proposal ID: PE-22-03

DCR Forest Cutting Plan File Number: 024-42844-24

Site Information

Watershed: Quabbin

Town(s): Belchertown

Acres: 71.4

Nearest Road: Jucket Hill Road

Natural Heritage Atlas overlap?: No

Public Drinking Water Supply Watershed?: Yes

Forest Types: Chestnut oak Heath, White Pine Oak, White Pine

ACEC?: No

Soils: Charlton-Hollis-Rock outcrop complex, Canton fine sandy loam

Wetland Resources: Yes

Vernal Pools: Yes

Harvest Information

Harvest Start Date:

Harvest End Date:

Number of Wetland Crossings: 0

Number of Stream Crossings: 0

Best Management Practices Applied

Stream Crossings: None

Filter Strips: Yes, Variable Width

Wetland Crossings: None

Harvesting in Wetlands: None

DWSP Forester supervising this harvest

Name: Richard G MacLean

Forester License #: 467

Phone #: 857-263-0211

Email: richard.maclean@mass.gov

NARRATIVE

General Description/Forest Composition/History:

Stand One is the focus of this proposal, a 14-acre chestnut oak stand with a dense highbush blueberry and black huckleberry heath understory (*Vaccinium corymbosum*; *Gaylussacia baccata*). This habitat type is both regionally uncommon and rare within the Quabbin reservation. While the overstory majority is a combination of chestnut oak, eastern white pine and northern red oak, smaller size classes are slight majority red maple and white pine. Chestnut oak saplings are present but are being browsed down, and red maple and eastern white pine saplings are quickly outpacing and overtopping them. At present the stand is positioned to transition to a more generalist red maple and white pine stand. The understory is predominantly high bush blueberry / black huckleberry heath, with pockets of tall dense mountain laurel (*Kalmia latifolia*). The stand also contains some ledge and surface bolder, which will require careful operation during treatment. Firewood thinning occurred in the western half of the stand in harvests in 1992 (Quabbin lot 0612).

Stand Two is an eastern white pine/oak forest, 21.9-acres, at the southern end of the proposal. This stand is composed of eastern white pine and northern red oak, with minor components of red maple, black birch, chestnut oak, black oak, white oak, and yellow birch. Like much of the region northern red oak is a minor component of the smaller size classes with generalist eastern white pine, and red maple making up most of the under and midstory. The stand stretches from Juckett Hill Rd. in the west to steep southeast facing slopes in the east and is bordered to the south by oak-hardwood forest and previous harvests regenerating to white pine along the road. To the north, the stand is bordered by the two white pine stands included in this proposal (Four, Six) and the chestnut oak stand (One) to the northeast. Most of the chestnut oak in Stand Two is clustered adjacent to the chestnut oak stand (One). The understory transitions from low density woody vegetation with red maple and black birch seedlings to higher density blueberry and black huckleberry heath adjacent to the chestnut oak/heath stand (One). Most of the stand was thinned in the 1980's (Quabbin lots 0385, 0485, 0492A) but has not had any regenerative silviculture. This stand has most of the stone walls present in this proposal.

Stand Three covers 22.1 acres, at the northeastern corner of the proposal. The stand is composed of eastern white pine, chestnut oak, northern red oak, and minor components of red maple, and black oak. This stand is primarily growing on the east by southeast facing slopes of the proposal, with a third of the stand occupying the ridge top. The stand is bordered by steep slopes to the southeast, a utility right-of-way to the northeast, oak/hardwood forest to the northwest, and the eastern white pine hardwood stand (Five) and chestnut oak stand (One) to the southwest. Chestnut oak is a stronger component throughout the easterly slopes than in Stand Two, with a reduced presence on the ridgetop. Similarly, the understory composition is a dense blueberry and huckleberry heath on the slopes, with pockets of dense mountain laurel, transitioning to a dispersed heath on the

ridgetop. The sapling/seedling composition is primarily chestnut oak, white pine, and red maple on the slopes, with chestnut oak seedlings reducing but still present on the ridgetop and black birch seedlings picking up. This stand has not been harvested since the establishment of the Quabbin Reservation.

