

Executive Summary and Contents

The Hanover Conservation Commission began the Town Forest planning in November of 2016 with a public meeting convening neighborhood landowners, our forester Jeff Smith of Butternut Hollow Forestry, and the Hanover Conservancy. Work has progressed steadily since that meeting, with numerous site visits and public presentations. In 2018, Jeff Smith submitted a draft Forest Management Plan, and the town engaged Dr. Rick Van de Poll of Ecological Management Consultants to perform an Ecological Assessment. Rick submitted his final report in July of 2020, and the Commission began the work of balancing good forest management with ecological sensitivity. A Stewardship Map was prepared showing potential timber harvest areas, sensitive ecological areas, reserve areas, and infrastructure considerations. This Stewardship Plan narrative was compiled, and contains the following:

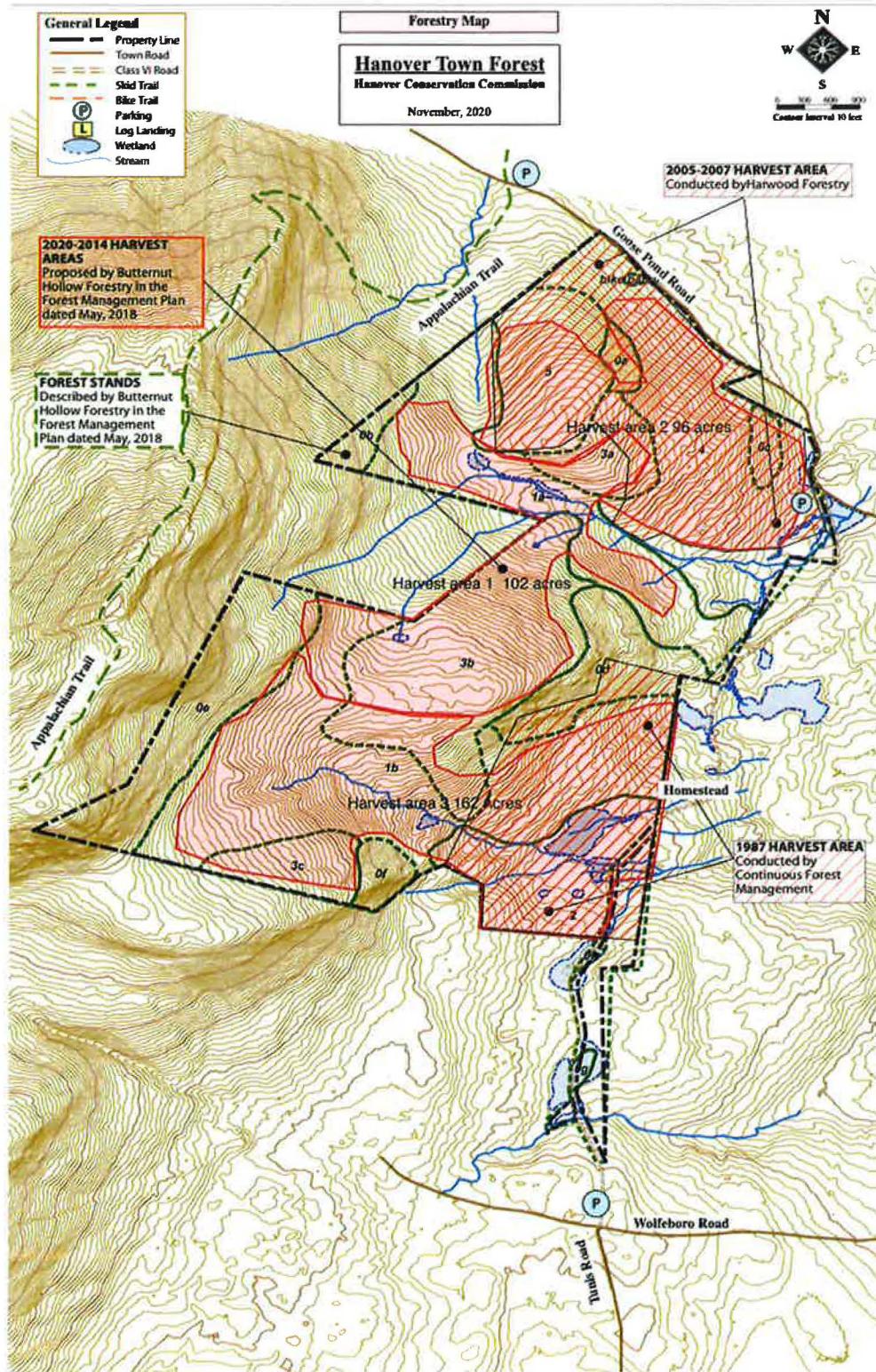
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1. Compilation of Mapping: GIS software (QGIS 3.14) was used to generate base maps for this plan. Illustration software (EazyDraw 9.7.1) was used to annotate the base maps and put them at a common scale (1" = 900 feet) which shows the entire Town Forest in relation to town roads and the Appalachian Trail. The maps will print on an 11" x 17" paper size.

