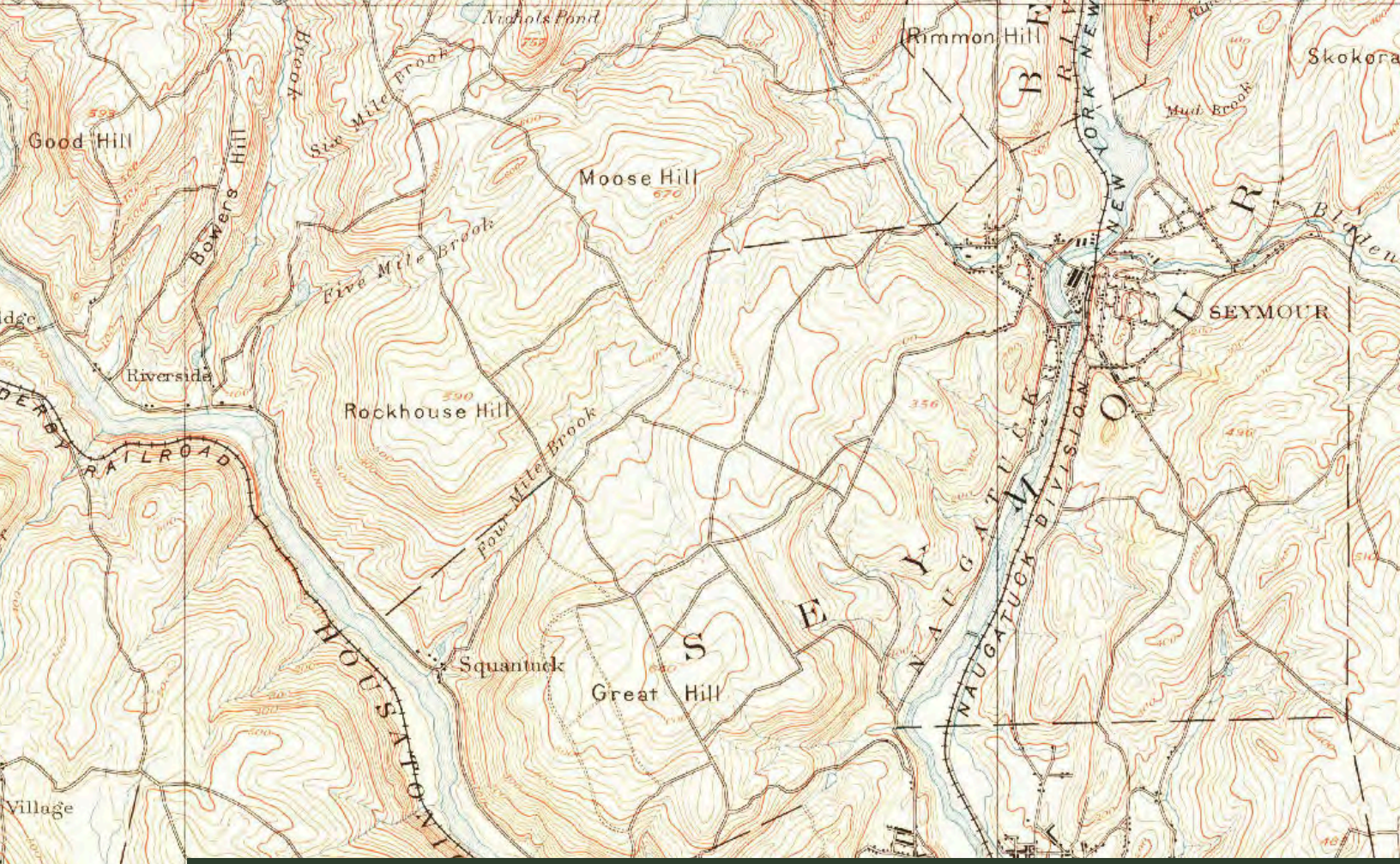

NATURAL RESOURCES INVENTORY

124 SQUANTUCK ROAD
SEYMOUR, CONNECTICUT

Connecticut
Resource Conservation
& Development

APRIL 2025

Connecticut RC&D Environmental Review Team Program

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All site photos were taken by CT RC&D Staff unless otherwise noted.
Cover photo provided by the U.S. Geological Survey National Geologic Map Database

Photo Credit: Aaron Budris, NVCOG

Acknowledgements

This report is the product of a request from the Town of Seymour's Town Planner, Keith Rosenfeld, and First Selectwoman, Annmarie Drugonis, to the Connecticut Resource Conservation & Development Area's (CT RC&D) Environmental Review Team (ERT) Program. The CT RC&D ERT Program provides technical assistance to Connecticut's municipalities and land trusts to obtain baseline environmental data and suggest best management practices for properties of interest relating to existing or future development or conservation. The ERT program is funded in part by the Connecticut Department of Energy and Environmental Protection's (CT DEEP) Passport to the Parks Program.

CT RC&D would like to acknowledge and express their appreciation for the important work of the following Environmental Review Team Members. Their professionalism and expertise were critical to the analysis of the Town of Seymour's property located at 124 Squantuck Road.

Randolph Steinen	Professor Emeritus of Geology, University of Connecticut Connecticut Geological and Natural History Survey, CT DEEP
Ed Pawlak	Certified Professional Wetland Scientist & Registered Soil Scientist Connecticut Ecosystems, LLC.
David Irvin	Central District Service Forester Bureau of Natural Resources, CT DEEP
Kim Bradley	CT Trails and Greenways Director Bureau of Outdoor Recreation, CT DEEP
Chris Sullivan	Executive Director Southwest Conservation District
Courtney Gilligan	Natural Resource Specialist Southwest Conservation District
Aaron Budris	Environmental Planning Director Naugatuck Valley Council of Governments
Molly Johnson	Community Planner Naugatuck Valley Council of Governments
Christine O'Neill	Environmental Planner II Naugatuck Valley Council of Governments
Barbara and Peter Rzasa	Local Historians

The Team's field review was conducted on Monday, September 23, 2024. Prior to the review day, each Environmental Review Team member received a summary of the proposed concepts or projects anticipated for the property along with various information and geographic information maps. Some Team members made separate visits to the site following the initial ERT field review. Reports from ERT members were submitted to the CT RC&D Energy and Environmental Programs Coordinator, Christian Swanson, for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on the property. All final decisions rest with the Town of Seymour. This report identifies the property's existing resource base and evaluates its significance relating to potential development and conservation. Suggestions for consideration from the Team are action oriented toward long-term environmental quality and economic impacts.

CT RC&D hopes you will find this report of value and assistance in providing information to the Town of Seymour about the property at 124 Squantuck Road.

If you require additional information, please contact:

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Photo Credit: Aaron Budris, NVCOG

Introduction

On May 31, 2023, the Town of Seymour completed an ERT application for a natural resources inventory of a town-owned, 93.8-acre parcel at 124 Squantuck Road that stretches from the intersection of Route 188 and Route 334 on the northern border to the Housatonic River on the southern border of the property. The site abuts both state-owned open space and a Town of Oxford Land Trust property (Rockhouse Hill Sanctuary).

The Great Hill Reservoir is located near the municipal border between Oxford and Seymour in Northwestern Seymour on Fourmile Brook and was built for water supply. The reservoir is now owned by Seymour and has been declassified but remains in an aquifer protection zone. The Great Hill Reservoir Dam on the property is a circa 1919 dam, which maintains the reservoir that the State of CT has classified as a Class C concern, with need of repair, replacement, or dismantling due to the failing condition. Funding is a limiting factor in the town's ability to move forward with finding a solution to remedy the condition of the dam. Research is being done on grant funding or other funding opportunities to assist the town with the costly repair or dismantling of the dam.

The Town of Seymour is interested in making the property accessible to the public for passive recreation utilizing the existing trail system and considering future trail expansion, parking and connectivity to the Oxford Rockhouse Hill Sanctuary trail system.

The specific issues that the Town of Seymour requested CT RC&D to address in this ERT report included:

- Landscape Ecology
- Cultural Ecology
- Archaeology/Historical Significance
- Wetlands
- Lakes/Ponds
- Traffic/Access
- Geology
- Trail Mapping
- River Ecology
- Fisheries
- Wildlife
- Herpetology
- Forestry
- Invasive Species
- Storm Water Drainage
- Watershed

In 2017, an Emergency Action Plan (EAP) was developed by Fuss & O'Neill, Inc. at the request of the Town of Seymour with regard to the Great Hill Dam. Recommendations were made at that time for its removal or repair. A copy of this report is available upon request.

The primary goal of this ERT is to bring additional resources to the Town of Seymour, provide commentary on the baseline natural resources conditions, and offer recommendations on how to achieve their goals for the property with conservation in consideration.

Highlights of the Report

Soils and Wetlands
The large unfragmented landscape block is critical for many wildlife species that require large intact forested habitats, such as the wood frog, scarlet tanager and black-and-white warbler. No wetland soil units are contained within this soils map. The entirety of Great Hill Reservoir is identified as "water," although, as described in the next section, there are wetland habitats along the margins of the reservoir.

Ecological services include: Groundwater Discharge and Recharge, Floodflow Alteration, Pollutant Removal, Production Export, Wildlife Habitat, Finfish Habitat, Recreation, and Educational/Scientific Value.

Erosion Control/Invasives Management
Several areas of erosion were noted along the access road. Additionally, some sections of the access road were muddy due to the presence of nearby seeps. As this access road is utilized as a trail and a wider trail system is developed, it is essential to ensure that erosion does not increase from additional use. Not only will sediment deposit from increasing erosion affect the water quality of the Four Mile Brook but could also become a public safety concern. Control measures could include: Turnout Installations, Waterbar Installations, Infiltration Steps, Micro-Catchment and Vegetation, Utilizing Snag Trees, Erosion Control Blankets, Rock Mulch Rundown.

A number of relatively manageable populations of invasive plant species were present on the property. It is recommended to continually monitor for invasive resprouts and seedlings. Monitoring should be at least monthly for the next few years and can gradually reduce to twice annually as the native plants reestablish and fill in the area. Additionally, it is recommended to restabilize the soil in any sloped areas where invasive plant species are removed by planting native plant species. This will prevent erosion as well as the re-establishment of an invasive species.

Dam Removal
CT NRCS offers a Watershed and Flood Prevention Operations Program (WFPO). This program can be used for dam removals if it falls under the greater objectives of protecting & restoring watersheds. The program also has several subcategories including watershed protection, public recreation, and public fish & wildlife that may align with the Town of Seymour's goals.

Public Use/Trails
Great Hill Reservoir offers the potential of being a valuable recreational resource. The feasibility of creating safe canoe and kayak access should be explored. The dam at the south end of the reservoir provides an excellent vantage point from which to view the reservoir, and the diverse wildlife community that likely utilize it (waterfowl, wading birds, muskrat, etc.). The expansion of multiuse trails, picnic areas, birdwatching blinds, or other similar features could introduce additional passive recreation with minimal disturbance to the sensitive species identified in the NDDB analysis. CT DEEP may provide suggestion on recreational trails usage as an amendment to this report.

Forest Management
Forest management is recommended for a more diverse and resilient forest, including more structural complexity and development of advanced regeneration. Snags are considered beneficial for wildlife and are a natural part of any forest ecosystem. The only reason to remove dead trees is to reduce fire hazards in the event of a wildfire on site or to reduce physical hazards if there are trails nearby. It is suggested that the town seek a management plan or stewardship plan produced by a private professional forester. It could cover only this property, or a number of town properties at the same time. Management plans are important for the proper evaluation of current natural resource conditions, focusing objectives for the long-term by the town and outlining the important action steps that are needed to get there. A management plan is imperative if the town would like to seek possible outside funding sources to reach vegetation management objectives. Grants and cost sharing virtually always require a management plan in place as the first step.

NDDB/Wildlife
Initial findings show 2 reptile species, 3 bats and 5 plant species on the NDDB list on or in the vicinity of this property. There is a chance that some of these species do not actually occur on the Great Hill Reservoir Lot, especially the prickly pear and skink, which are more associated with the unique ridgetop and ledges found on Rockhouse Hill. A more thorough evaluation of these species is strongly encouraged before establishing new trails or other sanctioned recreational activities for the public here.

Land Use & Zoning
This property is part of a sizeable open space and wildlife corridor, sharing boundaries with open space belonging to a water company, land trust, and municipality. Given the location of the site, the Town should consult with the Golden Hill Paugussett and Schaghticoke Nations to consider tribal interests in decisions about the site. The parcel is partially located in an Aquifer Protection Area, any changes to the parcel should be reviewed by the Town's Aquifer Protection Agency. To improve future access, the town should consider establishing a second formal trailhead parking area at the site of the pull-off near Hull Road on Route 188.

History/Archaeology
The Keith Mitchell Forest is a 229-acre Seymour owned preserve extending from the Great Hill Reservoir south-west along Route 188 to Route 34. The area encompassing Keith Mitchell tract has been called Squantuck since the time of English settlement. The land was bought by Seymour from Birmingham Utilities in 1998 after it was determined the Great Hill Reservoir and watershed were no longer needed as a source of drinking water. In 1998, it was dedicated and named after Keith Mitchell, Seymour's tree warden, an unpaid post he held for 25 years. Keith was a member of the Audubon Society, a commissioner of the Housatonic Council, Boy Scouts of America and active in his church. He was also a volunteer docent at the New York Botanical Gardens. Keith spearheaded a Thanksgiving tree-planting program in Connecticut.

Soils and Wetlands

Report by Edward Pawlak
Certified Professional Wetland Scientist & Registered Soil Scientist
Connecticut Ecosystems, LLC.

Introduction

Connecticut Ecosystems, LLC inspected the subject property on two occasions in 2024: September 23rd and November 16th in order to characterize the wetlands and watercourses contained therein, assess their functional values, and develop management recommendations for them. The inspections were focused on the Great Hill Reservoir (Photo 1) and Fourmile Brook (Photos 2, 5).

Photo 1: Great Hill Reservoir. Edward Pawlak.

Photo 2: Fourmile Brook, deep run below a riffle segment. Edward Pawlak.

Landscape Context

The subject property is part of a much larger wooded landscape block bordered by Route 188 to the north, Route 189 to the east, Route 34 to the south, and Oxford High School and subdivision roads to the west. This wooded landscape block is approximately 670 acres in size. This large unfragmented landscape block is critical for many wildlife species that require large intact forested habitats, such as the wood frog, scarlet tanager and black-and-white warbler.

Topography

Slopes on the property are mostly steep or very steep, as indicated by the slope classes of the soil series identified on the soils map (Figure 1). Most of the soils are in the "C" (8-15 percent) or "E" (15-45 percent) slope classes. There are, however, some gently sloping benches between areas of much steeper slopes.

Soils

The online NRCS Soil Survey website was used to identify the dominant soil series on the property. An "Area of Interest," which roughly coincides with the subject property boundaries, was delineated on the base soil survey map. The resulting soils map is contained in Figure 1. No

wetland soil units are contained within this soils map. The entirety of Great Hill Reservoir is identified as “water,” although, as described in the next section, there are wetland habitats along the margins of the reservoir. Fourmile Brook is identified as a “Water Feature” on the map. As described in the section on Fourmile Brook, there are alluvial wetland soils beyond the boundary of the Fourmile Brook channel. These were likely not included on the soils map because of their small size.

Five non-wetland soil series, occurring in complexes, account for the majority of the non-wetland soils on the subject property (the descriptive text is taken directly from the Soil Survey):

• Charlton: The Charlton series consists of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges.