Stand Four is an 11.5-acre white pine stand at the top of the ridge. This stand would have recently been better classified as a white pine / hemlock type, but the majority of the large diameter hemlock stems have succumbed to hemlock woolly adelgid (*Adelges tsugae*) leaving the stand dominated by larger diameter eastern white pine, with minor components of northern red oak, red maple, chestnut oak, black oak, white oak, and black birch. Aside from patches of eastern white pine seedlings, often collocated with hemlock snags, much of the stand is pine/hemlock duff with little regeneration. This stand is bordered to the west by northern hardwoods (outside of proposal) to the west and north by oak / white pine (Stand Five), to the west by chestnut oak (Stand One), and to the south by white pine oak (Stand Two).

Stand Five is 6.7 acres of white pine overstory in a narrow north south oriented block along Juckett Hill Road. This stand is dominated by eastern white pine, with minor components of northern red oak, and red maple and black oak. Eastern white pine is distributed across all size classes and is the majority of both pole and saw log sized stems. Eastern white pine seedlings are present in patches but much of the stand has little regeneration present. Northern red oak is only present in the canopy, and in very few scattered seedlings. The stand is bounded by Juckett Hill Road to the west, a northern hardwood stand to the north and east (not a component of this proposal), and the larger white pine / oak stand (One) to the south.

Site Selection:

To prepare for anticipated changes in species suitability with climate change, this proposal seeks to promote chestnut oak, a regionally uncommon species expected to be well suited to future conditions. Chestnut oak in Stand One can serve as a seed source/reserve for the surrounding area, improving overall forest resilience into the future. Unfortunately, regeneration in this stand is dominated by eastern white pine and red maple, and if left unmanaged the site is likely to transition to a white pine-hardwood stand with chestnut oak as a much smaller component. Our target for this stand is to continue the current chestnut oak overstory dominance and improve relative abundance of the chestnut oak regeneration. After treatment chestnut oak should retain its relative dominance of overstory basal area, and chestnut oak saplings should represent at least a third of sapling sized stems. Blueberry/Huckleberry heath will continue to be the dominant understory cover and expanded into pockets of currently dense mountain laurel.

Stands Two & Three are even aged eastern white pine oak stands with relatively even distributions of overstory eastern white pine and oak species, including chestnut oak. The southeastern aspect of the stand increases the

vulnerability of the site to hurricane wind disturbance, and emergent white pine are particularly vulnerable to windthrow. To improve age diversity of the stand, increasing stand resilience to windthrow, as well as help increase the chestnut oak seed source/reserve of Stand One, the desired future condition for the stands are a patch mosaic of age classes.

Stands Four & Five currently have little species diversity and are dominated by eastern white pine. Both stands similarly have little established regeneration, and without some reduction in the overstory will have very little age or species diversity moving forward. Monoculture stands are more prone to pest and pathogen related mortality, and without well established and distributed regeneration in the understory these stands are vulnerable to forest cover disruption within time scales of human concern. The desired future condition of these stands is an increased diversity of age classes, distributed throughout the stand, with regeneration composition that is not dominated by eastern white pine. Additionally, reducing the crowded eastern white pine crown density will help build resistance to fungal pathogens which are currently a growing concern in New England white pine stands.

Silvicultural Objectives:

Stand One. The initial harvest will establish an irregular extended shelterwood system, reducing the total number of trees but retaining a large number of oaks to serve as seed sources and provide varied light conditions. Retention will favor chestnut oak primarily and other oak species secondarily. Harvest will require whole tree removal to reduce fuel loads prior to prescribed fire. Prescribed fire will be applied to the stand at least two growing seasons after harvest to further select for oaks over red maple and white pine.

Stand Two will be treated with a group selection system harvesting a third of the stand at first and return harvest. Regeneration openings will vary in size from 0.75 to 1.2 acres in size with retention focused on healthy oaks. Adjacent to the focus chestnut stand (One) a 2-acre opening will be placed with retention solely focused on chestnut oak and a fire break established on the western edge to facilitate its inclusion with prescribed burning of the chestnut oak stand.

Stand Three will receive a similar silvicultural treatment to Stand One. A 2-acre regeneration opening will be placed adjacent to Stand One with a fire break established to the east for its inclusion in prescribed burning of the chestnut oak stand and expansion of the heath. With more chestnut oak throughout this stand it will be a primary target for retention and release.