A Town Forest Geographic Information System (GIS) was prepared to assemble the base maps and research data. NH GRANIT data was also used, in particular the 2015 LiDAR bare earth digital elevation models, which generated hillshade projections and 2-foot interval topography.

The shape files from Butternut Hollow Forestry (BHF) and Rick Van de Poll (RVDP) were used to plot the harvest areas, wetlands, streams, riparian zones, and significant ecological areas. The property boundary was adjusted in key areas such as along Tunis Road using GPS field points. All area calculations are approximate.

3. Forestry Map: This map shows the forest stands and harvest areas described by Jeff Smith in the Forest Management Plan, and includes the 1987 and 2007 harvest areas. The stands are described in the Forest Management Plan, and the harvest areas are summarized in the tables in section 5.



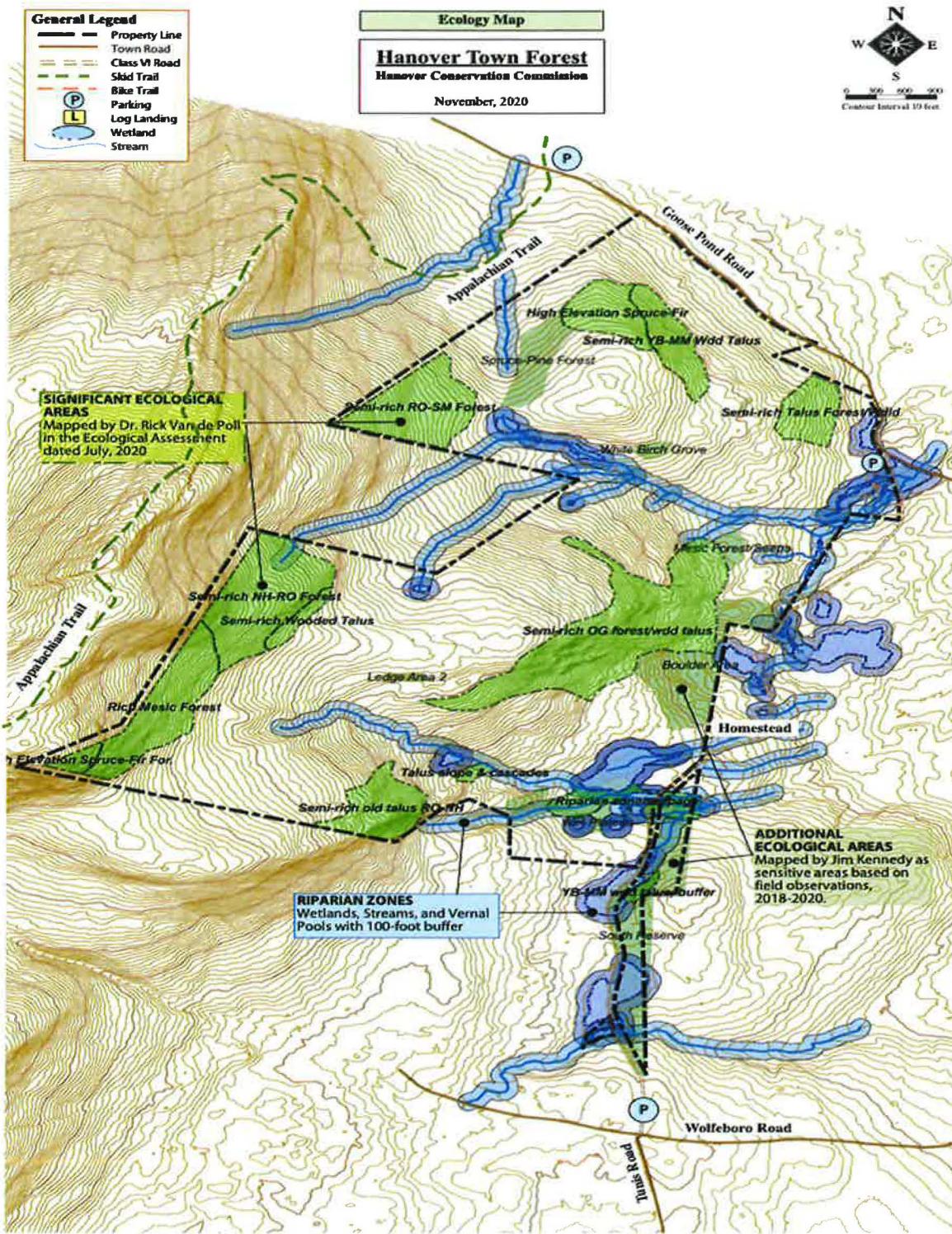
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Draft Stewardship Plan