• Canton: The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till.

• Chatfield: The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock.

• Paxton: The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact.

• Montauk: The Montauk series consists of well drained soils formed in lodgment or flow till derived primarily from granitic materials with lesser amounts of gneiss and schist. The soils are very deep to bedrock and moderately deep to a densic contact. The term “densic contact” used in some of the above soil series descriptions is referred to colloquially as a “hardpan.” Hardpans are dense soil horizons that restrict the downward movement of soil water.

Photo 3: Visual and textural inspection of a soil sample

All of the above soils are derived from unsorted glacial till materials. There is one soil series on the subject property, near the confluence of Fourmile Brook and the Naugatuck River, which was derived from glacial outwash - Hinckley - The Hinckley series consists of very deep, excessively drained soils formed in glaciofluvial materials.

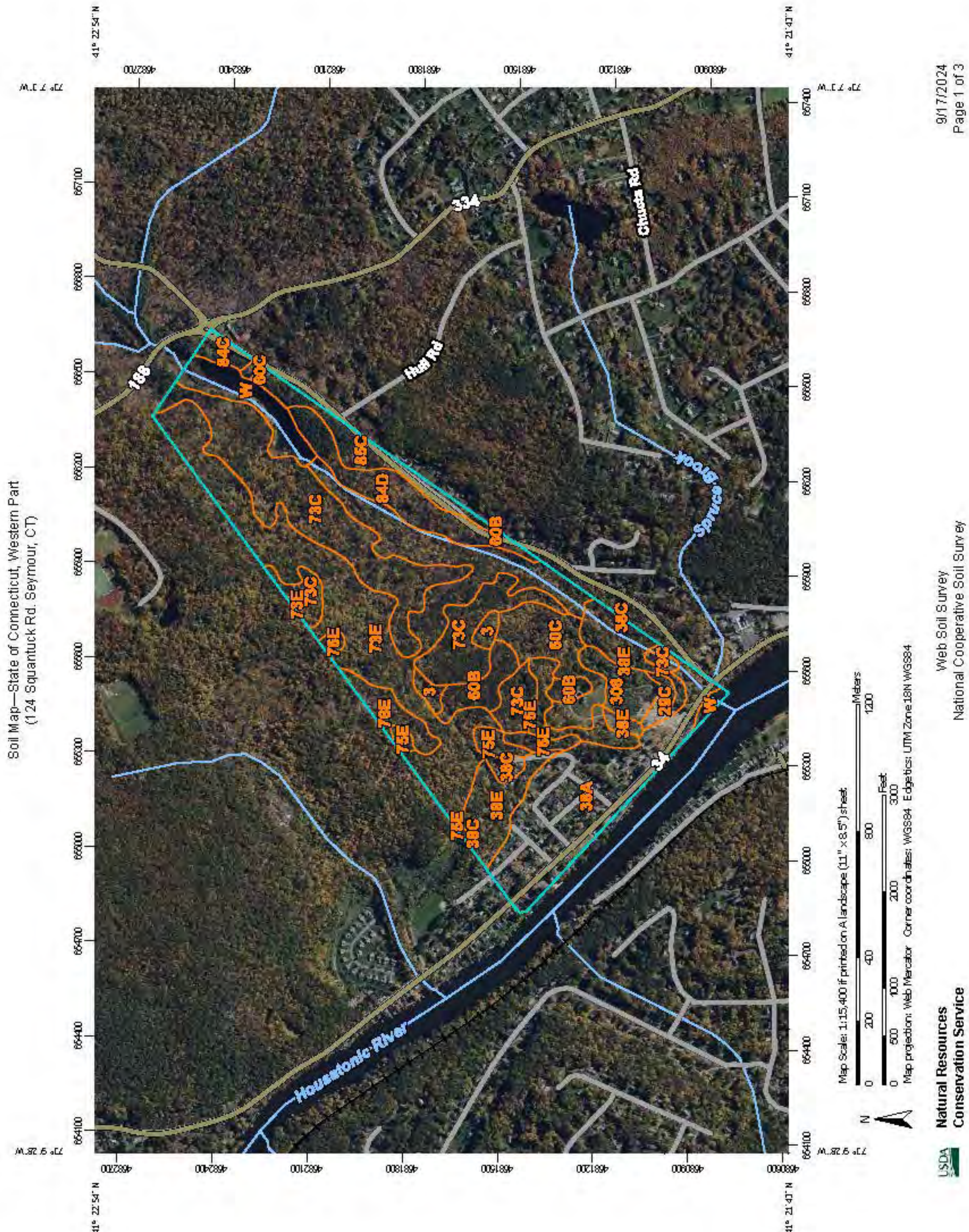
Wetland Characterization
The National Wetlands Inventory (NWI) Map shows the approximate locations of these wetlands, as interpreted from aerial photography by the U.S. Fish & Wildlife Service (Figure 2).

Below is an explanation of the symbology found on this map:

- PEM1E: Palustrine, emergent, persistent, seasonally flooded/saturated.
- PABHh: Palustrine, aquatic bed, permanently flooded, diked/impounded
- PUBHh: Palustrine, unconsolidated bottom, permanently flooded, diked/impounded
- R5UBH: Riverine, unknown perennial, unconsolidated bottom, permanently flooded

The emergent and aquatic bed wetland habitats along the margins of Great Hill Reservoir were observed from the dam at the south end of the reservoir. A closer inspection would be required to identify dominant vegetation in these habitats.

Photo 4: Fourmile Brook


Soil Map—State of Connecticut, Western Part
(124 Squantuck Rd. Seymour, CT)
Housatonic River
Spruce Brook
Huff Rd
Chusta Rd
Map Scale: 1:15,400 if printed on A landscape (11" x 8.5") sheet.
Meters
Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84
Natural Resources
Conservation Service
Web Soil Survey
National Cooperative Soil Survey
9/17/2024
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 1, Sep 15, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	3.4	1.1%
29C	Agawam fine sandy loam, 8 to 15 percent slopes	2.4	0.8%
38A	Hinckley loamy sand, 0 to 3 percent slopes	42.6	13.6%
38C	Hinckley loamy sand, 3 to 15 percent slopes	2.0	0.6%
38E	Hinckley loamy sand, 15 to 45 percent slopes	21.5	6.9%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	8.9	2.8%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	16.0	5.1%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	63.8	20.4%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	81.4	26.0%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	10.8	3.5%
76E	Rock outcrop-Hollis complex, 3 to 45 percent slopes	9.6	3.1%
84C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes	2.9	0.9%
84D	Paxton and Montauk fine sandy loams, 15 to 25 percent slopes	16.5	5.3%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	11.0	3.5%
308	Udorthents, smoothed	7.4	2.4%
W	Water	12.3	3.9%
Totals for Area of Interest		**312.5**	**100.0%**

Fourmile Brook

Fourmile Brook is a perennial watercourse contained within a moderately sloping rocky channel. It extends on the subject property from the Great Hill Reservoir dam to its confluence with the Housatonic River. The brook is characterized by two instream habitat types: deep runs (Photo 2) and shallow riffles (Photo 5). There are numerous large boulders (Photo 5) and small flat rocks in the channel (Photo 7).

The channel banks are wooded (Photo 5) and mostly stable, although in some areas erosion has exposed bankside tree roots (Photo 8) that continue to hold the channel soils in place. Numerous areas with waterlogged soils that were discharging groundwater to the brook were observed (Photo 10). Because of the steep slopes that border the channel, there is limited opportunity for a floodplain to develop. However, a flat bench on the eastern side of the channel contains a side channel (Photo 8) that contained no flow when inspected, but the presence of waterborne debris and scouring indicates that it periodically receives an overflow from the main channel.

A stone structure, possibly an old dam, partially spans the channel (Photo 9). The riparian forest beyond the channel contains mature trees including eastern hemlock, black birch, chestnut oak, red oak, American beech, tulip poplar, sugar maple and American sycamore.

A 1991 Connecticut Department of Environmental and Energy Protection finfish survey of Fourmile Brook in the Town of Oxford, north of the Great Hill Reservoir, found wild brook trout and blacknose dace in the watercourse. It is likely that warm water fish, such as sunfish, reside in the Great Hill Reservoir.

Photo 5: Large wooded riparian zone to Fourmile Brook, note numerous boulders in channel. Edward Pawlak.

Photo 6: Localized bank erosion has exposed tree roots, which continue to stabilize the bank of Fourmile Brook. Edward Pawlak.

Photo 7: There are numerous flat rocks in and adjacent to Fourmile Brook channel. Edward Pawlak.

Photo 8: Dry floodplain side channel adjacent to main channel: waterborne debris and scouring are evidence of occasional flow. Edward Pawlak.

Photo 9: The remains of a stone dam partially spans the Fourmile Brook channel. Edward Pawlak.

Photo 10: There are numerous areas of groundwater discharge adjacent to the Fourmile Brook channel. Edward Pawlak.

Wetland Ecological Services

The wetlands and water courses on the subject property provide a variety of ecological services:

- Groundwater Discharge and Recharge: Active wetland groundwater discharges support the baseflow of Fourmile Brook. These groundwater discharges also modulate the water temperature of the brook, which is critical to the aquatic organisms that live there.

- Floodflow Alteration: The steep slopes that border much of Fourmile Brook limit the development of a broad floodplain. However, a side channel with alluvial soils and waterborne debris is present in an area east of the channel. This area offers a limited capacity to store floodwater.

- Pollutant Removal: Great Hill Reservoir traps sediments and attached pollutants carried into it by Fourmile Brook.

- Production Export: Biomass generated by the aquatic bed and emergent vegetation in the Great Hill Reservoir (Figure 3) is exported seasonally and supports the biota in Four Mile Brook and the Housatonic River.

- Wildlife Habitat: The open water habitat of Great Hill Reservoir, along with adjacent aquatic bed and emergent wetlands, offers suitable habitat for a variety of wildlife, including waterfowl, herons, pickerel frogs, painted turtles, and northern water snakes. A northern two-lined salamander and a green frog were observed on the banks of Fourmile Brook during the ERT group inspection. The numerous flat stones at the edge of the watercourse channel provide ideal habitat for another stream-based amphibian, the northern dusky salamander.

Photo 11: ERT Member holds a frog found on site.

- Finfish Habitat: As noted above, Fourmile Brook is known to support wild brook trout and blacknose dace north of the Great Hill Reservoir. Characteristics of the brook on the subject property - a stable, shaded channel; instream habitat diversity (riffle/run); a broad wooded riparian zone; substrate diversity (large boulders, flat stones) - are consistent with valuable finfish habitat.

- Recreation: Great Hill Reservoir offers the potential of being a valuable recreational resource. The feasibility of creating safe canoe and kayak access should be explored. The dam at the south end of the reservoir provides an excellent vantage point from which to view the reservoir, and the diverse wildlife community that likely utilize it (waterfowl, wading birds, muskrat, etc.). Fences would need to be constructed along the edges of the dam for safety purposes.

  The existing woods road that extends south from the dam offers many excellent views of Fourmile Brook. This easily traversed path would also provide an opportunity to observe numerous migratory avians in the spring and summer. Steep slopes may preclude the construction of hiking trails on much of the property.

- Educational/Scientific Value: The above comments with respect to Recreation apply to this function as well.

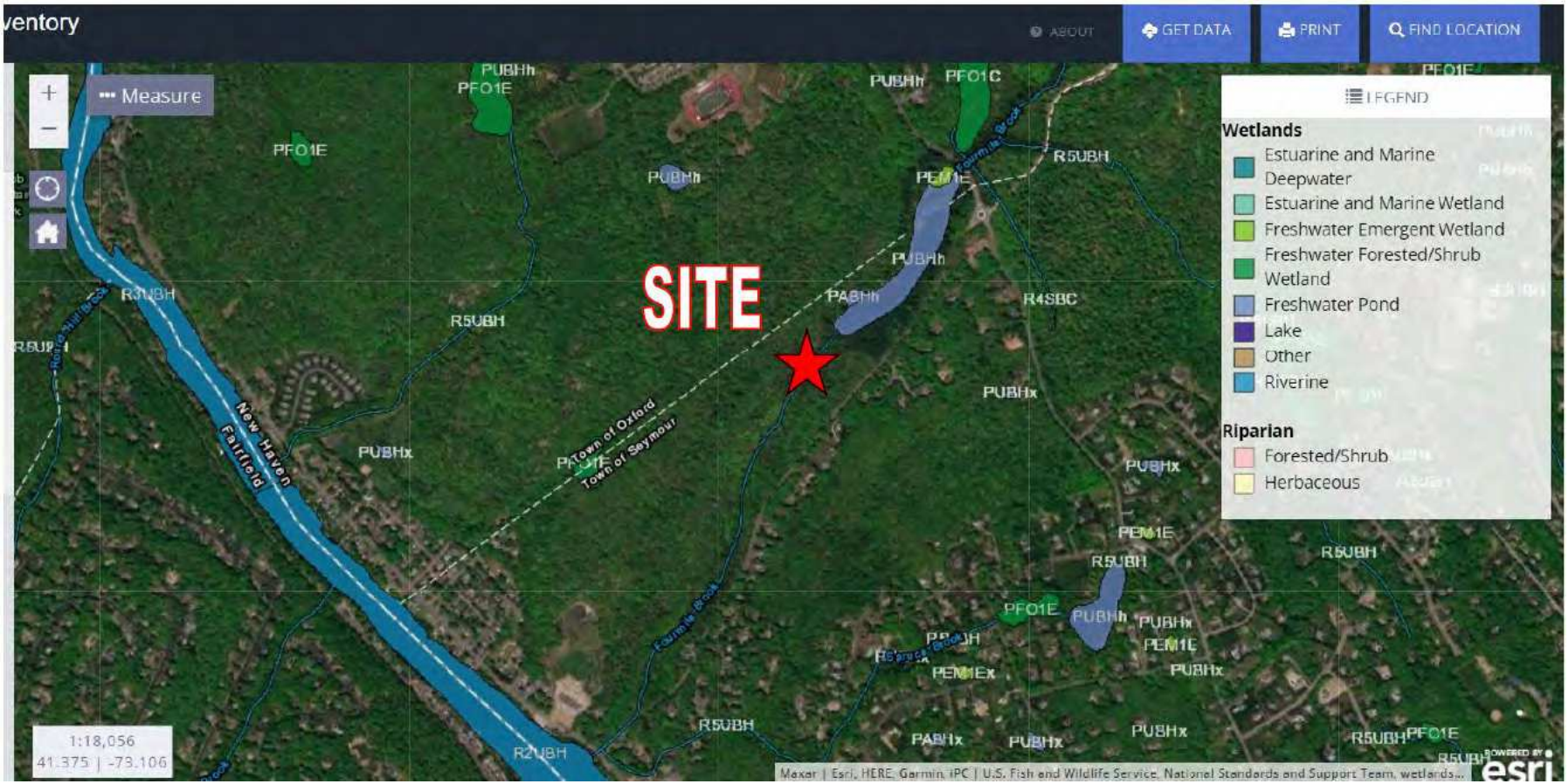


Figure 2: National Wetland Inventory Map. Seymour ERT. Seymour, CT.