Stand Four will be treated with an irregular extended shelterwood system. The number of canopy trees will be reduced favoring surviving eastern hemlock (for wildlife values) and best formed/healthiest eastern white pine (preferring larger diameters for maintaining biological legacies). Retention will be chosen to best release existing white pine seedlings and aggregated to maximize light on

pine/hemlock duff currently missing regeneration. All standing snags will be retained in this stand.

Stand Five. The very northern end of Stand Six at Juckett Hill road will host the main landing. The rest of the stand will be treated with a shelterwood prep cut, reducing the total number of trees but retaining enough to provide shade and seed. Retention will favor well-formed canopy dominant or codominant hardwoods, then well-formed dominant or codominant white pine and will be retained in clusters to reduce windthrow and maximize light availability.

Cultural Resources:

Along Juckett Hill Rd the proposed area contains a foundation and there are walls throughout the roadside white pine stand, and the western portion of the white pine oak and white pine hardwood. Walls are conspicuously absent from the chestnut oak and white pine/oak stands of the southeasterly facing slopes, and the Quabbin Reservoir 'Taking Sheets' indicate that much of this area without stone walls was used as woodland. Much of the proposed area is described as 'woodland' in the Quabbin taking sheets.

Rare or Endangered Species:

The chestnut oak stand understory is mostly dominated by a blueberry/huckleberry heath community with pockets of dense mountain laurel. The chestnut oak/heath forest is a statewide rare habitat. Avoiding management at this site is likely to result in the loss of this habitat type as eastern white pine and red maple regeneration begin to dominate the site.

FIGURES

Figure 1. Forest Cutting Plan

Figure 1a: Forest Cutting Plan (continued)

06-18-24A09:26 RCVD

Forest Cutting Plan

and Notice of Intent under M.G.L.
Chapter 132 – The Forest Cutting
Practices Act, 304 CMR 11.00
(Effective Date: 3/15/16)

For DCR Use Only:

File Number 24-42844-24 Case No. N/A
Date Rec'd 6/18/24 Nat. Hert. No
Earliest Start 7/5/24 Pub. Dr. Wat. Quabbin
River Basin Chicopee ACEC No
Gen. Obj. LT

Site Information

Location

Town Belchertown
Road Jucket Hill Rd
Acres 72 Proposed Start Date Summer 2024
Vol. MBF 135.2 Vol. Cds. 175 Vol. Tons 383

Plan Preparer

Name Richard G MacLean
Address 485 Ware Rd
Town, State, Zip Belchertown, MA, 01007
Phone (857) 263-0211
Type of Preparer LF
*Mass. Forester License # 467
*Required for land under Ch61, Ch61A or Forest Stewardship

Landowner

Name DCR Div Water Supply Protection
Mailing Address 485 Ware Rd
Town, State, Zip Belchertown, MA, 01007
Phone 4133237221
Ch61 ☐ 61A ☐ 61B ☐ Stew ☐ *Case #
FSC ☐ CR ☐ CR Holder

Licensed Timber Harvester**

Name TBD
Address _____
Town, State, Zip _____
Phone _____
Mass. Lic. Harvester # _____
**This information may be supplied after the plan is approved, but before work begins.

Best Management Practices

Stream Crossings

Indicate location on map	SC-1	SC-2	SC-3	SC-4
Type of Crossing				
Existing Structure				
Type of Bottom				
Bank Height (ft)				
Stabilization				

Wetland Crossings

Indicate location on map	WC-1	WC-2	WC-3	WC-4
Length of Crossing				
Mitigation				
Stabilization				

Filter Strips

Indicate location on map	FS-1	FS-2	FS-3	FS-4
Width (50', 100', or VA)	VA			

Harvesting in Wetlands

Indicate location on map	HW-1	HW-2	HW-3	HW-4
Forest Type (see pg 2)				
Acres to be Harvested				
Resid. Basal Area (>50%?)				

Service Forester Comments

Codes

Type of Preparer	Type of Crossing	Stabilization	Mitigation	Type of Bottom
LF Mass. Lic. For.	CU Culvert	SE Seed	FR Frozen	LE Ledge
TH Lic. Tim. Har	BR Bridge	MU Mulch	DR Dry	ST Stony
TB Timber Buyer	FO Ford	CO Corduroy	OT Other	MU Mud
LO Landowner	PO Poled	ST Stone		GR Gravel
OT Other	OT Other	HB Hay Bales		OT Other

Note:
Applicant must provide DCR with all relevant information before plan may be approved and cutting may begin.
Some forestry activities, such as prescribed burning and pesticide or fertilizer application may require additional permits. Consult MA Forestry BMP Manual for further information.

