

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

Project Title: Swift River Red Pine

DWSP Harvest Permit Number: 1047

DWSP Proposal ID: HA-16-RP

DCR Forest Cutting Plan File Number: 024-8138-16

Site Information

Watershed: Quabbin

Town(s): Belchertown

Acres: 31.8

Nearest Road: Blue Meadow Road and Ware Road (Route 9)

Natural Heritage Atlas overlap: Yes, no restrictions

Public Drinking Water Supply Watershed: Yes

Forest Types: Red pine, White pine

Area of Critical Environmental Concern (ACEC): No

Soil(s): Canton, Hinckley and Scituate loamy to fine sandy loam, Charlton-Hollis rock outcrop

Wetland Resources: Sections abut wetlands and small streams and the Swift River

Vernal Pools: None

Harvest Information

Harvest Start Date: 8/15/16

Harvest End Date: 9/19/16

Number of Wetland Crossings: None

Number of Stream Crossings: One

Best Management Practices Applied

Stream Crossings: Existing culvert crossing in permanent gravel road

Filter Strips: Variable width strips used

Wetland Crossings: N/A

Harvesting in Wetlands: N/A

DWSP Forester supervising this harvest

Name: Douglas Hutcheson

Forester License number: 375

Phone number: (413) 237-9713

Email: douglas.hutcheson@mass.gov

Narrative

General Description/Forest Composition/History

The area to be harvested is in the town of Belchertown and comprises 5 different areas from the Swift River west to Cold Spring Rd. near the power line north of gate 2-1. All the stands are red pine plantations that have been cut at least twice previously. Note that stand 7 on the cutting plan map (3.5 acres by the Swift River) was added after the original lot proposal was written. This is a stand that was originally missed as containing red pine still but fit with all aspects of the proposal and fit well with this timber sale. This addition was approved by all appropriate DWSP personnel.

The stone walls on this lot attest to its history of clearing for agriculture, mostly for pasture. These red pine plantations were most likely established on abandoned pastures in the 30's and 40's.

The primary tree species present are red pine with some white pine and scattered mixed oak (predominately red oak). Other hardwoods include black and paper birch, red maple, ash, and hickory but these mainly occur on the edge of the plantation or where the original planting wasn't successful.

The soils on this lot are primarily sandy loams, Canton, Hinckley and Scituate. In the Stewardship Forest section there is a steeper section that is classified as Charlton-Hollis rock outcrop. All are well drained and workable for most of the year.

Site Selection

The primary goal of the watershed forest management program is to create and maintain a forest that provides high quality drinking water to current users and future generations. To achieve this, DWSP has determined that the forest should contain a diversity of species in various stages of development (seedlings through large legacy trees). In addition, the forest should be vigorous; actively growing and regenerating. A forest in this condition is resilient to and can quickly recover from small and large scale disturbances such as diseases, insect infestations, ice storms and hurricanes.

Red pine is generally considered a non-native species to MA and one of our goals has been to convert these stands to native species. Recently they have also been attacked by an exotic insect pest, the red pine scale, and another pest, the southern pine beetle, was discovered in CT this spring. The outlook for red pine surviving in this area is very poor and the species no longer meets our objectives of having "a diverse mix of healthy trees that are long-lived, well-suited to their location, and vigorously growing and assimilating nutrients".

Silvicultural Objectives

The goal of this harvest is to build on the success of the work started in the previous harvests by continuing the process of establishing new tree seedlings and providing space for existing regeneration to expand and grow. The diversity of native species present is being maintained and should be greatly enhanced. This combination of structural and species diversity builds resistance and resilience into the forest.

Guided by the principles stated above, the primary purpose of this harvest is the establishment of a new age class by harvesting the remaining overstory of red pine. Since most of these areas were previously cut, there is already various aged regeneration present. Where this advanced regeneration is still vigorous and well-formed it will be protected as much as possible during the harvest. There are areas with sapling and poled sized sugar maple and white pine that were marked specifically to be protected and released. The resulting stands should have at least 2 age classes and be much more diverse. Most of these stands won't need treatment again till the thinning/regenerating process is started again.

Wherever possible wildlife habitat features were maintained and protected, such as snags (dead trees) and trees with cavities or nests. Exceptional individuals of all species present were retained in the stand for seed and to enhance diversity.