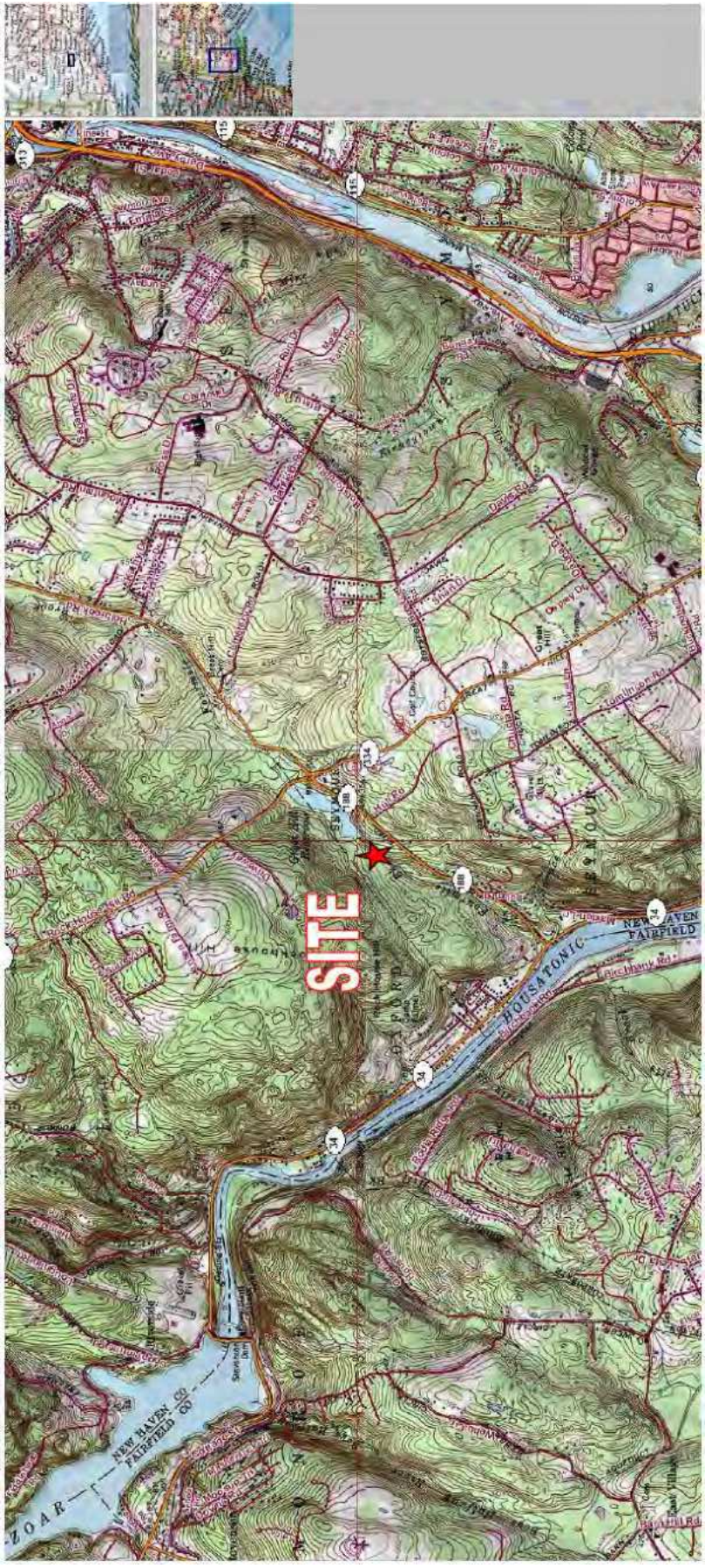


Figure 3: Site location map. Seymour ERT. Seymour, CT.

Complementary Upland Habitat
Non-wetland, mixed deciduous and coniferous forest habitat is abundant on the property, including within the critical riparian zone of Fourmile Brook and Great Hill Reservoir. Dominant species include eastern hemlock, black birch, chestnut oak, red oak, American beach, tulip poplar, sugar maple and American sycamore.

Invasive Flora
Very few invasive flora were observed on the portions of the property that were inspected. There are patches of invasive Japanese stilt grass within the riparian floodplain of Fourmile Brook. However, for the most part the flora are dominated by native species. Although Japanese stilt grass is not dominant on the property, this invasive species is capable of spreading rapidly once it gains a foothold. It is recommended that measures to eradicate the relatively small patches of this invasive species be explored.

Photo 11: Invasive Japanese stilt grass photographed on site

Management Recommendations
As noted above, steep slopes likely preclude the establishment of a trail system on much of the property. Additionally, Fourmile Brook extends all the way from the south end of Great Hill Reservoir to its confluence with the Naugatuck River. Crossing this watercourse with a trail would present a significant challenge, given the value of the resource and the steep slopes that border it. As noted above, Great Hill Reservoir is a valuable resource for recreation and nature watching. Recreation opportunities discussed above should be explored.

Geology and Topography

Report by Dr. Randolph Steinen
Professor Emeritus of Geology, University of Connecticut
Connecticut Geological and Natural History Survey, CT DEEP

The Four Mile Brook has a small drainage basin (watershed) that heads northeast of an impoundment, Great Hill Reservoir, in the western part of the Town of Seymour and the southern part of the Town of Oxford (Figure 1).

The head of Four Mile Brook is approximately two and half miles east of the Route 188/334 intersection at an elevation of greater than 500 feet (above SL); it is approximately 4 miles long (surprise?). Figure 2 shows the stream profile within the passive recreational area proposed by the Town of Seymour. Note that Four Mile Brook has already lost about 200 feet when it enters the proposed recreation area. The drainage basin (watershed) covers approximately 7 square miles.

Figure 1. Topographic map of Four Mile Brook west-southwest of Great Hill Reservoir. Contour interval is 10 feet. Blue line is oriented NW-SE across the valley is trace of topographic profile (Figure 3). Blue line is approximately ¼ mile long. Thin green line shows the boundary between the towns of Oxford and Seymour.

The valley of Four Mile Brook is about 100-150 feet deep at any one place and, in its lower reaches, appears to have an inner gorge about 20 feet deep (see Figure 3, 4 and 5A) with a small terrace on its north side. The only outcrops of bedrock seen during the field visit are in the streambed at the bottom of the gorge. The highest elevation within the town parcel is 360+ along the northern border with the Town of Oxford; the lowest elevation is approximately 10 feet above sea level where Four Mile Brook leaves the property at or near the bridge that carries Route 34 over the brook.

A small terrace is seen on the topographic map by spread-out contour lines is clearly seen in the field (Figure 5) and likely was exploited for farm activities. Land cleared of rocks and the presence of stone fences suggest that crop farming once took place on the terrace. The fence likely was constructed with stones removed from the field and was intended to prevent livestock from entering the enclosed field.

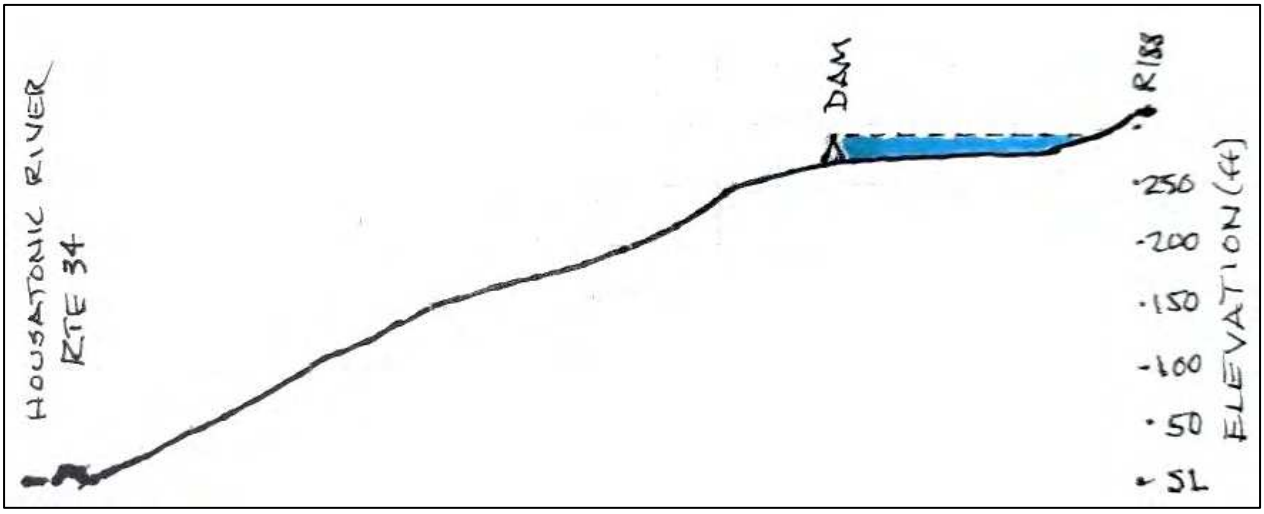


Figure 2. Longitudinal profile from northeast (on right) to southwest of Four Mile Brook between CT Routes 188 and 34. Slight changes in slope of profile occur where bedrock crops out in stream-bed. Figure 4 shows the upper slope change below the Great Hill Reservoir Dam. Vertical exaggeration ~21:1.

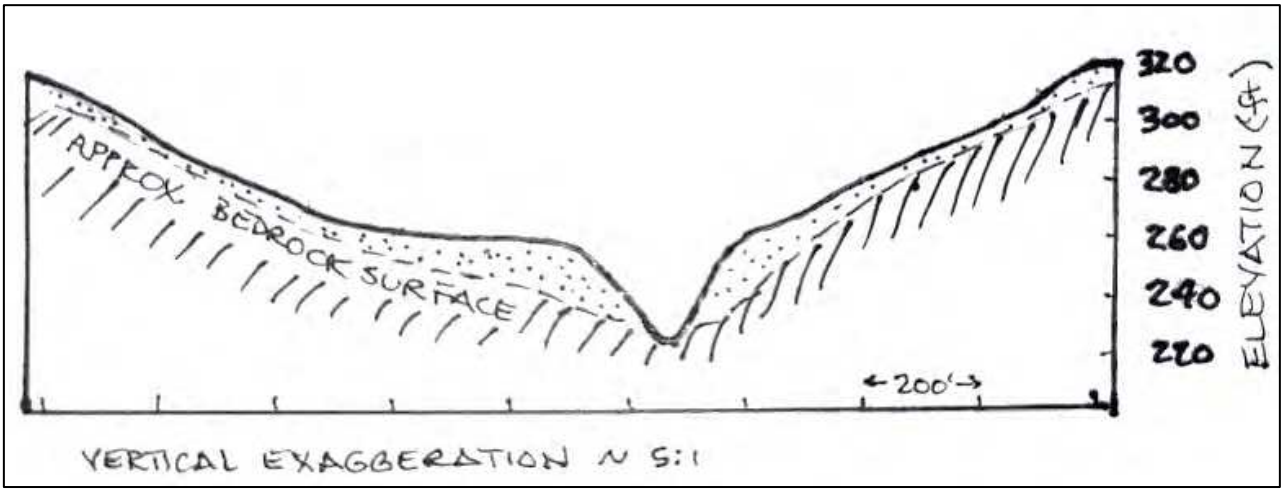


Figure 3. Cross-sectional profile of the valley of Four Mile Brook at location shown on Figure 1. Bedrock crops out on valley floor (see Figure 4). Terrace on northwest side of valley hypothesized to be due to thicker glacial deposits. The terrace was used for farm activities some time in past (see text).

Figure 4. Bedrock exposure below dam at slight change in slope of longitudinal profile. Steepening of profile here is accompanied by rapids and low waterfalls. Slabby weathering felsic gneiss slayers are interfoliate (layered) with poorly resistant biotite schist

Figure 5.
A. Terrace edge on north side of Four Mile Brook looking into inner gorge.
B. Stone Fence on terrace attests to past farming activities. Note on right side of fence few rocks are seen suggesting that this area may have once been cultivated. The stone fence was probably built to keep livestock out of the crop.
C. Left side of fence is rocky and bouldery. That area may have been used for grazing.

An intermittent spring feeds an intermittent stream on the terrace east of the stone fence. The intermittent stream is clearly delineated by a linear array of rounded cobbles oriented perpendicular to the slope of the terrace (Figure 6). The spring and stream were not flowing at the time of the site visit, but leaf piles in the up-hill side of cobbles attest recent former flow, perhaps during the unusual deluge that afflicted the area in August. Whether or not the spring actively discharged during that event is not known but stream-flow sufficient to move leaves is evident. Discussion of rounded cobbles in the streambed is given in later section.

Figure 6. Rounded cobbles in the bed of an intermittent stream that was fed by an intermittent spring upstream. Note the edge of the cobble-field is sharply defined on the left side of the illustration. It is similarly sharply defined on the other side (behind the scientist pictured)

Bedrock Geology

The rocks in the Seymour area (see map at end of report) formed over 400 million years ago originally as sedimentary and volcanic layers on the edge of the ancient North American continent. They later were metamorphosed to the schists and gneisses during the various mountain building events that formed the Appalachian Mountain chain (Coleman, 2004). Most of the metamorphism occurred approximately 340 million years ago during what geologists call the Acadian event. They are described in Carr (1960) as belonging to the Hartland Formation and by Crowley (1968) as part of the Collinsville Formation. Rodgers (1985) mapped them as Collinsville formation. The specific rocks in the reaches of the valley of Four Mile Brook west and north of Route 188 are interlayered mica schist and felsic gneiss (Figure 7). The felsic gneiss consists of plagioclase feldspar, quartz and both muscovite and biotite mica although biotite is a minor constituent (Figure 7A). The felsic rocks are interlayered with biotite rich schist (Figure 7B) that contains plagioclase and minor hornblende locally. The felsic gneisses generally are thicker than the biotite schist layers. Some felsic layers show evidence for folding and other more resistant to erosion deformation during the metamorphic events. Non-foliated pegmatite locally intrudes the felsic gneiss (Figure 7C).

Quaternary Geology Quaternary Geology describes the depositional and erosional products of the Ice Ages. The Lidar image below shows an area of about 10 miles wide. The lower reach of Four Mile Brook that runs through the proposed recreational area (see Figure 8).

Figure 7.
A. Layered felsic gneiss; light colored mineral layers are composed of plagioclase feldspar. Some coarse microcline forms some layers. Darker minerals are biotite and gray mineral is muscovite. Fingers behind rock provide some scale.

B. Biotite schist composed of biotite and plagioclase feldspar. Most biotite schist contains less plagioclase than the illustrated rock.