If Other (OT) is used in any category an explanation must be given on an attached narrative page

Figure 1b: Forest Cutting Plan (continued).

Products to be Harvested*			
Species	Mbf/Cds		Mbf/Cds
White Pine	126.7	Red Maple	.8
Red Pine		Sugar Maple	
Pitch Pine		Red Oak	2.7
Hemlock		Black Oak	1.6
Spruce		White Oak	0.2
Other Sftwd.		Other Hdwd.	2.3
White Ash		Total Mbf	135.2
Beech		Cordwood (Cds)	175
White Birch		SW Pulp (Tons)	383
B & Y Birch	.9	HW Pulp (Tons)	
Black Cherry		Chips (Tons)	

***Note:** Volumes indicated in the Plan are as reported by the plan preparer and have not been independently verified by the service forester upon approval. **Mbf** = thousand board feet.

Cutting Standards				
Indicate location on map	ST-1	ST-2	ST-3	ST-4
Forest Type	OM <input type="checkbox"/>	WO <input type="checkbox"/>	WP <input type="checkbox"/>	WP <input type="checkbox"/>
Acres	14	41	10	7
Landowner Objective	LT	LT	LT	LT
Designation of Trees	CT <input type="checkbox"/>	CT <input type="checkbox"/>	CT <input type="checkbox"/>	CT <input type="checkbox"/>
Type of Cut	OT <input type="checkbox"/>	SE <input type="checkbox"/>	SE <input type="checkbox"/>	SH <input type="checkbox"/>
Source of Regeneration	AD <input type="checkbox"/>	SE <input type="checkbox"/>	SE <input type="checkbox"/>	SE <input type="checkbox"/>

Landowner Signature

The most important information on a cutting plan is the Landowner's objective, as this will determine which trees will be harvested and which will remain; **this decision will also determine the future condition of the forest for decades to come.** After having read the Massachusetts Forest Cutting Plan Information Sheet on page one, indicate your objective by checking the appropriate box below.

☒ **LT – Long-term Forest Management**

Planned management of the forest to achieve one or more of the following objectives: produce immediate and maximize long-term income, enhance wildlife habitat, improve recreational opportunities, protect soil and water quality, or produce forest specialty products.

☐ **ST - Short-term Harvest**

Harvest of trees with the main intention of producing short-term income with minimal consideration given to improving the future forest condition, which often results in a forest dominated by poor quality and low value species.

I (we) have read the Massachusetts Cutting Plan Information Sheet, and am aware of my (our) management options.
 I (we) hereby certify that I (we) have the legal authority to carry out the operation described above.
 I (we) certify that I (we) have notified the Conservation Commission in the town in which the operation is to take place and the abutters of record within two hundred feet of the area to be harvested.
 I (we) understand that the volumes in this plan have not been independently verified by the service forester upon approval and will report final values and volumes to the Director or his/her agent if the final figures differ from those reported.

Signature of landowner(s)

6-15-24

Date

Determination and Status				Final Report and Comments	
Approved	Disapproved	Expires	<p>I hereby certify that the afore described Forest Cutting Plan and all relevant statutes have been substantially complied with.</p> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 60%;"> <p>_____ Signature of Service Forester/Director's Agent</p> </div> <div style="width: 35%;"> <p>_____ Date</p> </div> </div>		
Cutting Plan <input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>6/18/26</u>			
<p></p> <p>_____ Signature of Service Forester/Director's Agent</p>					
<p><u>7/3/24</u></p> <p>_____ Date</p>					
Extension	1 <input type="checkbox"/> 2 <input type="checkbox"/>	Expires	Ser. For. Ints.	<p>_____ _____ _____ _____</p>	
Amendment	App 1 <input type="checkbox"/> Dis 1 <input type="checkbox"/> App 2 <input type="checkbox"/> Dis 2 <input type="checkbox"/>	_____ _____ _____	_____ _____ _____		