Cultural Resources

Stone walls are numerous throughout this area. There are many breaks and barways in these walls and they can easily be used to avoid and protect the stone walls during the upcoming harvest. There are also several cellar holes in the Stewardship Forest section, these have been flagged and are easily avoidable. This is in keeping with DWSP's standard practice, which dictates that every effort is made to keep existing stone walls intact. Otherwise, this area has been determined not to be culturally or archeologically sensitive based on a review by the DCR Archaeologist.

Wildlife/Rare or Endangered Species

Parts of openings 7 and 11 are within a habitat "bubble" designated for protection by the Natural Heritage and Endangered Species Program (NHESP). NHESP has determined that no additional restrictions are needed.

The lot contains no other critical habitats or known rare or endangered species, and no vernal pools. The uplands are home to a variety of wildlife including deer, turkey, coyote and bobcat.

Figures

- Figure 1. Final Forest Cutting Plan
- Figures 2-3. Pre-harvest and post-harvest photos

Figure 1. Final Forest Cutting Plan

Forest Cutting Plan

and Notice of Intent under M.G.L. Chapter 132 – The Forest Cutting Practices Act, 304 CMR 11.00 (Effective Date: 1/1/04)

03-23-16P01:14

For DCR Use Only:

File Number 024-8138-16 Case No. _____
 Date Rec'd 3/23/16 Nat. Hert. Y
 Earliest Start 4/7/16 Nat. Hert. Imp. N
 River Basin CHICOPEE Pub. Dr. Wat. QUABBIN
 Gen. Obj. LT ACEC N

Site Information

Location

Town Belchertown Quabbin Lot 1047
 Road Windsor Dam, Blue Meadow Roads
 Acres 31.8 Proposed Start Date 4/15/16
 Vol. MBF 285.2 Vol. Cds. 47 Vol. Tons 330

Plan Preparer

Name Steven J. Wood
 Address DCR, Division of Water Supply Protection
485 Ware Rd.
 Town, State, Zip Belchertown, MA 01007
 Phone (413) 323-6921 ext. 156
 Type of Preparer Mass. Licensed Forester
 *Mass. Forester License # 257
 *Required for land under Ch61, Ch61A or Forest Stewardship

Landowner

Name DCR, Division of Water Supply Protection
 Mailing Address 485 Ware Rd.
 Town, State, Zip Belchertown, MA 01007
 Phone (413) 323-6921
 Ch61 Ch61A Stew *Case # _____
 Est. Stumpage Value 18000

Licensed Timber Harvester**

Name _____
 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	CU ex			
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	VA	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

NO NHESP RESTRICTIONS --
SEE ATTACHED LETTER

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 Piled	ST Stone		GR Gravel
OT Other	OT Other	HB Hay Bales		OT Other
		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

Forest Products

Products to be Harvested*

Species	Mb/Cds		Mb/Cds
White Pine	59.8 M	Red Maple	
Red Pine	215.2 M	Sugar Maple	
Pitch Pine		Red Oak	4.0 M
Hemlock		Black Oak	4.6 M
Spruce		White Oak	
Other Sftwd.		Other Hdwd.	1.7 M
White Ash		Total Mbf	285.2 M
Beech		Cordwood (Cds)	47
White Birch		SW Pulp (Tons)	330
B & Y Birch		HW Pulp (Tons)	
Black Cherry		Chips (Tons)	

*Note: Volumes and values 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.

Stand Treatment

Cutting Standards

Indicate location on map	ST-1	ST-2	ST-3	ST-4
Forest Type	RP4			
Acres	31.8			
Landowner Objective	LT			
Designation of Trees	CT			
Type of Cut	SE			
Source of Regeneration	AD/SE			

Landowner

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 and values (Ch61 only) 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.

William E. Pelt

Signature of landowner(s)

3-21-16

Date

Service Forester

Determination and Status

Approved Disapproved Expires 3/24/18

Cutting Plan 4/12/16

Signature of Service Forester/Director's Agent *Donna A. White* Date 3/25/16

Extension 1 2 Expires 1 Ser. For. Ints. 1

Amendment App 1 Dis 1 App 2 Dis 2

Final Report and Comments

I hereby certify that the afore described Forest Cutting Plan and all relevant statutes have been substantially complied with.

