CONNWOOD FORESTERS, INC.

39 CHERRY HILL ROAD, PO BOX 150
ROCKFALL, CONNECTICUT 06481
(860) 349-9910
CONNWOOD.COM

A FOREST OWNERS' COOPERATIVE ASSOCIATION ENGAGED SINCE 1945 IN THE STEWARDSHIP OF FORESTS FOR WOOD, WATER, WILDLIFE, RECREATION, AND AESTHETICS.

Timber Trespass Report
For South Norwalk Electric and Water (SNEW) property adjacent to 220 Nod Hill Road in Wilton, CT

Background

SNEW owns and manages land adjacent to its surface reservoirs, maintaining forest cover and practicing and promoting wise stewardship to help ensure cleaner water entering the reservoirs. Protecting the source of the water supply saves ratepayers' money by reducing treatment costs, while providing many other benefits.

In May 2021, SNEW retained the services of Connwood Foresters Inc. to conduct an assessment of an area adjacent to Pope's Pond Reservoir in Wilton, CT since trees were cut by a neighbor with the intent of improving their view and access to the water for recreation. The only access to this parcel is through 220 Nod Hill Road or by water and this activity occurred without SNEW knowledge or permission. The incident occurred in 2019-2020 and was reported to SNEW staff in 2020. The primary function of Connwood Foresters, Inc. is to assess the impacted site and determine the changes in vegetation caused by the harvest.

SNEW staff walked the property with Gregg Cassidy, showed him the extent of the harvest and the property boundaries. The property boundary was obvious (it is marked with wooden stakes and plastic flagging) and vegetation has been cleared from the property line to the shore of Popes Pond Reservoir and impacted approximately 0.29 acres of the property.

On May 6, 2021 an assessment of the area was conducted by Connwood Foresters, Inc. with the assistance of SNEW staff. The forester principally responsible for the field assessment was Gregg J. Cassidy. His qualifications include M.S. Forest Management from University of Massachusetts/Amherst. SAF Certified Forester #751, Connecticut Licensed Forester #29.

Methodology

Aerial photographs and field observations were used to determine the area harvested. The impact of the harvest could not be ascertained from aerial photographs alone since trees grow close together and the crowns intertwine, thus individual trees cannot be accurately detected. In addition, many small trees would be missed. There were some tree stumps evident in the impacted area but many had been removed and the site had been graded so it was impossible to count stumps to determine the number of trees removed. The procedure involved taking measurements in the undisturbed forest adjacent to the harvested area to determine conditions before the harvest.

The assessment involved taking measurements on three,1/10th acre (37- foot radius) plots. The species, diameter at breast height (DBH), and condition of each tree was recorded. The average value from the sample plots was used to determine forest conditions on a per acre basis. Less than an acre was impacted by the recent harvest so the per acre estimate of Pre harvest conditions was multiplied by the actual acreage impacted. This forms the foundation for the estimate of trees cut.

The methodology is described in:

- *Forestry Handbook.* Wenger, Karl E. John Wiley & Sons Publishers. 1984.
- *Forest Mensuration.* Husch Bertram, Charles I. Miller & Thomas W. Beers. John Wiley & Sons Publishers. 1982.

The forest here is owned for water quality protection. The basis for determining the value of the trees removed was based on the benefits provided in a suburban setting and not their value for forest products. The methods to determine the value of trees removed varied based on the size of the tree. For trees up to four (4) inches diameter at breast height, the replacement method was used. This uses replacement cost as a basis for determining value of the tree. For larger trees, the trunk formula method was used since trees large enough to replace them are not available from local nurseries. This method uses a dollar value per square inch and is bases on the methodology developed by: International Society of Arboriculture, Council of Tree and Landscape Appraisers, 2000.

Value is based on calculating the amenity benefits from trees on the sample plots and using that to determine value on a per acre basis. The process is based on replacement tree cost (the largest tree available from a local nursery), with tree species, and condition factored in to the valuation.

Summary

The acreage harvested was estimated based on GPS and aerial photographs to be about 0.29 acres. This doesn't account for the edge area where only a few large trees were cut.

Analysis of the inventory data shows the forest in this area contains a 147 trees per acre greater than 4 "DBH and a basal area of 79 square feet per acre. Most of the trees (70%) are sugar maple, 14% are black locust, 6% black oak. White pine, black birch, and beech, tulip poplar, and red maple each comprise 2 % of the trees. Tree smaller than 4 inches DBH make up a low percent of the basal area but form an important component of the forest; with an additional 63 trees per acre smaller than 2"DBH. All of the small trees were sugar maple. These trees do not impact the canopy of the forest but given the heavy deer population in the area it may prove difficult to reestablish small trees here.

The value of the trees removed was evaluated by reviewing current prices for nursery stock in the region and using the trunk formula method which accounts for species, condition, and location and calculates a value for a replacement tree. The number of trees per acre (Table 1) and value per tree (Table 2) were used to calculate a value for replacement trees (Table 3) to restore the forest to its condition before the harvest.