C. Coarse-grained pegmatite overlain by felsic gneiss. Hammer handle is about 16" long.

LiDAR is essentially a radar image, taken from flying aircraft, of the ground without any trees (radar sees right through the canopy) or buildings (electronic processing removes geometric shapes of buildings). This image can be thought of as a black and white picture of the ground surface. Notice smooth hilltops and creviced valley sides. Smooth hilltop areas are covered by glacial till (soil) and the valley sides have little or no till cover. Hence the layers of rocks chow up. A map (Stone and others, 2005) of the distribution of thick and thin till and other major glacial

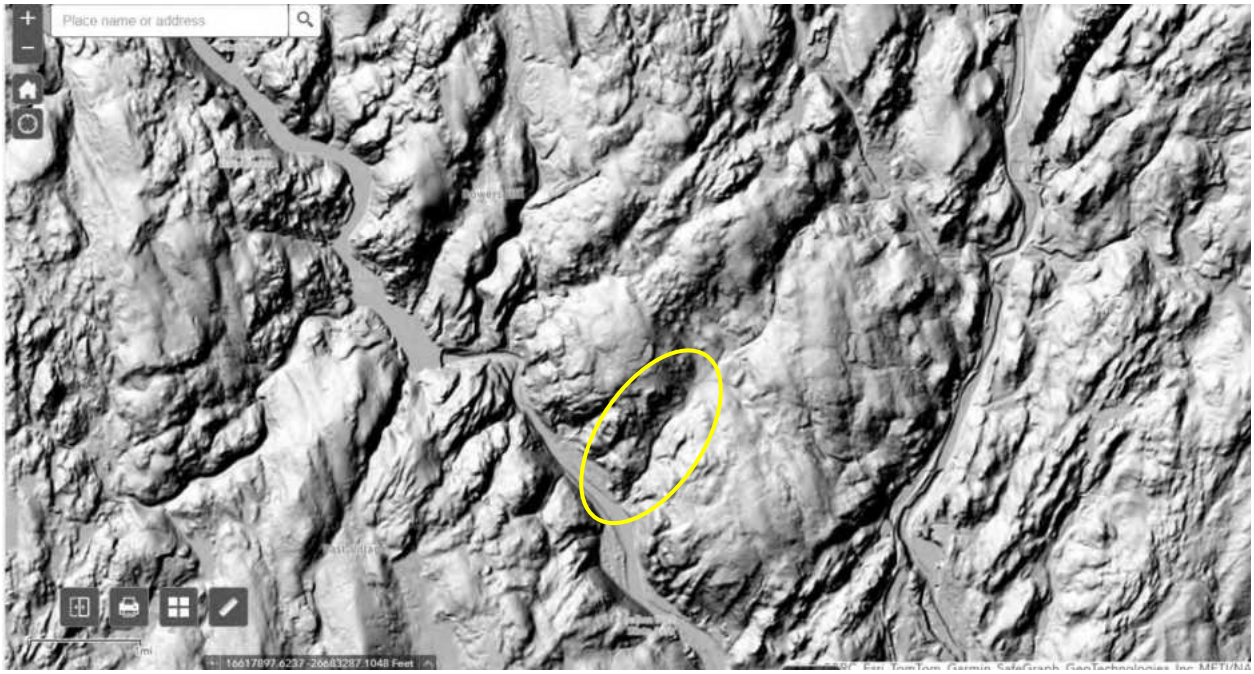


Figure 8. LiDAR image of parts of Seymour, Oxford, and Monroe surrounding proposed recreational area in the valley of Four Mile Brook (yellow oval). Housatonic River cuts diagonally across the image and its tributary, the Naugatuck River, runs north-south on the eastern side. Scale bar in bottom left corner is one mile. Image from www.CT ECO Viewers (uconn.edu) [/elevation (Lidar) viewer].

features is presented at the end of this report. The main glacial material in the valley of Four Mile Brook is glacial till. Till is unsorted debris left by the glacier after the glacier melted. It consists of mud, sand and gravel (even boulders) that the glacier eroded. None of the till is especially thick except perhaps under the terrace (this, however, was not confirmed).

The distribution of rounded cobbles in the stream-bed (described under the topography discussion of this report, see Figure 6) is curious. The cobble field has sharply defined edges along the length of the steam-bed. Notice that the size of the cobbles indicates that the water from which they were deposited was flowing at a high velocity. Water flow at a velocity high enough to move and round the cobbles would surely have been deeper than the current stream banks can hold. That implies that something existed exactly parallel to the current stream bed that confined water flow at a depth and velocity necessary to result in rounded cobbles along its bed. This suggests the current intermittent stream, and probably the spring also, are the

result of an antecedent stream that flowed in this exact area during the end of the last Ice Age when there was ice present to confine water flow at a higher velocity and volume than the current stream is capable of doing. During the melting of the last Ice Age glacier, I suggest a crack or crevasse developed over this area into which meltwater flowed, transporting cobbles and other debris eroded by the glacier during the height of the Ice Age. The spring exists because the crevasse deposits are more porous than surrounding glacial till that covers most of the area. Today it discharges, intermittently, onto the antecedent stream bed over which the current intermittent stream flows.

Numerous glacial boulders and probably erratics are scattered throughout the proposed recreational area. The difference between glacial boulders and glacial erratics is just semantics: geologic esoterica. Glacial erratics are boulders that have been moved by the glacier and deposited above bedrock of a different lithology. Glacial boulders are rocks of the same formation as the bedrock above which the glacier deposits them. All the boulders observed in the valley are compositionally similar to the bedrock observed in the valley except that the most boulders consisted of either a single lithology or layers that are thicker than what was observed comprising the ledge exposed in the valley bottom. I suspect they are glacial erratics rather than glacial boulders.

References

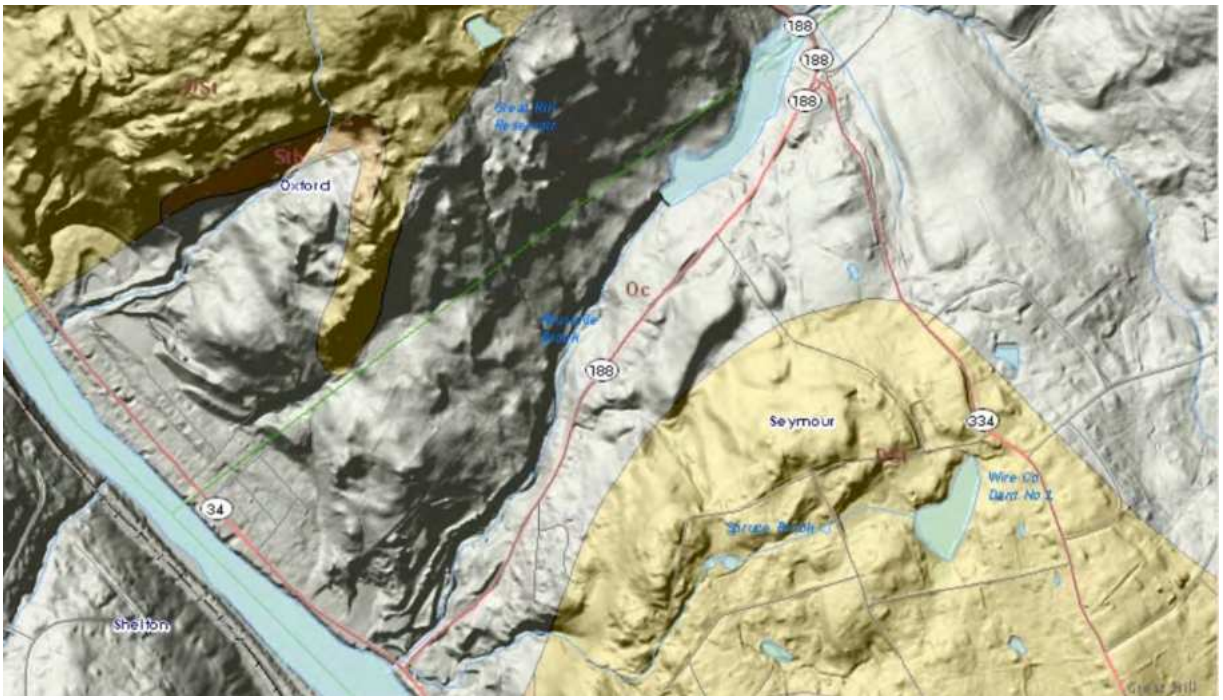
Carr, M. H., 1960, The Bedrock Geology of the Naugatuck Quadrangle with map. State Geological and Natural History Survey of CT, Quad. Rept. 9, 25p.

Coleman, Margaret E. 2005, *The Geologic History of Connecticut's Bedrock* State Geological and Natural History Survey of Connecticut, Spec. Pub. 2, 30 p.,

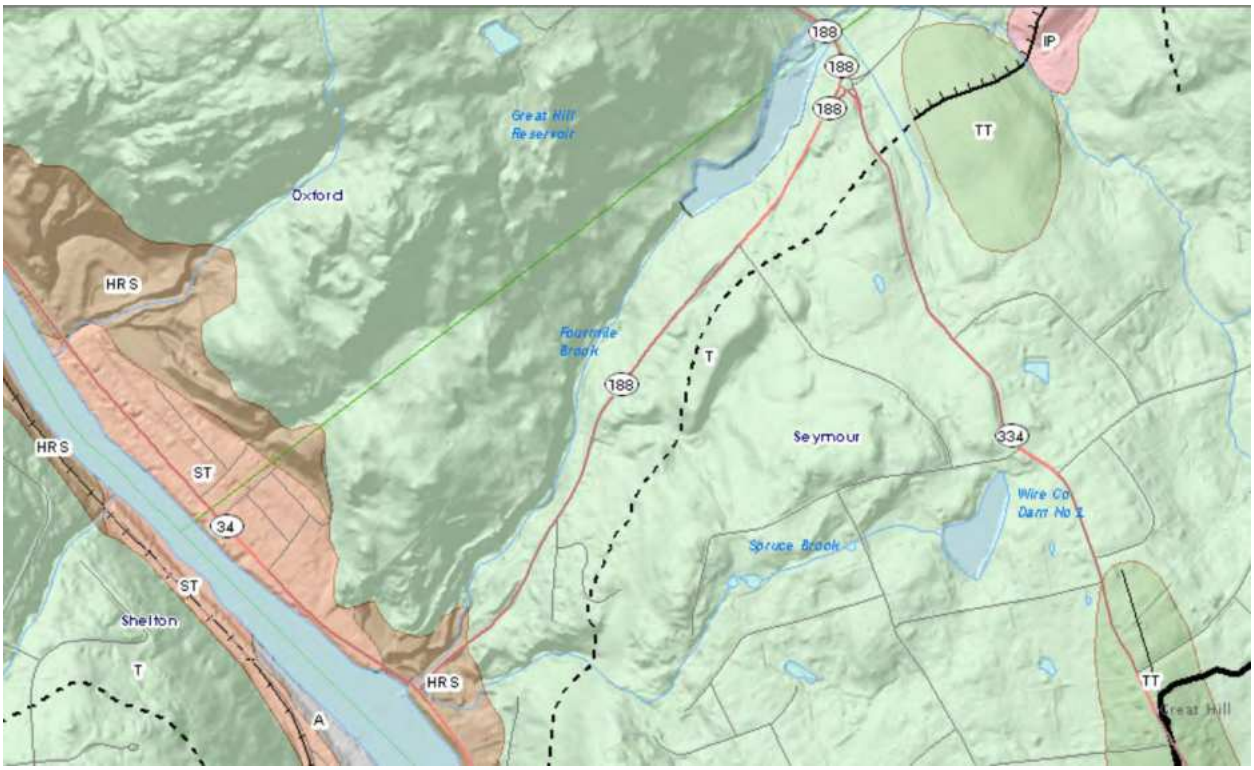
Crowley, W.P., 1968, The Bedrock Geology of the Long Hill and Bridgeport Quadrangles with maps. State Geological and Natural History Survey of CT, Quad. Rept. 24, 81p.

Rodgers, John, 1985, *Bedrock Geological Map of Connecticut*. State Geological and Natural History Survey of Connecticut, Nat'l. Resource Atlas Series, 1:125,000, 2 sheets.

Stone, J.R., Schafer, J.P., London, E.H., DiGiacomo-Cohen, M.L., Lewis, R.S., and Thompson, W.B., 2005, Quaternary Geologic Map of Connecticut and Long Island Sound Basin (1:125,000). U.S. Geol. Surv. Sci. Invest. Map # 2784.



Map 1. Bedrock map showing Four Mile Brook between CT Route 34 and 188. Map base is Lidar image. Areas colored yellow are underlain by a mica schist called The Straits Schist by geologists. The gray area is underlain by rocks of the Collinsville Formation. Map from Rodgers, 1985.



Map 2. Quaternary geology (Stone and others, 2005) of Four Mile Brook area between CT Route 34 and 188. Green color denotes area covered by till generally less than 15 feet thick, grayish green areas covered by thicker till. Black dashed line indicates southern edge of ice sheet when melting stopped for a couple of years and melt-back temporarily stopped. These areas generally have increased numbers of boulders.

Erosion Control, Invasives Management, and Dam Removal

Report by Courtney Gilligan
Natural Resource Specialist
Southwest Conservation District

SOUTHWEST CONSERVATION DISTRICT

The following is the Southwest Conservation District (SWCD) technical assistance report regarding erosion control, trail stabilization, invasive plant management, and possible dam removal assistance at the site. On September 23, 2024 SWCD conducted a site-reconnaissance visit with the CT RC&D Environmental Review Team. Photos from this site visit are provided at the end of this section in Attachment A.

A management plan map with property boundaries and concept management areas is provided (please note that the property boundaries in the photo are not from a surveyor). The concept management areas show the existing trail/road and approximate locations of gully erosion and known invasive plants on site.

Additionally, outfall locations that drain onto property from Squantuck Road/ Route 188 are shown (outfalls are circled in red, blue squares are catch basins and other associated infrastructure). Use the CTDOT map viewer for an interactive map of the stormwater infrastructure and more detailed information.

Erosion Control & Trail Stabilization

During the site visit, SWCD noted several areas of erosion along the access road (Photos 4, 5, 6, 10 & 12). Additionally, some sections of the access road were muddy due to the presence of nearby seeps (Photo 13). As this access road is utilized as a trail and a wider trail system is developed, it is essential to ensure that erosion does not increase from additional use. Not only will sediment deposition from increasing erosion affect the water quality of the Four Mile Brook but could also become a public safety concern.

The access road itself and any new trails spurs created from it should be stabilized and have erosion control measures installed to protect the site.

- Turn Out Installations: This BMP drains stormflows from the road and redisperses it as sheet flow into vegetated areas. Maine's Acton Wakefield Watersheds Alliance (AWWA) created a great detailed installation guide.

  Turn outs are essentially lined ditches that redirect storm flows. They should be located approximately every 50 feet along the access road to ensure each turnout only handles a small amount of stormflow. Due to the steep slopes, we recommend placing 3"-6" angular stone riprap over non- woven geotextile fabric to line the turn out structures. Regular maintenance and periodic monitoring are essential to ensure that sediment doesn't build up and that stones do not shift to cause channelization.

- Water Bar Installation: This BMP intercepts stormflows from trails and diverts them off trail into stabilized vegetation. Maine's Acton Wakefield Watersheds Alliance (AWWA) created a great detailed installation guide.

  Water bars consist of rot-resistant logs or timbers that are placed in trenches that run through the trail at a 30° angle to divert flows. These are then backfilled with crushed stone to help facilitate drainage off the trail. Larger stone is also used to armor the water bar's outlet.

- Infiltration Steps: Alternatively, install infiltration steps to create access to the river. Maine's Acton Wakefield Watersheds Alliance (AWWA) created a great detailed installation guide Infiltration steps consist of framed steps (made of rot resistant wood, pressure treated wood, or composite). See the SWCD's comparison guide to help choose the best material. Side timbers on the steps are not necessary but can be used for more stability. Soil is excavated out from each step, geotextile material laid down, and pea stone and crushed stone are used to fill in each step.

  We also recommend planting disturbed soils adjacent to the steps to help mitigate any potential erosion. Appropriate herbaceous forbs include Appalachian sedge (*Carex appalachica*), plantain-leaf sedge (*Carexplantaginea*), white wood aster (*Eurybia divaricata*), marginal wood fern (*Dryopteris marginalis*), Christmas fern (*Polystichum acrostichoides*), and blue stemmed goldenrod(*Solidago caesia*).