Donna A. White 3/28/16

Signature of Service Forester/Director's Agent Date

Codes

Forest Types	HK Hemlock	OM Mixed Oak	Designation of Trees	SH Shelterwood	Intermediate Harvester:	Source of Regeneration
WP White Pine	HH Hem/Hdwd	RM Red Maple	CT Cut Tree	ST Seed Tree	CT Commercial Thin	AD Advanced
WK WP/Hem	BC Black Cherry	BE Beech	LT Leave Tree	CC Clear Cut	NT Non Com Thin	SE Natural Seed
WH WP/Hdwd	BB Bee/Bir/Map	SF Spruce/Fir	SB Stand Boundary	SE Selection	CO Coppice	PL Plant
WO WP/Oak	OH Oak/Hdwd	SM Sugar Maple	OT Other	SA Salvage	DS Direct Seed	CO Coppice
RP Red Pine	OR N Red Oak	PP Pitch Pine	Landowner Objective	SN Sanitation	DL Diameter Limit*	OT Other
SR Red Spruce			LT Long-term Mgt.		OT Other*	
			ST Short-term Har.			

*If Other (OT) or a non-standard system is used an explanation must be given on attached narrative page

Forest Cutting Plan

Narrative Page (Effective Date: 1/1/04)

Use this page to provide further explanation or if Other (OT) was used in any category on pages 3 or 4.

Landowner DCR, DWSP

Town Belchertown

File Number 004-8138-16

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.
 Lot is marked with blue paint with some save and opening edge trees marked with orange paint. Lot contains 5 separate stands of mainly RP that are in various stages of decline due to the red pine scale. Most of the areas have been previously cut and have advance regeneration (mainly WP) present. Past treatments were variable in intensity and consistency but were usually small group selection with some thinning. On the areas which had multiple entries this cut might more closely resemble a final overstorey removal of a shelterwood. Goal is to remove as much of RP as possible before it dies and establish a new age class of more diverse native species. Some healthy, vigorous well formed WP and hardwoods were retained.

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.

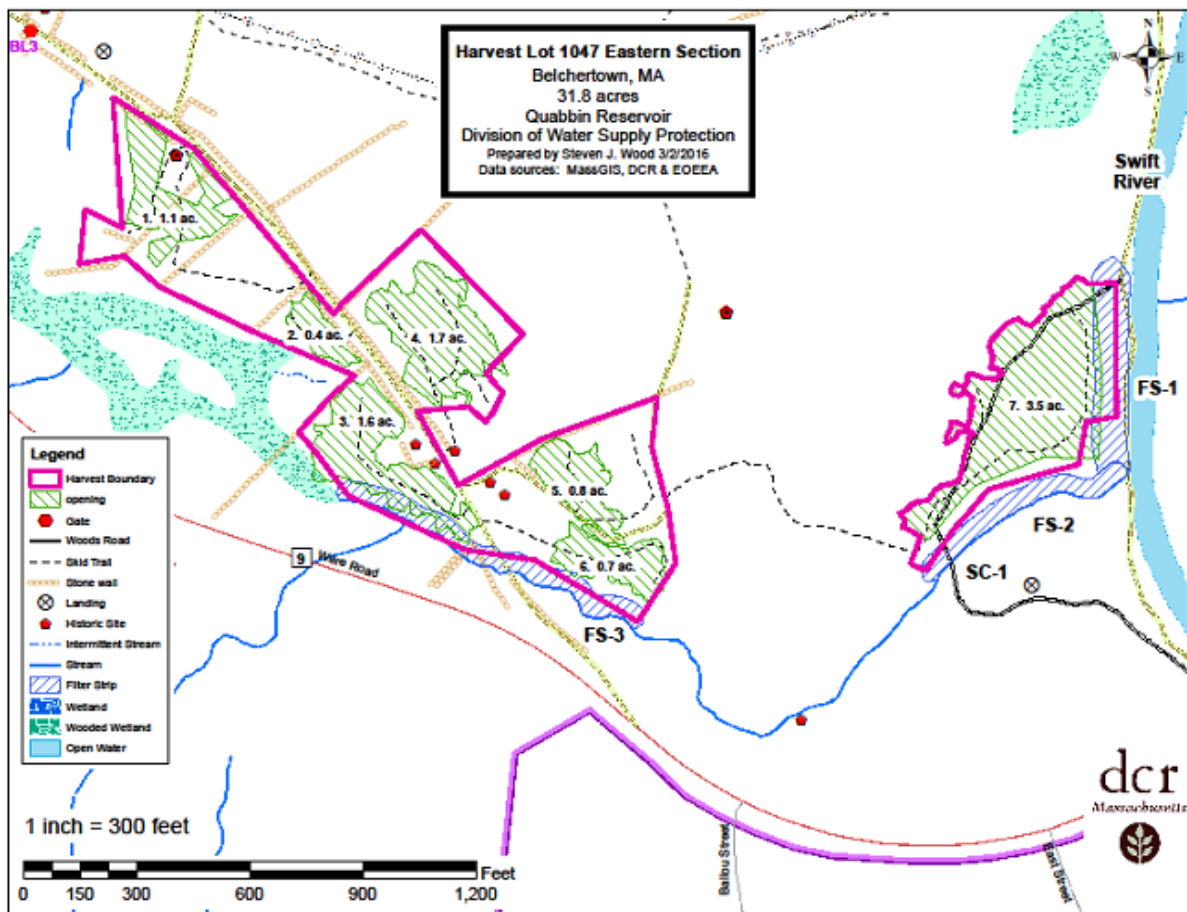
Stand No.	Species to be Cut	Size of Trees to be Cut	Quality of Trees to be Cut	% BA/Acre Removed