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Results

The impact of the harvest is based on comparing the harvested area to the surrounding forest; there were about 43 large trees (over 4" DBH) removed. Restoration would be aimed at recreating those forest conditions by planting 31 sugar maple, 3 black oak, 1 white pine, 1 beech, and 1 red maple. Six black locust trees were cut but I would not recommend replanting since it is not a native species. There were tulip poplar and black birch scattered through the adjacent forest and these would serve as a suitable replacement.

These trees have high value (see Appendix 2) but it would be challenging to find replacement specimen trees and equally difficult to transport them to the site. Large trees are more difficult to plant and would create more site disturbance, creating a negative impact on water quality. The largest trees I could find readily available at local nurseries was 2-2.5" caliper. Sugar maple, red maple, and black oak are all about $499.00. Beech is more expensive, but tulip poplar is cheaper. This restoration scenario would likely cost $21,500.00 just for the trees.

There were also 18 small (less than 2 "DBH) trees removed. All of these were sugar maple. Replacement value of these small trees is $250.00 each for a 6-12 'tall tree. Replacement trees would cost about $4,500.00.

The above estimates are just for planting stock; transportation to the site and planting are additional costs. The cost of planting, which ranges from $528.00 to $624.00 per tree in Connecticut also needs to be factored into the restoration costs. The cost of deer fencing (which may be needed to ensure survival of small trees) should also be factored in.

Feel free to contact me with any questions.

Respectfully submitted,

Gregg Cassidy 6/15/2021

Gregg J. Cassidy
SAF Certified Forester #751

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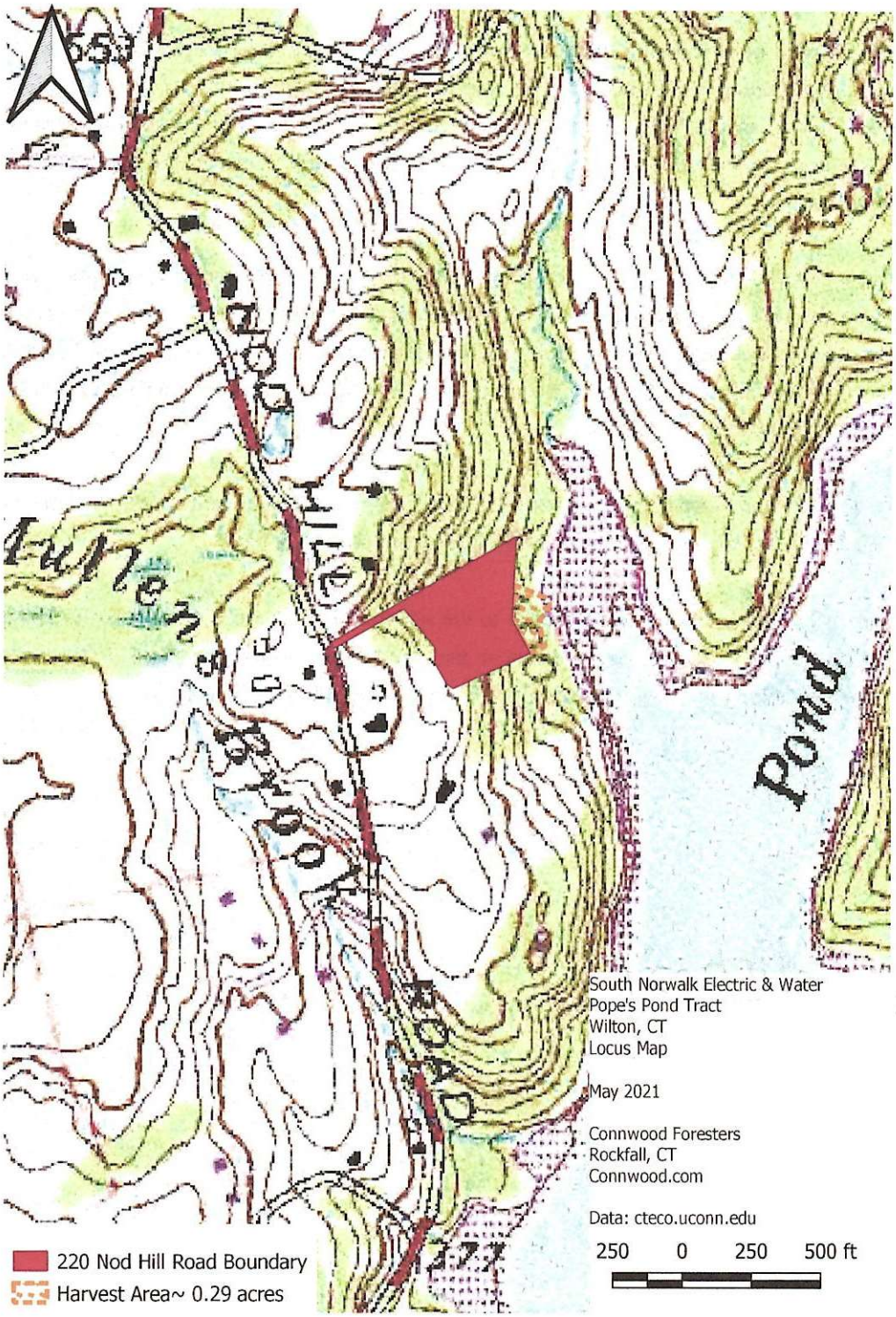