Codes

Forest Types WP White Pine WK WP/Hem WH WP/Hdwd WO WP/Oak RP Red Pine SR Red Spruce	HK Hemlock HH Hem/Hdwd BC Blck Cherry BB Bee/Bir/Map OH Oak/Hdwd OR N Red Oak	OM Mixed Oak RM Red Maple BE Beech SF Spruce/Fir SM Sugar Maple PP Pitch Pine	Designation of Trees CT Cut Tree LT Leave Tree SB Stand Boundary OT Other <u>Landowner Objective</u> LT Long-term Mgt. ST Short-term Har.	Type of Cut SH Shelterwood ST Seed Tree CC Clear Cut SE Selection SA Salvage SN Sanitation	Source of Regeneration Intermediate Harvests: CT Commercial Thin NT Non Com Thin Non-Standard Systems:* HG Highgrade* DL Diameter Limit* OT Other*
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*If Other (OT) or a non-standard system is used an explanation must be given on attached narrative page

Figure 1c: Forest Cutting Plan (continued).

Forest Cutting Plan

Narrative Page (Effective Date: 3/15/16)

Use this page to provide further explanation or if

Other (OT) was used in any category on pages 3 or 4.

Landowner DCR DWS.P.

Town Belchertown

File Number 024-42844-24

BMPs

Use this Section to provide further explanation or if Other (OT) was used in any category in the Best Management Practices Section on Page 3.

ST-1 is a chestnut oak / huckleberry heath being treated for restoration and expansion into ST-2. To release existing chestnut oak regeneration basal area is being reduced to 30-40 sq ft per acre favoring oak species and removing white pine and red maple. All white pine, red maple, or black birch stems are to be removed. Mechanical harvest will be followed by prescribed fire to further control mesic species and favor oak regeneration.

Throughout: BLUE - cut tree | ORANGE - retention tree, an orange dot is a retention tree in any stand, an orange line denotes the edge of a group selection opening.

Designation of Trees

Use this Section to describe the types of trees to be harvested and/or retained if Other (OT) was used for "Designation of Trees" in the Stand Treatment Section on page 4. Additional narrative description may be added on a separate page.

Stand No.	Describe Trees to be Cut			Describe Trees to be Left			% BA/AC	
	Species	Size	Quality	Species	Size	Quality	Cut	Left
ST-1	WHITE PINE	sawlog	moderate	RED OAK	sawlog	moderate	10	90
	RED MAPLE	pole-saw	low	CHESTNUT OAK	sawlog	low	50	50
				SCARLET OAK	sawlog	moderate	10	90

Regeneration & Future Condition

Use this Section to describe how Chapter 132 requirements will be met if a non standard system (HG, DL, or OT) was used for the "Type of Cut" in the Cutting Standards Section on page 4.

Stand No. Source of Regeneration (ex. AD, SE) How will Regeneration be obtained/protected?
If using AD - Describe the species present and how the regeneration will be protected
If using SE - Describe the source of the seed and the number of seed trees/acre

ST-1	AD	Chestnut oak regeneration is abundant but being shaded out by mesic red maple and white pine saplings. Mechanical removal of mesic species will be follow by prescribed fire.
		Seed source is being retained distributed throughout the stand.

Stand No. Desired Future Condition

Describe what the stand is expected to look like five years from the harvest, including the condition of the overstory & understory

ST-1	The stand is to be treated with prescribed fire 3-5 years post harvest. 30-40 square feet per acre of sawlog sized chestnut, red, and scarlet oak will still be present distributed through the stand. Chestnut oak, and other oak
	regeneration will be present, abundant, and well distributed in a dense cover of eastern huckleberry.

Figure 1d: Forest Cutting Plan (continued).