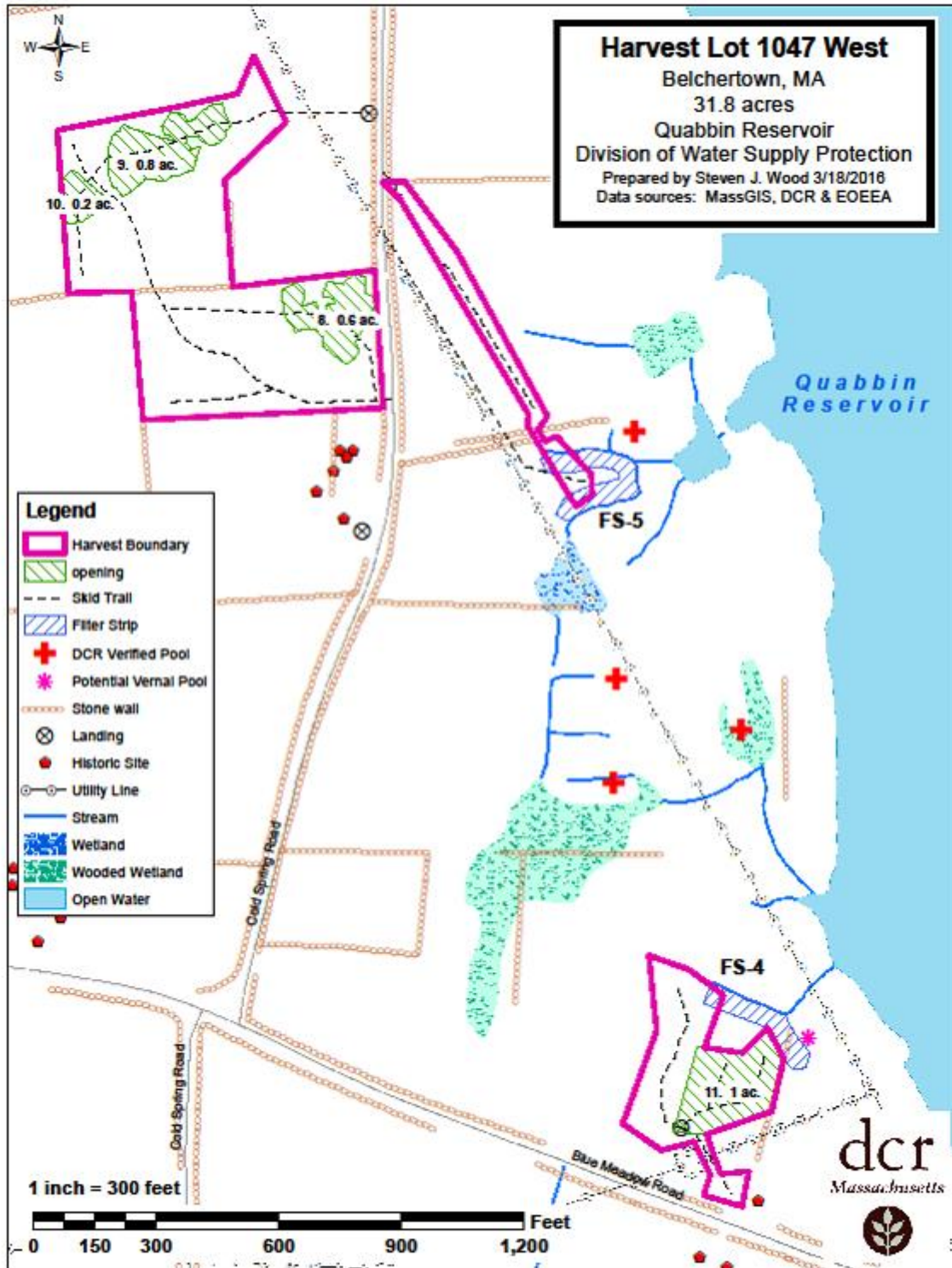
Regeneration & Future Condition

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
All	AD/SE	Existing well formed regeneration (mainly WP and SM) will be protected as much as possible. A new age class should be established from seed from surrounding trees and overall there will be 3 age classes present. Opening size ranges from 0.1 ac- 3.5 ac. with at least 10 sq. ft. of BA retained on openings over 0.5 acre. Due to nature of stand and past treatments openings won't be well defined (acceptable overstorey and existing regeneration is variable). Stands