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2. Ecology Map: This map shows the 2018-2020 work by Dr. Rick Van de Poll. Several observed ecological areas have been added that should be included in the reserve lands.



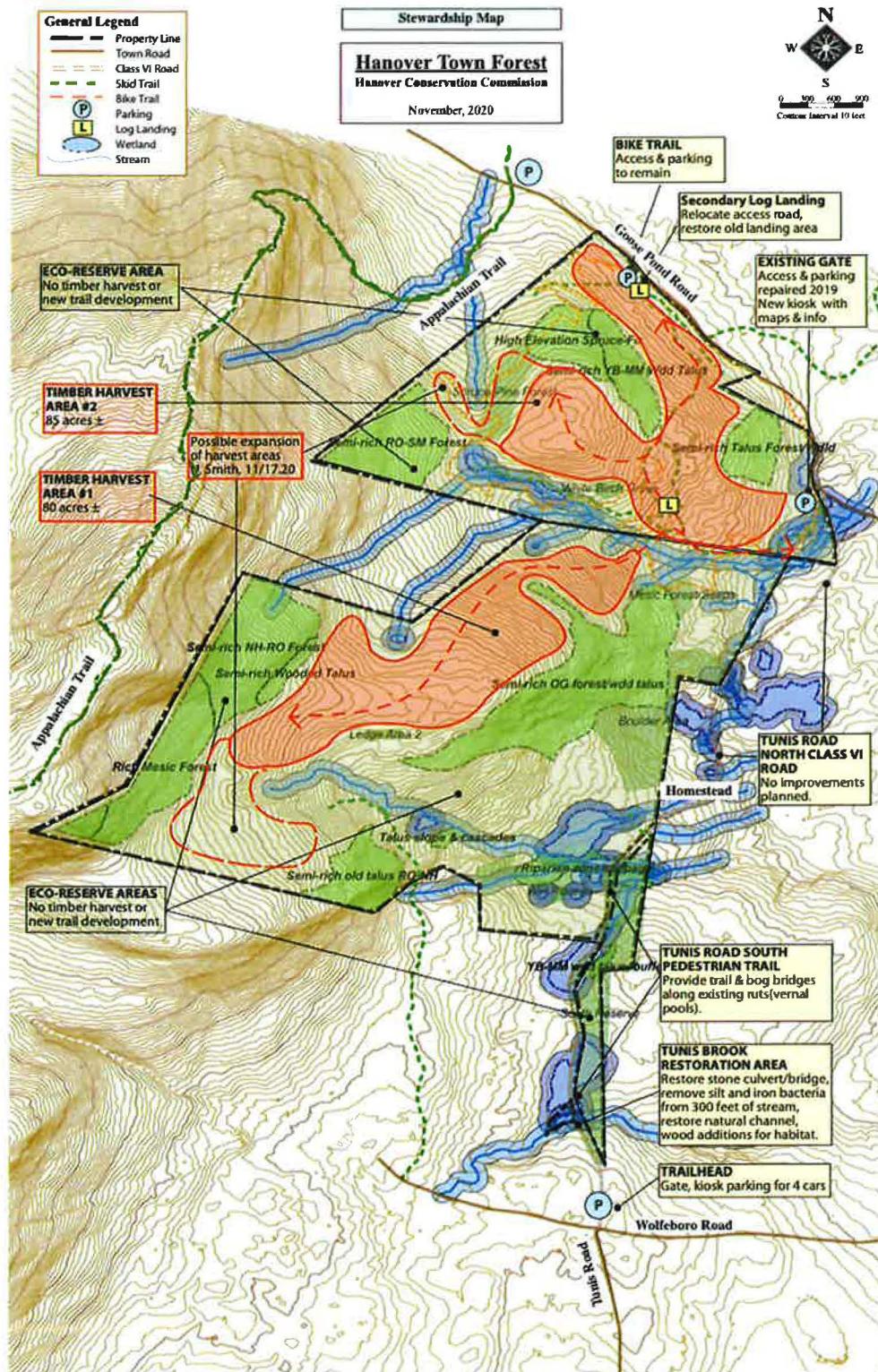
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4. Stewardship Map: This map shows the use areas and infrastructure proposed by the Conservation Commission.