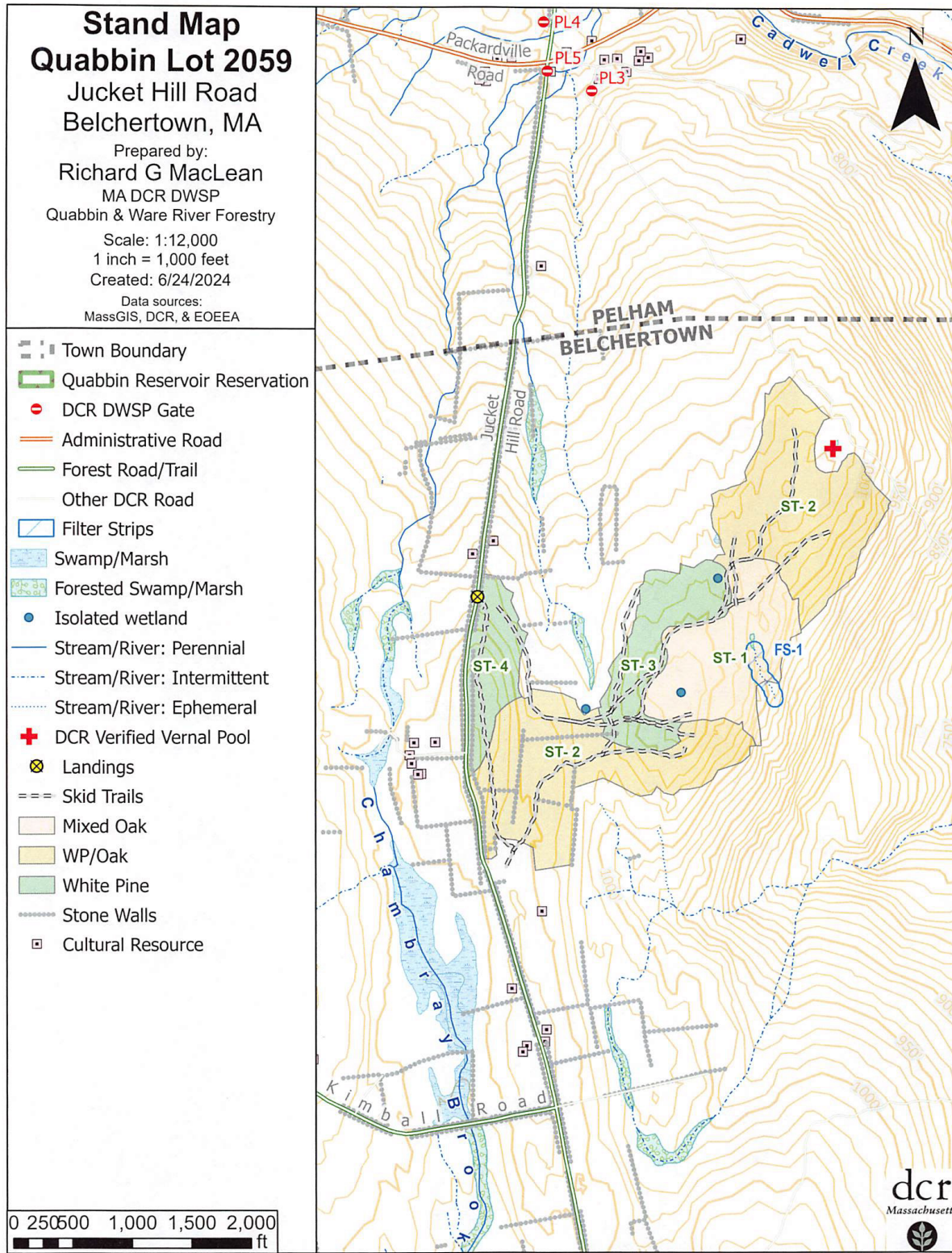


Figure 1e: Forest Cutting Plan (continued).



Figure 1f: Forest Cutting Plan (continued).

	COMMONWEALTH OF MASSACHUSETTS Department of Conservation and Recreation Division of State Parks and Recreation	FILE # <u>024-42844-24</u>
FOREST CUTTING PLAN CERTIFICATE		W
Post this in a conspicuous place within the area in which the harvesting operation is to take place.		
This certifies that <u>DCR-DWSP</u> <u>485 Ware Rd</u> (Name of Owner) (Address) <u>Belchertown, MA 01007</u> in accordance with the		
provision of M.G.L. Chapter 132, Section 40-46, filed in <u>Amherst F.O.</u> with the Dept. of Conservation and Recreation, Division of State Parks and Recreation, a Notice of Intent to cut forest products upon the		
<u>Quabbin 2059 lot.</u> (<u>ucket Hill Rd</u>)		
Approval Date <u>7/3/24</u>	ISSUED BY: 	
Director's Agent <u>Jacob Macko</u>	Priscilla E. Geigis, Director	
DCR Phone No. <u>(857) 202-2824</u>	Division of State Parks and Recreation	

Figure 2: Photo Point 1
Figure 2a: Pre-harvest photo.