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Appendix 1. SNEW Nod Hill Road. Trees per acre

Trees/Ac

DBH	UGS	Sugar Maple	Black Locust	White pine	Beech	Black oak	Black Birch	Tulip Poplar	Red maple	SUM
2	0	63	0	0	0	0	0	0	0	63
4	0	27	0	0	0	0	0	0	0	27
6	0	10	0	0	0	0	0	0	0	10
8	0	13	0	0	0	0	0	0	0	13
10	0	10	0	0	0	0	0	0	0	10
12	0	3	0	0	0	0	0	0	0	3
14	0	17	0	0	0	0	0	0	3	20
16	0	13	3	0	0	3	0	0	0	20
18	0	3	3	3	3	3	3	0	0	20
20	0	0	3	0	0	0	0	0	0	3
22	0	3	7	0	0	0	0	0	0	10
24	0	3	0	0	0	3	0	0	0	7
26	0	0	3	0	0	0	0	0	0	3
SUM	0	167	20	3	3	10	3	0	3	210

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Appendix 2. SNEW Nod Hill Road. Value per Tree

DBH	_	Sugar Maple	Black Locust	White pine	Beech	Black oak	Black Birch	Tulip Poplar	Red maple	Total
2		$249.00		$299.00			$149.00	$110.00	$199.00	
4		$499.00		$399.00	$247.00		$199.00	$399.00	$249.00	
6		$521.96	$130.97	$513.56	$797.16	$357.87	$290.63	$443.28	$430.35	
8		$979.21	$245.28	$913.64	$1,254.41	$700.80	$576.40	$843.36	$773.28	
10		$1,567.09	$392.25	$1,428.04	$1,842.29	$1,141.72	$943.83	$1,357.76	$1,214.20	
12		$2,285.61	$571.88	$2,056.75	$2,560.81	$1,680.61	$1,392.91	$1,986.47	$1,753.09	
14		$3,134.78	$784.17	$2,799.77	$3,409.98	$2,317.48	$1,923.63	$2,729.49	$2,389.96	
16		$4,114.58	$1,029.13	$3,657.10	$4,389.78	$3,052.34	$2,536.01	$3,586.82	$3,124.82	
18		$5,225.03	$1,306.74	$4,628.74	$5,500.23	$3,885.17	$3,230.04	$4,558.46	$3,957.65	
20		$6,466.11	$1,617.01	$5,714.69	$6,741.31	$4,815.98	$4,005.72	$5,644.41	$4,888.46	
22		$7,837.84	$1,959.94	$6,914.95	$8,113.04	$5,844.78	$4,863.05	$6,844.67	$5,917.26	
24		$9,340.21	$2,335.53	$8,229.52	$9,615.41	$6,971.55	$5,802.03	$8,159.24	$7,044.03	
26		$10,973.21	$2,743.78	$9,658.40	$11,248.41	$8,196.31	$6,822.66	$9,588.12	$8,268.79	
28		$12,736.86	$3,184.70	$11,201.59	$13,012.06	$9,519.05	$7,924.94	$11,131.31	$9,591.53	
SUM										

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Appendix 3. SNEW Nod Hill Road. Tree Value per acre.

DBH	_	Sugar Maple	Black Locust	White pine	Beech	Black oak	Black Birch	Tulip Poplar	Red maple	Total
2		$15,770.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
4		$13,306.67	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	
6		$5,219.63	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	5220
8		$13,056.07	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	13056
10		$15,670.88	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	15671
12		$7,618.71	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	7619
14		$52,246.26	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$7,966.54	60213
16		$54,861.07	$3,430.42	$0.00	$0.00	$10,174.45	$0.00	$0.00	$0.00	68466
18		$17,416.75	$4,355.79	$15,429.13	$18,334.09	$12,950.56	$10,766.80	$0.00	$0.00	79253
20		$0.00	$5,390.03	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	5390
22		$26,126.13	$13,066.26	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	39192
24		$31,134.02	$0.00	$0.00	$0.00	$23,238.52	$0.00	$0.00	$0.00	54373
26		$0.00	$9,145.95	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	9146
28		$0.00	$63,693.91	$37,338.65	$43,373.54	$95,190.47	$26,416.46	$0.00	$31,971.76	297985
SUM		$195,166.04	$99,082.36	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$655,582.84