The channels forming in the hillside above and below the access road should also be stabilized. These channels facilitate low flows from groundwater seeps and intermittent flows from outfalls from Squantuck Road/ Route 188. The goal is to stabilize the channel beds, widen the channels and increase their sinuosity. Some of these channels are fairly stable (Photos 7, 8 & 9) while others show signs of erosion (Photos 4, 5, 6, 10 & 12). Prioritize those with erosion and monitor those without to make sure they remain stable.

Possible strategies to hillside stabilization include:

- Micro-Catchments with Vegetation: Half-moon (Media Lunas) mounds with shallow depressions behind and planted with forbs, shrubs & trees. Due to the steep grade of the slopes, structures should be placed approximately every 5-10 feet.

  Install a splash apron orientated with the tips up to form sheet flow spreaders. Dig shallow trenches a minimum of 3 feet wide and fill with rock. The goal is for the rock to not be more than 2 inches above ground level. Plant plugs or seed above and below splash apron.

  Appropriate understory trees include striped maple (*Acer pensylvanicum*), downy shadbush (*Amelanchier arborea*), and hop hornbeam (*Ostrya virginiana*).

Appropriate shrubs include American witch-hazel (*Hamamelis virginiana*), mountain laurel (*Kalmia latifolia*), rosebay (*Rhododendron maximum*), maple leaf viburnum (*Viburnum acerifolium*), and hobblebush (*Viburnum lantanoides*).

Appropriate herbaceous forbs include wild sarsaparilla (*Aralia nudicaulis*), Appalachian sedge (*Carex appalachica*), plantain-leaf sedge (*Carex plantaginea*), white wood aster (*Eurybia divaricata*), marginal wood fern (*Dryopteris marginalis*), Canada mayflower (*Maianthemum canadense*), cucumber root (*Medeola virginiana*), partridge berry (*Mitchella repens*), Christmasfern (*Polystichum acrostichoides*), blue stemmed goldenrod (*Solidago caesia*), New York fern (*Thelypteris noveboracensis*), and foamflower (*Tiarella cordifolia*).

- Utilizing Snags in Series for Water Slowing Structures : While green felled trees are typically preferred for channel stabilization, due to the steepness of the slope, we wouldn't recommend felling any nearby trees and eventually losing the stability that their roots provide.

  Removing snags that are considered a public safety concern was discussed during the site visit. Utilizing these snags for channel stabilization could put these materials to use on site.

- Erosion control blankets (ECBs) could also be used to help stabilize and protect the soil in this area while vegetation establishes. ECBs could be used on disturbed soil around installed vegetation. We recommend using ECBs that are made of natural materials, such as straw, curled wood, and coconut fiber. Those made of synthetic material, like plastic, often ensnare and kill wildlife, such as birds, mammals, snakes, and amphibians. Additionally, ECBs made of natural materials biodegrade after vegetation is established and do not need to be removed. ECBs are anchored to the ground using wood or other biodegradable stakes, metal stakes, or live stakes. Appropriate plant species to use as live stakes include silky dogwood (*Swida amomum*). Live stake cuttings can be taken in the dormant season (winter).

All outfalls from drainage of Squantuck Road/ Route 188 should be located and stabilized. There are 17 different outfalls maintained by CTDOT that drain onto the property. It's imperative that outfalls are properly armored to disperse stormflows to prevent erosion. The channels found on site could be the result of unarmored outfalls above. All outfalls should be inspected. Several seeps were noted (Photos 2 & 11), but many of the intermittent streams could be stormwater fed.

Possible strategies to stabilize outfalls include:

- Armoring: Outfalls should be stabilized with appropriately sized riprap, bioengineering, and/or native vegetation. Combinations of more than one material could lead to long-term stability.

- Rock Mulch Rundown: If there are head cuts present, this technique may be utilized to restabilize the area.

  Layback the head cut by removing soil at the top of the head cut and using the material to fill in at the base of the head cut. Aim to create a 3:1 slope across the entire channel. Compact fill, seed with native grasses and wildflowers, and rake in. Then install a splash apron by digging out a shallow trench at least 3 feet wide and filling in with one-two layers of rock. Next, cover the entire surface of the rundown with rock mulch and fill in until you reach the height of the head cut pour-over.

Some other useful resource guides to assist in developing safe trails within the property include Design & Development of Water Trails and Drainage Techniques from Low-Standard Rural Roads.

Additionally, any trail development would likely be eligible for DEEP's CT Recreational Trails Grants Program. SWCD would be happy to assist with drafting a proposal and administering a grant in conjunction with the Town of Seymour and this program.

Invasive Plant Species Management

A number of relatively manageable populations of invasive plant species were present on the property. Several populations of Japanese barberry and stilt grass are on the western side of the river. A large population of autumn olive is in the southern section, however, it might actually be located on Seymour Land Trust property. It is also likely that oriental bittersweet are present throughout site.

Continually monitor for invasive resprouts and seedlings. Monitoring should be at least monthly for the next few years and can gradually reduce to twice annually as the native plants reestablish and fill in the area.

We recommend restabilizing the soil in any sloped areas where invasive plant species are removed by planting native plant species. This will prevent erosion as well as re-establishment of an invasive species.

Suitable shrub and small trees include spicebush (*Lindera benzoin*), highbush blueberry (*Vaccinium corymbosum*), beaked hazelnut (*Corylus cornuta*), witch-hazel (*Hamamelis virginiana*),maple leaf viburnum (*Viburnum acerifolium*), striped maple (A*cer pensylvanicum*),common serviceberry (*Amelanchier arborea*), black chokeberry (*Aronia melanocarpa*), Carolina allspice (*Calycanthus floridus*), flowering dogwood (*Cornus florida*), silky dogwood(*Cornus amomum*), mountain laurel (*Kalmia latifolia*), sweet bay (*Magnolia virginiana)*, mountain witch-alder (*Fothergilla major*), and hobblebush (*Viburnum lantanoides*).

Suitable herbaceous layer plants include fringed sedge (*Carex crinita*), wavy hair grass (*Deschampsia flexuosa*), path rush (*Juncus tenuis*), white wood aster (*Eurybia divaricata*), whorled milkweed (*Asclepias quadrifolia*), downy skullcap (*Scutellaria incana*), Christmas fern (*Polystichum acrostichoides*),and New York fern (*Thelypteris noveboracensis*).

To manage this area while enhancing bird and wildlife habitat, we have several recommendations. First, avoid the use of herbicides. While the recommended herbicides have few direct negative impacts, studies show that exposure can negatively affect the microbiomes of many organisms, causing varied indirect side effects. These include negative effects on gut microbiomes that lead to chronic disease and endocrine system dysfunction. Second, coordinate with a wildlife biologist to determine appropriate times of the growing season to conduct invasive removals while protecting wildlife.

Possible Dam Removal with NRCS

SWCD reached out to CT NRCS and learned more about their Watershed and Flood Prevention Operations Program (WFPO). This program can be used for dam removals if it falls under the greater objectives of protecting & restoring watersheds. The program also has several subcategories including watershed protection, public recreation, and public fish & wildlife that may align with the Town of Seymour's goals. CT's State Conservation Engineer, James Lyon, described the program as such:

> *"The WFPO works with project sponsors, The main project sponsor must be a City, Town, State or Tribal government in CT. There are two components to NRCS PL- 566 work, Watershed Rehabilitation (Only available to NRCS project PL-566 and RC&D dams in CT) and Watershed and Flood Prevention Operations (WFPO).*
>
> *The WFPO program provides technical and financial assistance to States, local governments, and Tribal organizations to help plan and implement authorized watershed projects for the purpose of flood prevention, watershed protection, public recreation, public fish and wildlife, ag water management, municipal and industrial water supply, and water quality management. Project benefits must also contribute at least 20% of the total benefit towards agricultural and rural communities. The main project sponsors are responsible for land rights, permits, operation and maintenance over the project life span (50 to 100 years) and cost share.*
>
> *The process is outlined below and assumes we receive funding immediately at the end of each step.*
>
> - *Formal request from eligible sponsor*
> - *Preliminary Investigation and Findings report (will probably be prepared by a contracted engineering consulting firm) –12 months*
> - *Planning Phase (NEPA document) -18 months for EA or EIS*
> - *Design Phase – typically 24 months*
> - *Permitting – typically 6 months to 24 months*
> - *Implementation – typically 1 to 5 years*
>
> *Note that Watershed funding is extremely limited at this time."*

While this program is competitive and a lengthy process, it could be a possibility for the Town of Seymour to pursue. SWCD would gladly have further discussions about this piece and assist if the Town does decide to explore this opportunity.

SOUTHWEST CONSERVATION DISTRICT

Attachment A

Site Photographs

Photo 3 – Looking northward on access road.

Photo 2 – Seep just downstream of dam.

Photo 1 – Dam with spillway.

Photo 4 – Intermittent stream with erosion (1).

Photo 5 – Intermittent stream with erosion (2).

Photo 6 – Intermittent stream with erosion (3).

Photo 7 – Intermittent stream on eastern slope.

Photo 8 – Intermittent stream on western side.

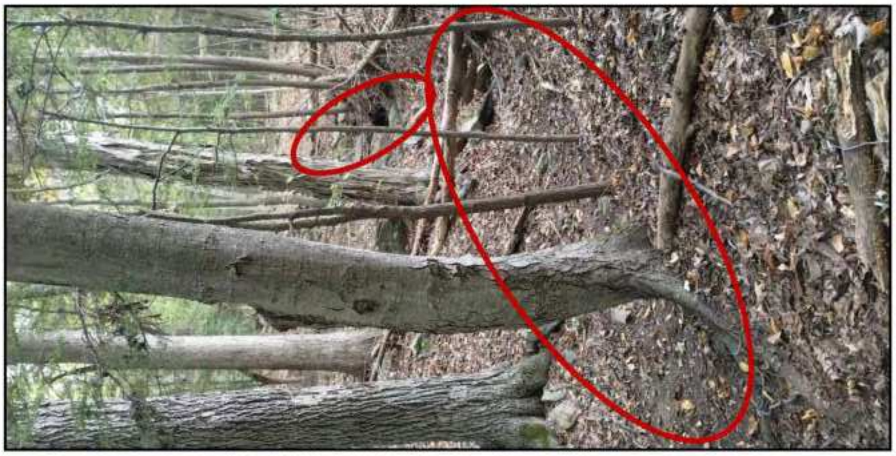


Photo 9 – Intermittent stream in southern section.

Photo 10 – Intermittent stream with erosion on eastern slope parallel to access road (4).

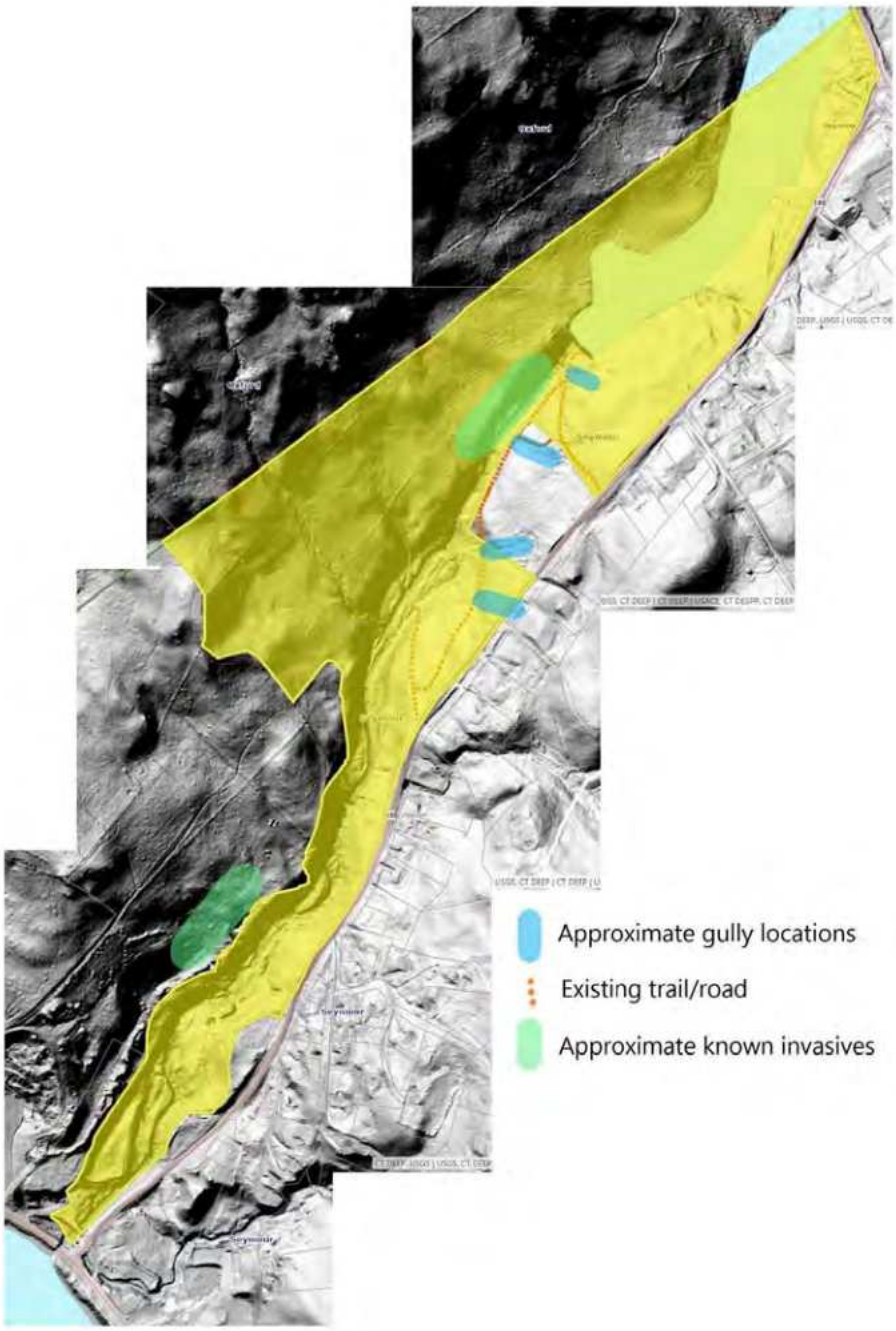
Photo 11 – Seep located beneath tree on eastern slope parallel to access road.

Photo 12 – Erosion on access road. Looking northward towards the dam.

Photo 13 – Nearby seep makes trail muddy. Stabilization is needed to protect soil & water quality and to keep trail accessible by visitors.