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5. Timber Harvest Revenue: The Town has received revenue from several timber harvests on the Town Forest and at the nearby Marshall/Pressey area. The following chart summarizes those harvests and estimated revenues for proposed harvests:

Area	Year	Acres	Revenue	Expense	Forestry Fees @ 15%	Net Revenue	\$/acre gross	\$/acre net
Town Forest proposed in Forest Management Plan:								
Harvest Area #1	2019-2020	102	65,000	8,000	9,750	47,250	\$637	\$463
Harvest Area #2	2012-2022	96	26,000	2,000	3,900	20,100	\$271	\$209
Harvest Area #3	2022-2024	162	98,000	15,000	14,700	68,300	\$605	\$422
Town Forest – Whipple lot	1987	50	20,000					
Town Forest - Goodwin	2005-2007	100	17,044		3,468	13,576	\$170	\$136
Marshall/Pressey	2014-2015	70	40,827	11,370	11,615	13,576	\$583	\$194

In conversation with Jeff Smith, he suggested using the per acre harvest revenue from the proposed harvest areas in his Management Plan to estimate any revenue from adjusted harvest areas. Therefore, the estimated revenue for the harvest areas shown on the Stewardship Plan are:

Area	Acres	\$/acre gross	Estimated Revenue	Required Improvements	Cost	5-year Invasive Plant control*	total expense	Forestry Fees @ 15%	net revenue
1	80	\$637	50,960	Landing, 2,500-foot access road **	11,700	5,000	16,700	7,644	26,616
2	85	\$271	23,035	Second landing at bike parking	4,750	5,000	9,750	3,455	9,830
3***		\$605		0 Tunis Road upgrade landing by Homestead	18,075				

* A minimum of \$5,000 is included for invasive plant control. This money should be withheld from revenue to pay for multi-year control of invasive plants after harvest.

** The costs shown are for preparation of landings and access (see Wanner Earthmoving estimate in the References section). Jeff Smith has suggested that most loggers would prefer to control their own site preparation, but that may be reflected in lower bids for the timber sale. The costs shown above are the Wanner estimated costs for infrastructure improvements, in order to reasonably predict the net revenue.

*** Harvest Area #3 is not included on the Stewardship Plan. Access to this area would require an expensive upgrade to a mile of Tunis Road, and logging access to the uplands would have to cross several wetlands, streams, and buffer areas. Those areas are proposed to be preserved as ecological reserves.