surrounding cut areas range from being uncut to having multiple cuts over last 30 years but all are well stocked, healthy and more diverse than these RP plantations. Note: SC-1 is an existing culvert in a permanent gravel road. If the landing near it off the fisherman's access is not utilized then this crossing won't be needed, wood could be forwarded to main landing to the west.

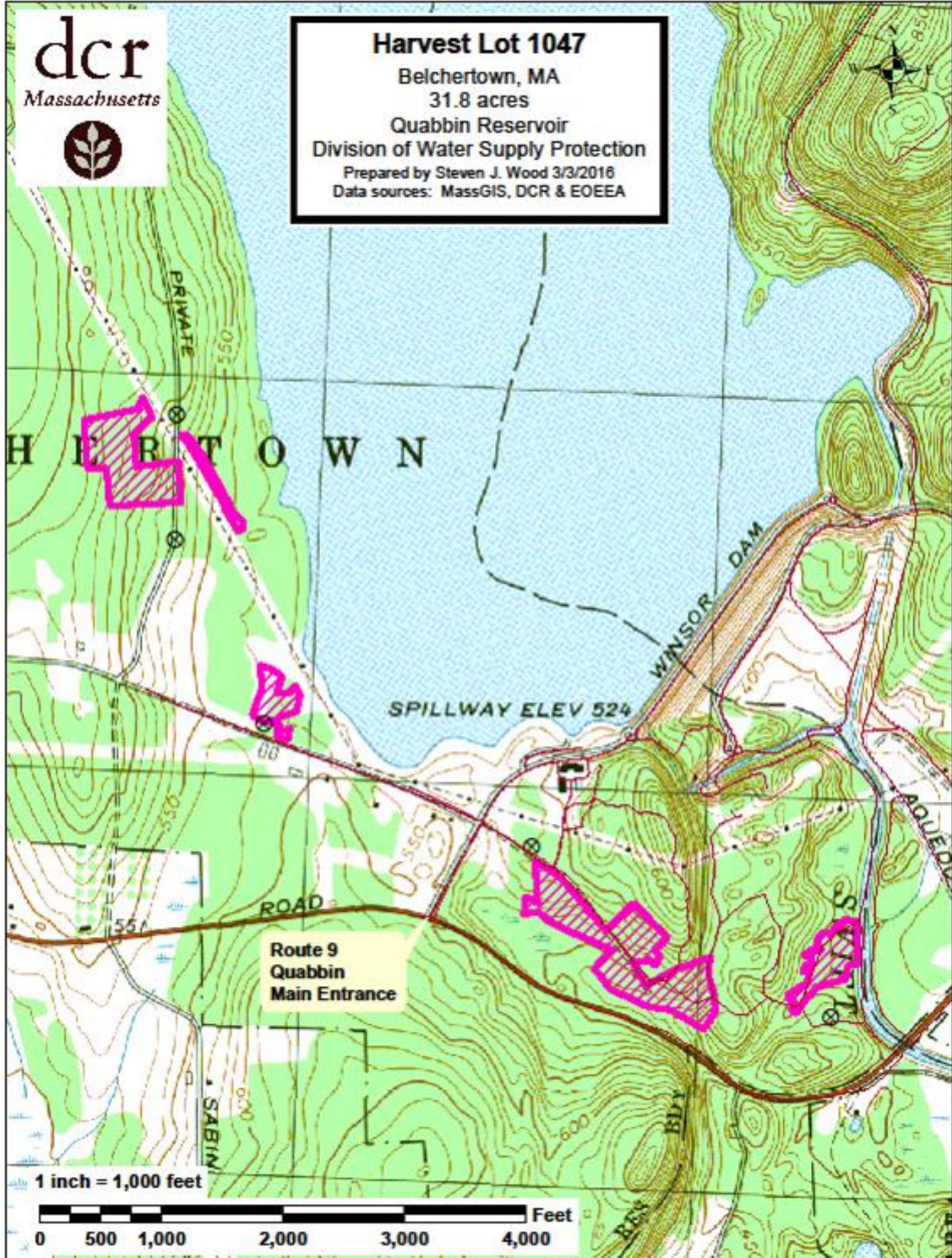
Stand No.	Desired Future Condition Describe what the stand is expected to look like five years from the harvest, including the condition of the overstorey & understorey