Attachment B

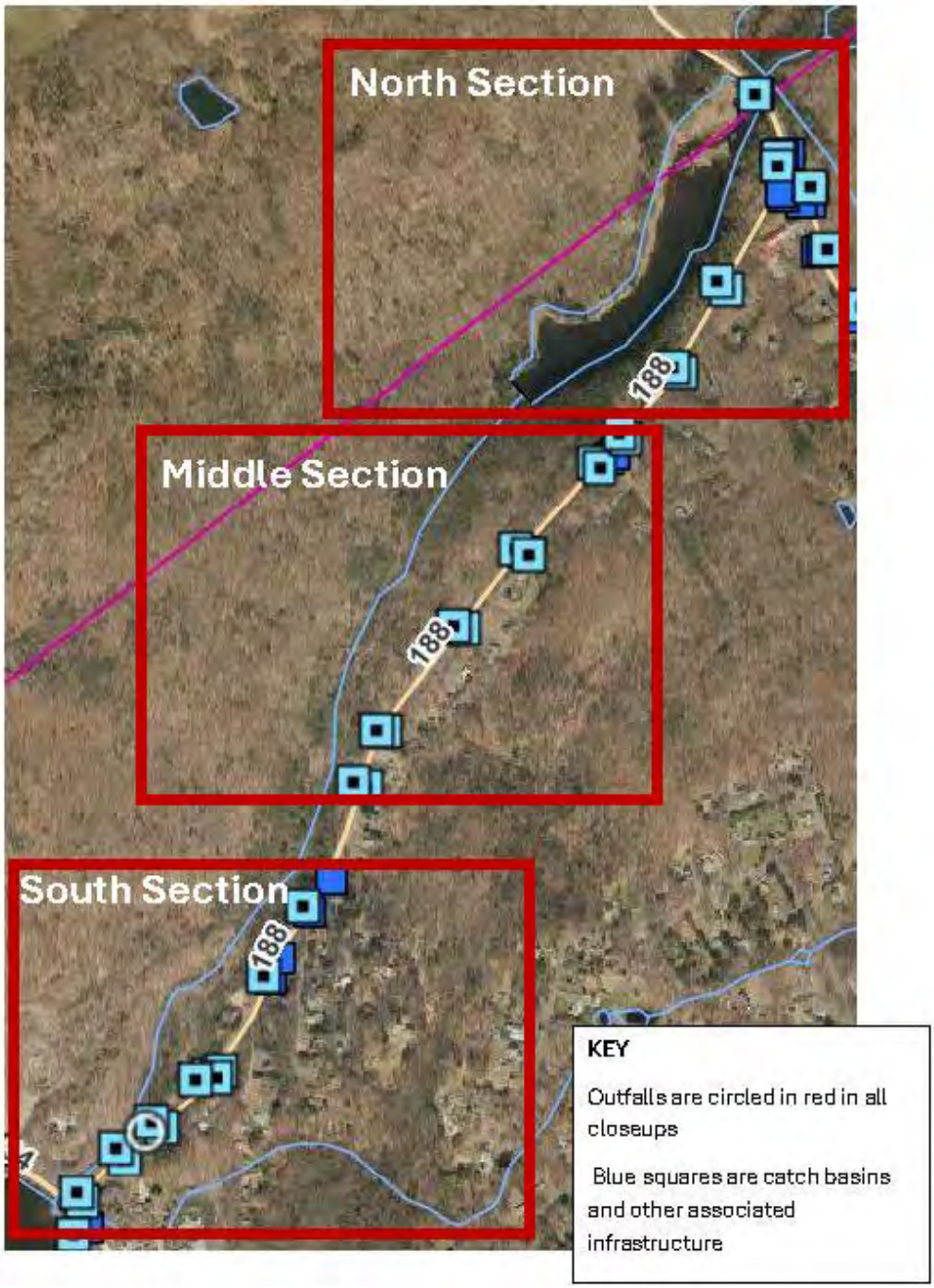
Management Plan Map


Approximate gully locations
Existing trail/road
Approximate known invasives

SOUTHWEST CONSERVATION DISTRICT

Attachment C

Outfall Locations


North Section
Middle Section
South Section
188
188
188
KEY
Outfalls are circled in red in all closeups
Blue squares are catch basins and other associated infrastructure


334
334
188
188
188
188
188
North Section


188
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188
Middle Section


South Section
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34

SOUTHWEST CONSERVATION DISTRICT

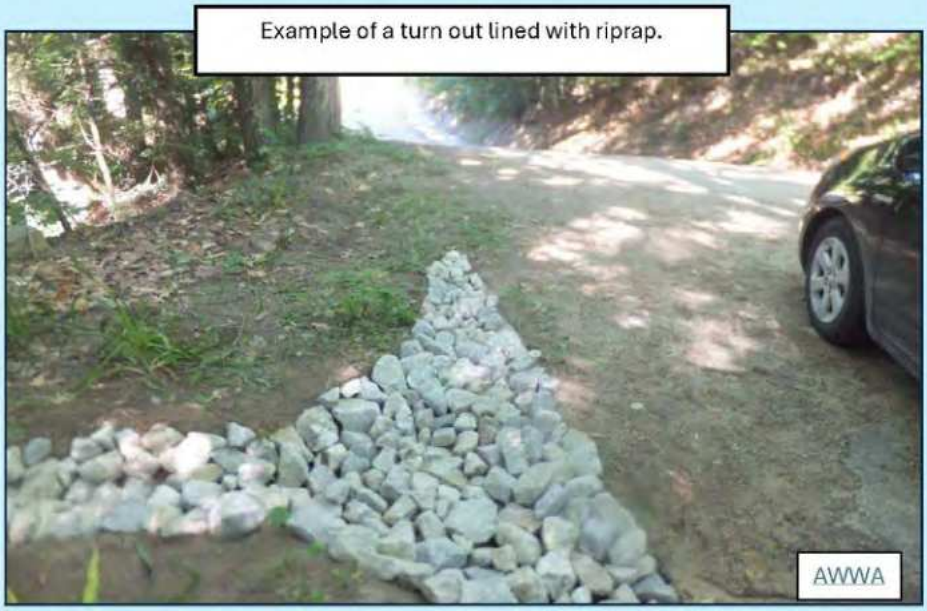
Attachment D

Erosion Control BMPs

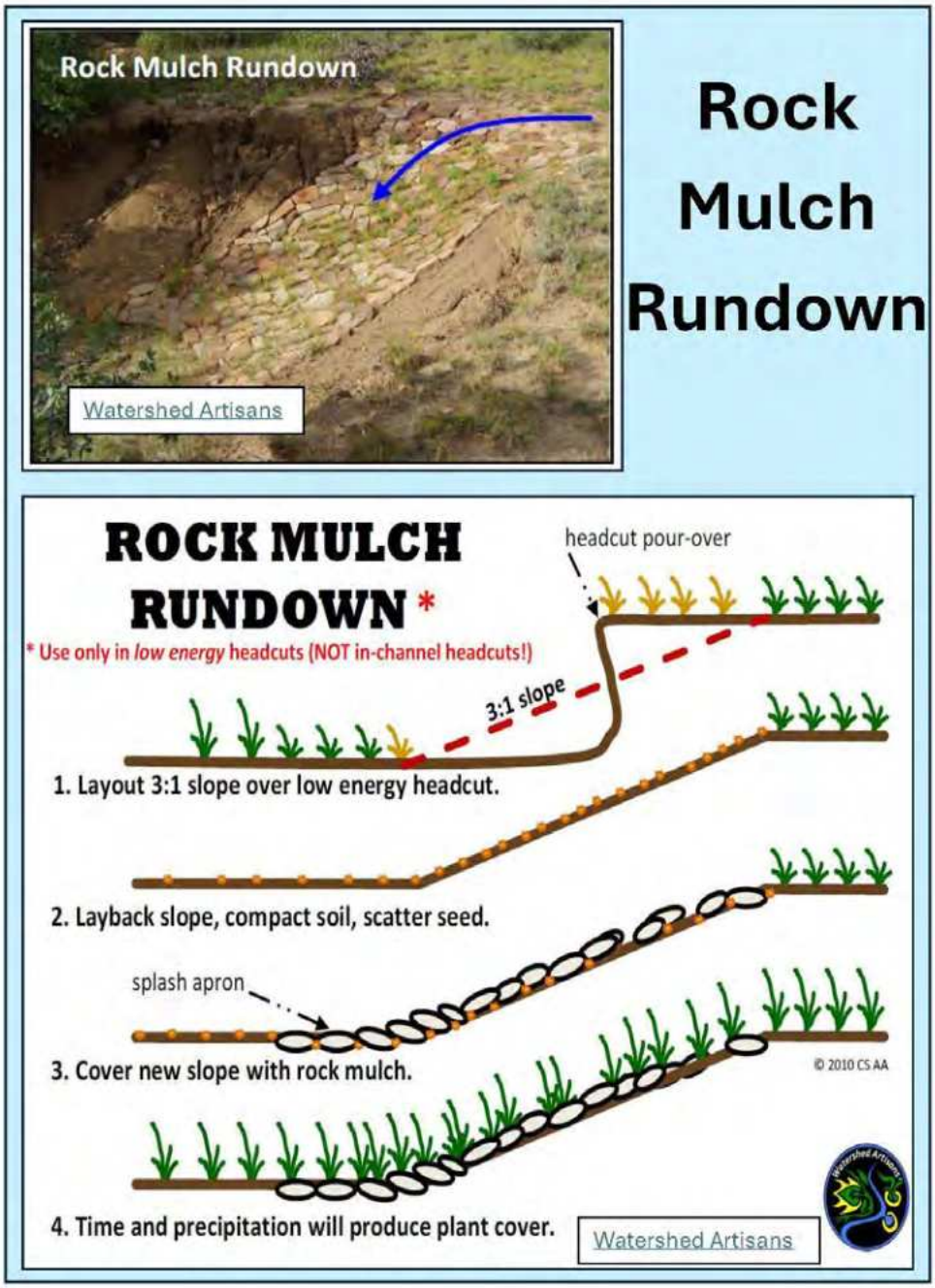
Example of an unlined turnout next to a ditch.

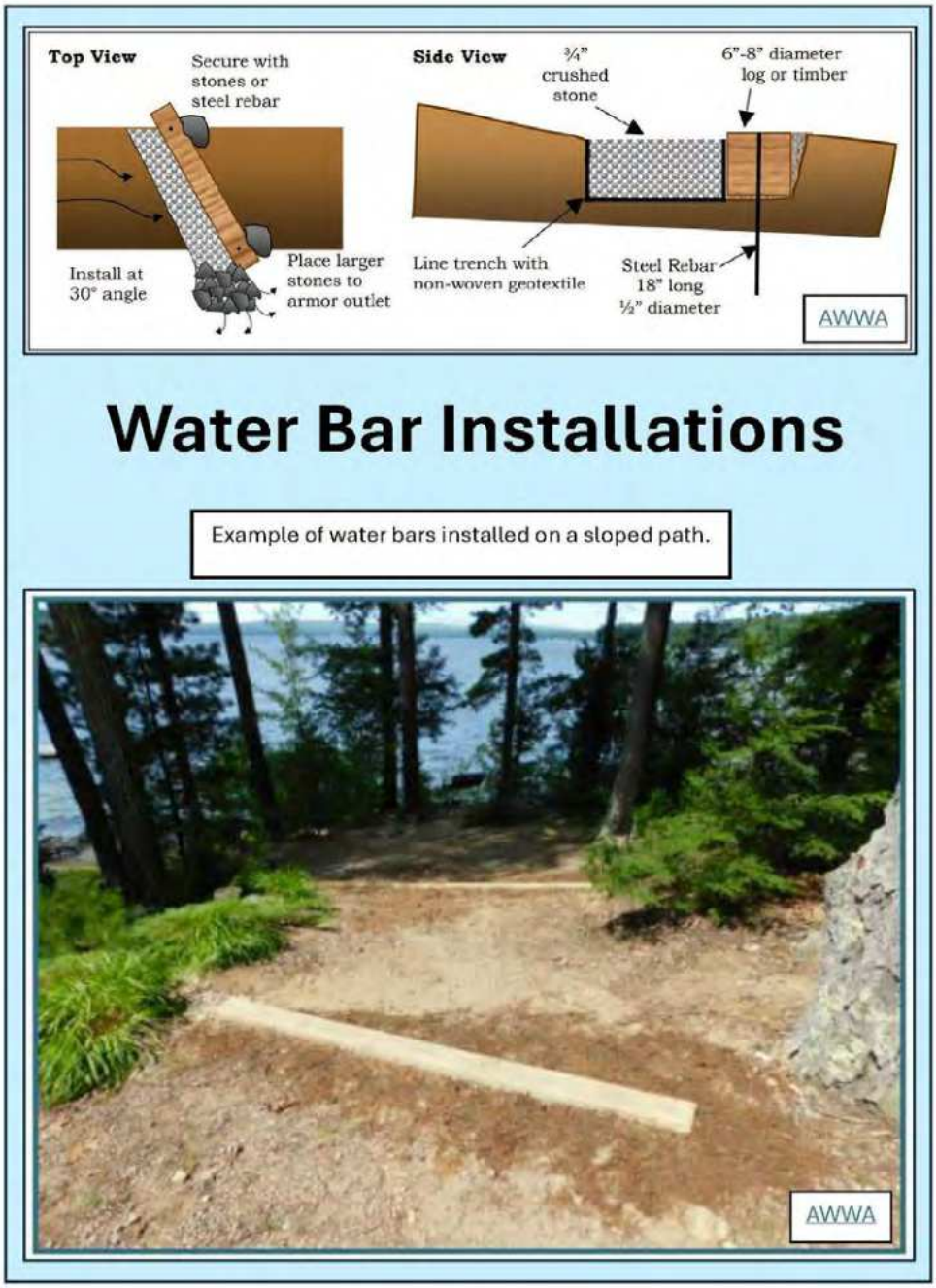
Turn Out Installations

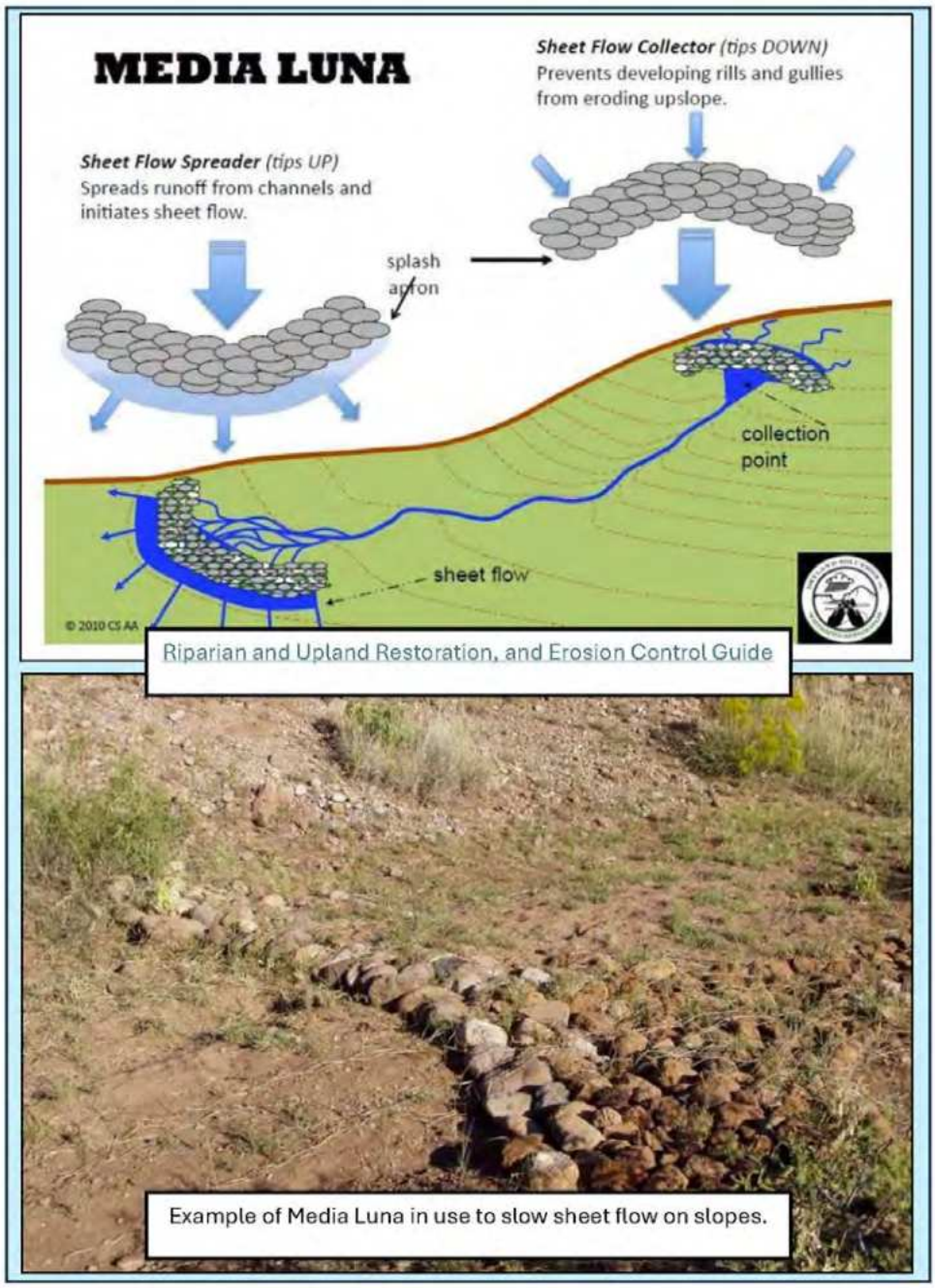
Example of a turn out lined with riprap.