6. Landings, Access, and Harvesting Methods: Members of the Commission, town staff, Jeff Smith and Rick Van de Poll toured the site on November 4, 2020. A possible lower log landing area near the gate was reviewed. Although this site has the space and soils suitable for a landing, it was decided that the proximity to streams and wetlands and the longer uphill skid distances would preclude the use of this site. An older cleared landing area at mid-slope provides better access to the harvest areas but would require upgrading and drainage improvements to 2,000 feet of a former access road. The Commission obtained cost estimates for this work, as well as work needed to restore a lower landing area at the mountain bike parking, and those costs are presented in the table in section 5.

We reviewed the impacts of timber harvesting on sensitive areas and wildlife in the Town Forest. Small group selection, similar to natural disturbances, carefully selected patch cuts, and tree tops left on site for biomass were the preferred silvicultural techniques. It was agreed that low-impact timber harvests, spaced out over a longer contract period, and using more traditional methods and log forwarders was preferred over a mechanized, whole-tree harvesting operation.

Jeff Smith has suggested some possible expansion of the timber harvest areas. This may require further review by the Commission prior to advertising the timber sale, as these areas are remote and may be ecologically sensitive. There is a possible access from the south over Tunis Timber lands, but that route would have to be negotiated with the abutters.

7. Invasive Plants: Town Forest has very limited populations of invasives, and a high biodiversity of native plant communities. There are some non-native honeysuckles around the old homestead, coltsfoot at the bike parking, and some other minor intrusions (see Invasives report by Barbara McIlroy). Glossy buckthorn poses the greatest threat to biodiversity, and there are large populations currently in the Pressey Brook valley, waiting for an opening in the Town Forest. The Commission is initiating an invasive plant monitoring and control program, and funds for control will be withheld from each timber sale.

8. Infrastructure:

Parking Areas and trailheads: The existing mountain bike parking area will remain—if it is needed for a future log landing, the access road will be straightened and regraded. The northern Tunis Road access point on Goose Pond Road has been drained and a small gravel parking area has been provided by the gate. A kiosk with maps and information is planned. The southern Tunis Road access point has room for the parking of several cars, and a gate is planned.

Trails and Roads: Tunis Road is a Class VI Highway, and all travel is permitted, subject to gates and bars. However, past vehicular traffic has severely rutted the travel way, and a 1-mile section is nearly impassable. The Commission has obtained estimates for creating a narrow pedestrian trail through the rutted wetland areas. The remainder of Tunis Road will remain as a serviceable woods

road, since it is used occasionally by landowners abutting the Town Forest. There are several stone and timber bridges along this section, which should be monitored for safety.

Where Tunis Road crosses Tunis Brook, $\frac{1}{4}$ mile north of Wolfeboro Road, there is a stone culvert. The culvert and approximately 300 feet of wild brook trout habitat have been silted up, due to upstream land disturbance. The Commission is seeking state and federal funding and assistance to restore the culvert and stream to its former natural condition.

The log landings and skid roads have been discussed previously. All skid roads will be laid out by the forester, and existing trails will be restored if damaged during logging operations. Skid road construction and closeout will follow best management practices. Invasive plants, which will undoubtably become established on bare soils, will be monitored and controlled as discussed in section 7. No new trails are planned, but skid roads will be open to pedestrian use.

9. Adoption: The Conservation Commission met on December 9, 2020 to discuss and approve the Stewardship Plan for distribution and public comment. This document and the Stewardship Map are the guiding documents of the Town Forest Management Plan that will be reviewed by the public on Wednesday, January 13, 2021.

10. References:

- *Chronology of Public Meetings and Consultant Presentations*. Vicki Smith, Town of Hanover Senior Planner, 2020.
- *Site Visit Report ("Dream Team"), October 24, 2018; Site Visits for Tunis Road Improvements, October 17 and December 11, 2018; Wanner Earthmoving Estimate, November 10, 2020*. Jim Kennedy, 2018-2020.
- *Invasive Plant Best Management Practices for prevention and treatment*. Barbara McIlroy, 2019.
- *Forest Management Plan – Goodwin Town Forest*. Jeffrey Smith, 2018
- *Rapid Ecological Assessment of the Goodwin Town Forest*. Rick Van de Poll, 2020.