Harvest Lot 1047
Belchertown, MA
31.8 acres
Quabbin Reservoir
Division of Water Supply Protection
Prepared by Steven J. Wood 3/3/2016
Data sources: MassGIS, DCR & EOEEA



dcr



COMMONWEALTH OF MASSACHUSETTS
Department of Conservation and Recreation
Division of State Parks and Recreation

FILE # 024-8138-16

W

FOREST CUTTING PLAN CERTIFICATE

Post this in a conspicuous place within the area in which the harvesting operation is to take place.

This certifies that DCR-PWSP 485 WARE RD BELCHERTOWN, MA 01007
(Name of Owner) (Address) in accordance with the

provision of M.G.L. Chapter 132, Section 40-46, filed in AMHERST with the Dept. of Conservation
and Recreation, Division of State Parks and Recreation, a Notice of Intent to cut forest products upon the

1047 lot

Approval Date 4/12/16
Director's Agent DOUGLAS HUTCHESON
DCR Phone No. (413) 545-7020

ISSUED BY: *Priscilla E. Geigis*
Priscilla E. Geigis, Director
Division of State Parks and Recreation

Figure 2: Pre-Harvest Photographs A & B
A.



Photo taken on 8/27/15 looking north from Route 9 shoulder and trail/stone wall intersection. Thick white pine regeneration in background. The forest canopy is comprised primarily of white pine, red pine, and mixed hardwood species such as oak, red and sugar maple and black birch trees. Regeneration of these species, woody shrubs such as high bush blueberry and witch hazel, ferns, and the invasive species oriental bittersweet, comprise the understory.

B.



Photo taken looking north across Blue Meadow Road near salt shed. Note storm damaged and suppressed white pine regeneration. The forest canopy is comprised primarily of white pine and red pine with an occasional red maple and black birch tree. Regeneration of these trees species comprise the understory.

Figure 3. One year after harvest (7/31/17) photos A & B



Same view as photo **A**. The forest canopy is comprised primarily of white pine, red pine, and mixed hardwood species such as oak, red and sugar maple and black birch trees. Regeneration of these species, woody shrubs such as high bush blueberry and witch hazel, ferns, and the invasive species oriental bittersweet, comprise the understory.



Same view as photo **B**. The forest canopy is comprised primarily of white pine and red pine with an occasional red maple and black birch tree. Regeneration of these trees species comprise the understory.