Infiltration Steps
Example of infiltration steps with side timbers.
Wood timbers to frame steps
Large stone edging to prevent erosion
Crushed stone to fill steps
AWWA
Example of infiltration steps without side timbers.
Option of handrail
Wood timbers to frame steps
Crushed stone to fill steps
AWWA


Rock Mulch Rundown
Watershed Artisans
Rock Mulch Rundown
ROCK MULCH RUNDOWN *
* Use only in low energy headcuts (NOT in-channel headcuts!)
headcut pour-over
3:1 slope
1. Layout 3:1 slope over low energy headcut.
2. Layback slope, compact soil, scatter seed.
splash apron
3. Cover new slope with rock mulch.
© 2010 CS AA
4. Time and precipitation will produce plant cover.
Watershed Artisans


Top View
Secure with stones or steel rebar
Install at 30° angle
Place larger stones to armor outlet
Side View
¾" crushed stone
6"-8" diameter log or timber
Line trench with non-woven geotextile
Steel Rebar 18" long ½" diameter
AWWA
Water Bar Installations
Example of water bars installed on a sloped path.
AWWA


MEDIA LUNA
Sheet Flow Collector (tips DOWN)
Prevents developing rills and gullies from eroding upslope.
Sheet Flow Spreader (tips UP)
Spreads runoff from channels and initiates sheet flow.
splash apron
collection point
sheet flow
© 2010 CS AA
Riparian and Upland Restoration, and Erosion Control Guide
Example of Media Luna in use to slow sheet flow on slopes.

SOUTHWEST CONSERVATION DISTRICT

Attachment E

Invasive Plant Info Sheets

Japanese Barberry

(Berberis thunbergii)

Perennial Shrub

Increases tick populations

To control this invasive, which often forms dense patches, utilize a combination of multiple removal methods. Hand pull or use a weed wrench to remove. Refer to https://cipwg.uconn.edu/japanese-barberry/ for more information about removal.

Alternatively, use directed flame of a propane torch or controlled burning. Once the plants have been initially cut, and resprouts have appeared, a propane torch can be directed at the crown of each plant. Two torch treatments per year can be effective – once before leaf out (March-June) and a follow up (July-August). Avoid using propane torches during dry, fire prone conditions to prevent wildfire. Follow detailed instructions and guidance by the CT Agricultural Experiment Station.

Another option is to use herbicides. The cut stump application method has less negative environmental impact compared to foliar spraying. Cut and apply a systemic herbicide, like triclopyr, to the fresh stumps. Please consult a licensed pesticide applicator if deciding to use chemical removal, it is necessary because it's a municipally owned property.

Stand of Japanese barberry in the forest understory on the western side of Fourmile Brook.

Japanese Stilt Grass

(*Microstegium vimineum*)

Annual Forb/Grass

Can change nutrient cycling processes

And alter habitat for wildlife

To control this annual invasive, hand pull in July before it sets seed. Alternatively, cut back regularly on a low setting to reduce seed production but note that seeds that are already there will remain viable for 5 years. Refer to https://ipm.cahnr.uconn.edu/invasive_plants_japanese_stiltgrass/ for more options and background.

Positively identify before removal. While out in the field, we did not check for the characteristics to ensure that the populations on the site were not the native white grass (*Leersia virginica*). Stilt grass has a silver line along the midrib of the leaf, non-hairy leaf nodes, and foliage that turns purple in the fall. White grass doesn't have the silver line, has hairy leaf nodes and foliage remains green in the fall. These resources may also help: bplant.org and Wisconsin DNR.

Population of potential stilt grass on the western side of Fourmile Brook, just upland of stream.

Autumn Olive

(*Elaeagnus umbellate*)

Perennial Shrub

Nitrogen fixer, so increases nitrogen levels in soil

Native plant populations prefer low nutrient soils

To control this perennial invasive, cut in late September and October (cutting in spring should be avoided as it may promote new growth) and repeat for multiple years. This will deplete the plant's energy resources. For small to medium shrubs, use a digging fork or weed wrench to remove. For larger trees, girdling is an effective way to kill without cutting down the whole tree. Make a deep cut into the bark around the entire trunk about 6 inches above the ground. Refer to https://ipm.cahnr.uconn.edu/invasive_plants_autumn_olive/ for more information.

Another option is to use herbicides. The cut stump application method has less negative environmental impact compared to foliar spraying. Cut and apply a systemic herbicide, like triclopyr, to the fresh stumps. Please consult a licensed pesticide applicator if deciding to use chemical removal, it is necessary because it's a municipally owned property.

Stand of Autumn Olive in southern section of area – likely Seymour Land Trust owned.

Forest Management & Invasives Control

Report by David Irvin
Central District Service Forester
Bureau of Natural Resources, CT DEEP

The Great Hill Reservoir Parcel shown in Map 1 below, was assessed on September 23rd, 2024. This parcel is a segment of an official greenway, known as the Fourmile Brook Greenway. A Forest Report was produced by CT DEEP for the abutting Rockhouse Hill Sanctuary which includes 600+ acres owned by the town of Oxford.

Map 2 reflects the Core Forest (an issue reflective of minimal habitat fragmentation). It is a conservation priority for DEEP to encourage maintaining healthy forest land in core forests, and that map shows that a majority of the acres in this parcel being reviewed are part of a large core forest, which also include a portion of Rockhouse Hill property. Large core forests are contiguous, unbroken areas of forest that are 500 acres or larger in size. These areas provide a more stable and critical habitat for ecosystems, unfragmented by development.

Some Key Considerations:

1. While out there, we discussed the parking area for the public in the future. I really feel that to reduce maintenance, the possibility of vandalism or other illegal activity and overall public safety, it would be best to have a parking area by the highway and not deeper into the property. The old road can then serve as a walking trail going forward and does not need to be maintained for vehicle traffic.

2. Hunting could be considered, which is also a valid, state-sanctioned form of recreation that is helpful in improving forest health and resilience. A single deer will eat an average of 10 lbs. of vegetation per day. This includes the entire future forest-seedling regeneration on the forest floor, which is critical to establish as a forest that is managed properly and climate resilient. The Town of Oxford permits hunting on the abutting property by permit.

3. Snags/Dead Tree Removal: Snags are considered beneficial for wildlife and are a natural part of any forest ecosystem. The only reason to remove dead trees is to reduce fire hazard in the event of a wildfire on site or to reduce physical hazards if there are trails nearby. A snag is not considered a “hazard” if there is no target. Therefore, away from trails, they are not threatening the public. Downed dead wood is also valuable cover for many types of small animals and provides material for soil nutrient recycling.

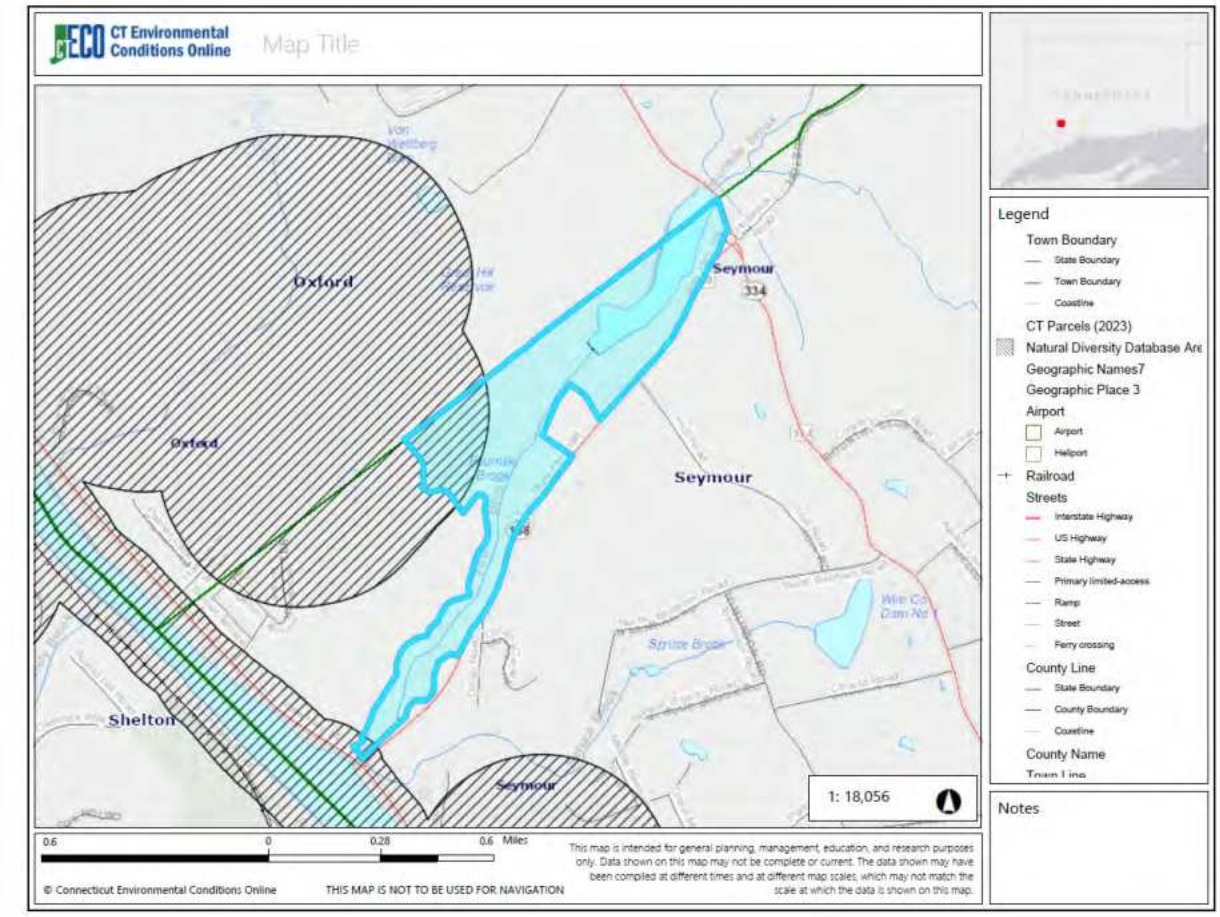
4. It is apparent that a portion of the property needs invasive plant control. It is recommended that invasive control be practiced where other management activity is occurring, so that objectives can be achieved without the further spread or introduction of invasives. Such as anywhere that forest management activities or trail construction

takes place. Invasives have heavy negative impacts on forest ecosystems because they have the ability to outcompete natives and even REPLACE forests over time. Thay as do not provide nutrition that native plants do for wildlife. Invasives observed included Japanese barberry, Japanese stilt grass and wineberry, to name a few.

5. It is suggested that the town seek a management plan or stewardship plan produced by a private professional forester. It could cover only this property, or a number of town properties at the same time. Management plans are important for the proper evaluation of current natural resource conditions, focusing objectives for the long-term by the town and outlining the important action steps that are needed to get there. A management plan is imperative if the town would like to seek possible outside funding sources to reach vegetation management objectives. Grants and cost sharing virtually always require a management plan in place as the first step.

6. Forest management is recommended for a more diverse and resilient forest, including more structural complexity and development of advance regeneration. The white pine stands by the entrance could be thinned in favor of the healthiest pines with best crowns and lacking in extended suppression. The more hardwood-dominated forest on the northwest side of the brook could also use some management but access would need to be from the Oxford side to ever achieve that.

Natural Diversity Database - CT DEEP



Common Name Five-lined skink
Scientific Name *Plestiodon fasciatus*
Listing Status1 T
Taxa reptile
General Ecology The preferred habitat of the five-lined skink includes steep, rocky areas with open ledge, patchy tree and shrub cover, and an abundance of rotten logs and loose rock slabs. These habitats are usually adjacent to moist deciduous
forests. Suitable woody debris is essential habitat.

Common Name Eastern box turtle
Scientific Name *Terrapene carolina carolina*
Listing Status1 SC
Taxa reptile
General Ecology In Connecticut, these turtles are found in well-drained forest bottomlands and a matrix of open deciduous forests, early successional habitat, fields, gravel pits, and or powerlines. Turtles are dormant between November 1 and April 1 and hibernate in only a few inches from the surface in forested habitat. The greatest threat to this species is habitat loss, fragmentation, and degradation

due to development. This species is very sensitive to adult mortality because of late maturity (10 years old) and long life span (50-100years). Vehicular traffic, heavy equipment used for farming, and ATV use in natural areas are implicated specifically in adult mortality through collisions. Illegal collection by the pet trade and unknowing public for home pets exacerbates mortality rates and removes important individuals from the population. Predation rates are also unnaturally high because of increased predator populations (e.g. skunks, foxes, raccoons, and crows) that surround developed areas.

Common Name Tri-colored bat
Scientific Name *Perimyotis subflavus*
Listing Status1 E
Taxa mammal
General Ecology Populations of Tri-colored bats have declined over 90% as a result of White Nose Syndrome. This bat is associated with forested edges and open forested landscapes with water features. Maternity colonies will form in tree cavities of mature trees, they will occasionally roost on man-made structures. They are among the most sensitive bats to cold temperatures and in winter they hibernate in caves and abandoned mines where temperatures and humidity levels are stable.

Common Name Red bat
Scientific Name *Lasiurus borealis*
Listing Status1 SC
Taxa mammal
General Ecology Red bats are a migratory "tree bat" species that is found throughout Connecticut between April- October in a variety of forested habitats. They roost out in the foliage of deciduous and coniferous trees, camouflaged as dead leaves or cones. Red bats are primarily solitary roosters. They can be found roosting and feeding around forest edges and clearings. Typically, larger diameter trees (12-inch DBH and larger) are more valuable to these bats. Additionally, trees with loose, rough bark such as maples, hickories, and oaks are more desirable than other tree species due to the increased cover that the loose bark provides. Large trees with cavities are also utilized by this species. Forested areas of Connecticut's coastal towns may also serve as important migratory habitat for red bats. Numbers of bats utilizing these areas can increase dramatically as bats from other northeast locations pass through Connecticut during spring and autumn migration. This species may be at risk from wind development. Silver-haired, hoary, and red bats account for the majority of bat fatalities from wind turbines.

Common Name Silver-haired bat
Scientific Name *Lasionycteris noctivagans*
Listing Status1 SC
Taxa mammal
General Ecology Silver-haired bats are primarily associated with "Old Growth" forest because of their roosting requirements. They may be limited by tree cavities and small hollows. Maternity colonies have been observed to move during the breeding season, and solidary bats will move

frequently through the summer season. It is estimated that these bats require snag densities of 21 per hectare to meet their needs for roosting, preferably on South and West facing slopes. Roost trees are typically larger than average in diameter, and taller than surrounding trees. Areas around roost trees should be open and uncluttered. This bat migrates south in the winter and return to Connecticut in spring to breed. During migration bats may utilize a variety of tree species and manmade structures in natural and developed areas. This species may be risk from wind development. Silver-haired, hoary, and red bats account for the majority of bat fatalities from wind turbines.

Common Name Meadow horsetail
Scientific Name *Equisetum pratense*
Listing Status1 E
Taxa plant
General Ecology Habitat: moist, usually calcareous sandy alluvium, occasionally hayfields. Blooming time: Jun-Jul

Common Name Wiegand's wild rye
Scientific Name *Elymus wiegandii*
Listing Status1 SC
Taxa plant
General Ecology Habitat: riverbanks, sandy thickets (D&C). Mature fruits: Aug, Sep, Oct

Common Name Great St. John's-wort
Scientific Name *Hypericum ascyron*
Listing Status1 SC
Taxa plant
General Ecology Habitat: rich thickets, floodplain meadows and forests, river gravel bars (G); calcicolous (WHM). Blooming time: Jul, Aug, Sep

Common Name Eastern prickly pear
Scientific Name *Opuntia humifusa*
Listing Status1 SC
Taxa plant
General Ecology Habitat: on rocks, sand dunes & sandy prairies (G&C). Blooming time: Year-round

Common Name Hairy-fruited sedge
Scientific Name *Carex trichocarpa*
Listing Status1 SC
Taxa plant
General Ecology Habitat: Marshes and wet meadows (G & C, 1991); confined to western half of CT and mostly, but not exclusively calcareous. Mature fruits: Jun, Jul. 1E = State Endangered, T = State Threatened, SC = State Special Concern, FE = Federally Endangered, FT = Federally Threatened, NA = Not applicable.

Considerations:
Initial findings show 2 reptile species, 3 bats and 5 plant species on the NDDB list on or in the vicinity of this property. There is a chance that some of these species do not actually occur on the Great Hill Reservoir Lot, especially the prickly pear and skink, which I believe are more associated with the unique ridgetop and ledges found on Rockhouse Hill. A more thorough evaluation of these species is strongly encouraged before establishing new trails or other sanctioned recreational activities for the public here. Bats have been heavily impacted by the white-nose syndrome in recent years and anything that can be done to preserve or supplement habitat is highly recommended. Since box-turtles occur in the area, a suggestion would be to limit access to trails to foot traffic only. Mountain bikes travel a lot faster which is a hazard to slow-moving and vulnerable turtles.

Great Hill Reservoir Regional Local Planning Context

Report by Aaron Budris, Environmental Planning Director, Molly Johnson, Community Planner, & Christine O'Neill, Environmental Planner II
Naugatuck Valley Council of Governments

Primary Observations and Recommendations

The Great Hill Reservoir parcel offers great open space and passive recreation opportunities in Seymour. It is at the center of a large area of protected open space in Seymour and Oxford owned by the Town of Seymour and Oxford, State of Connecticut, Land Trusts, Water Companies, and others. To preserve and enhance the capacity of the site, our staff have the following recommendations:

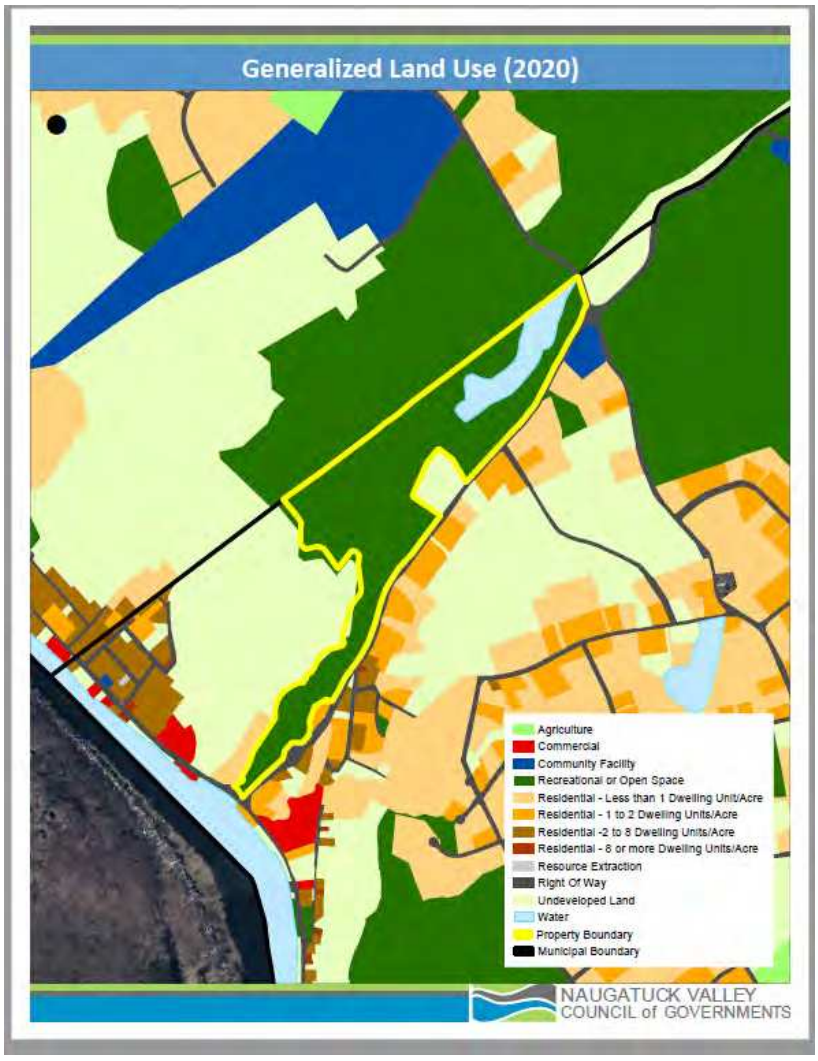
Photo credit: Aaron Budris, NVCOGG

- The Town should mark and map walking trails to encourage safe and sustainable use, with consideration for connectivity to existing trails and open space. NVCOG has mapped existing trails.
- The Town should consider adding the trails on the property (and other town-managed trails) to Connecticut Trail Finder, a free online tool that trail managers can use to help potential trail users find appropriate trails, promote proper trail use, and connect trail users to local businesses. NVCOG staff can assist.
- The Town should prohibit potentially damaging types of active recreation (establishing ball fields or courts, OHV/ ATV trails, etc.) to preserve the wildlife habitat and ecosystems on site. Mountain biking could also be potentially damaging if not properly managed.
- The Town should consider adding a small formal parking area in the vicinity of the current gate opposite Hull Road, and formalize a trail that connects to the existing parking area on Route 34.
- Given the unique history of the parcel, historical protection, signage, and designations should be considered for the historic stone dams visible on Four Mile Brook as well as any further identified historical features.

- Given the location of the site, the Town should consult with the Golden Hill Paugussett and Schaghticoke Nations to consider tribal interests in decisions about the site.
- The parcel is partially located in an Aquifer Protection Area, any changes to the parcel should be reviewed by the Town's Aquifer Protection Agency. Given proximity to wetlands and watercourses, any changes should be reviewed by the Wetlands and Watercourses Commission for compliance with Town regulations.
- The Town should express explicit intentions about the Great Hill Reservoir parcel in its upcoming Plan of Conservation and Development and open space planning to avoid conflicting designations, such as labeling it an economic development area.

Background and Parcel Descriptions

The Town of Seymour has identified a 93.9-acre parcel of land for potential passive recreation purposes, MBL: 17-0 5 67, located at 124 Squantuck Rd. The parcel is currently owned by the Town of Seymour, purchased in 1998. According to the Assessor's office field card, the parcel was previously owned by Birmingham Utilities Inc, and previously by the Ansonia Derby Water Company. The field card also lists access to Well and Septic. The parcel abuts CT Route 188/Squantuck Rd. on its southeastern side, along with a 4.99-acre parcel owned by the South-Central CT Regional Water Authority (MBL: 5-0 4 7). The parcel's southern edge abuts CT Route 34/ Roosevelt Drive, with a section of the parcel already utilized by the Town for a parking lot and a public kayak launch.



The zoning for Great Hill Reservoir is currently listed as RC-3, alongside the surrounding parcels (MBL: 17-0 5 66), though it appears there is some inconsistency with the online Town GIS map, which shows R-40, so this will need to be confirmed with the Town. Map #1948, recorded November 13, 1998, shows a zone line boundary intersecting the parcel between R-40 and RC-3. According to the Town of Seymour's Zoning Regulations, R-40 is a residential zone, requiring a 40,000 sq. feet. minimum lot area, and RC-3 is a residential commercial zone which permits a broader range of uses

through special permits, such as townhouses, apartments, supermarkets, restaurants and more.

The parcel is next to other open space areas including MBL: 17-05-80, which is 45.32 acres owned by Seymour Land Conservation Trust Inc.; MBL: 23-57-12, which is 1.5 acres owned by the Town of Oxford. Additional open space exists nearby including MBL 16-57-22, 18.5 acres owned by the Oxford Land Trust Inc.; MBL: 4-0 5 4 to the north, which is 258.22 acres owned by the Town of Oxford; and MBL: 4-0 5 9 to the northeast, which is 139 acres owned by the State of Connecticut and zoned as a Planned Development District.

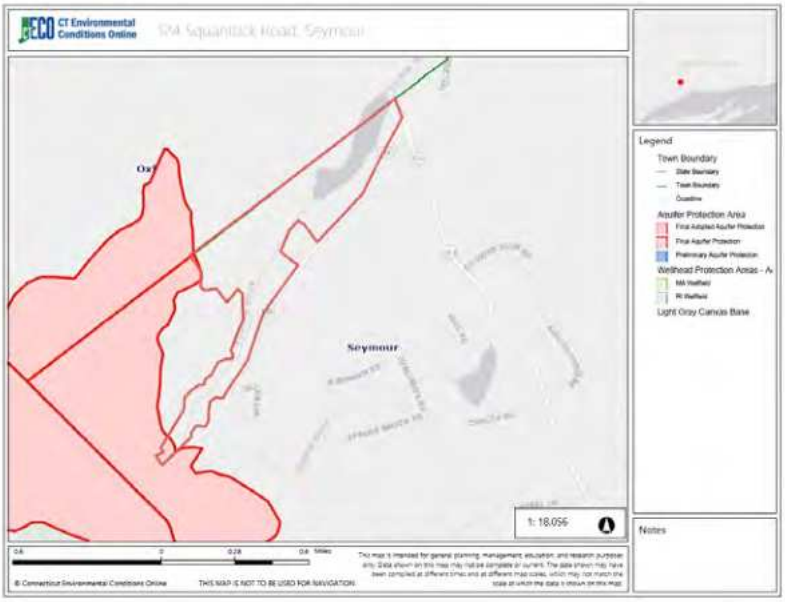
In addition to the Regional Water Authority's 4.99 acre parcel, the Great Hill Reservoir parcel also abuts multiple privately owned parcels including MBL : 17-0 5 66, a 3.2 acre parcel owned by Charles Santangelo and MBL: 17-0 5 68, a 1 acre parcel owned by David and Lauren Chirgwin. Other privately owned parcels nearby are separated from Great Hill Reservoir by Squantuck Rd. These parcels are also zoned R-40 or RC-3. This should be considered by the Town, to better understand how surrounding development may impact or interact with the Great Hill Reservoir parcel.

Of further note, Map #1948 shows locations of the historic stone dams and a 30' water main easement retained by Birmingham Utilities, Inc. Additional details about the parcel can also be seen in Maps #1950, #1950–A, #1950-B and #1950-C.

Land Characteristics and Planning Considerations

According to Native Land Digital, Great Hill Reservoir land is located in the ancestral territories of the Paugussett, Schaghticoke, and Wappinger tribes. Given that Golden Hill Paugussett and Schaghticoke Nations are both CT State Recognized Tribes, it is important that the Town of Seymour consult and consider tribal interests in decisions made about this site.

In the Town of Seymour's 2016 Plan of Conservation and Development (POCD), the Natural and Historic Resources Map shows that the Great Hill Reservoir parcel has critical natural characteristics. It is a Natural Diversity Database Area, contains Statewide Important Farmland, is located partially in an Aquifer Protection area, and is located in a 100-year Flood Zone. Topography ranges from 60' to 300' with varying levels of steepness, including steeper areas alongside Four Mile Brook.



The presence of Four Mile Brook and the Great Hill Reservoir waterbodies on the parcel make it critical to consider wetlands and watercourse regulations, especially in reference to mitigating disturbance from trail or parking lot development or dam maintenance/removal. Additionally, the southwestern area of the parcel sits in a designated Aquifer Protection Area, including an area used as an existing parking lot. It is therefore important to maintain drinking water quality alongside the ecological benefits through protection of this open space. This also means that any proposed changes made to the parcel must be reviewed by the Aquifer Protection Agency.

The Town may also consider incorporating signage relating to the aquifer, to prevent potential pollution from prohibited activities at the public access parking lot.

The Great Hill Reservoir Dam is mentioned in the Town's 2016 Plan of Conservation and Development related to natural hazards and risks as a Class C, high potential hazard. It is stated that "If the dam were to fail, flooding would occur approximately 4,500 feet downstream and damage homes and other property along Route 188 and Route 34" (p. 74, 2016 POCD). The Town's Land Use map in the POCD shows the parcel in green as "recreational or open space." About 50% of the parcel is also designated as an economic development area due to its location near the Housatonic River and Route 34. This demonstrates some inconsistency in current planning and should be clarified. Given the Town's interest in preserving the area as open space for passive recreation and its unique natural and historical features, it is important to continue to express this in the Town's next POCD and to avoid conflicting designations.

The Regional Plan of Conservation and Development that currently applies to Seymour is the Valley Council of Governments Strategic Plan of Conservation and Development published in 2008. The parcel in question is identified as "Existing Preserved Open Space" on the Locational Guide Map on page 7, and part of the property as a "Conservation Area" on the Regional and Preservation Areas map on page 19. While Great Hill Reservoir is not called out specifically in the VCOG RPOCD, the document does promote the establishment of interconnected open space connected by trails on page 24, of which this and the surrounding properties are an excellent example of:

While the amount of preserved open space is important, the configuration of the open space system should be the critical consideration in open space planning by the Region. If parcels of open space can be interconnected into a cohesive overall "greenbelt" system with a trail system, the value of the open space to residents and the impact on community character will grow exponentially.

Transportation Considerations

The Great Hill Reservoir property is bound on three sides by state routes – Route 34 to the southwest, and Route 118 to the southeast and the northeast. Visitors to the property today have access to the property mainly from an established trailhead parking lot on Route 34 just west of the intersection with Route 188/ Squantuck Road. There is a small informal pull-off at a gate leading to an unmaintained access road to the dam near Hull Road on Route 188 that visitors may also use. Visitors may also be entering the property on trails from adjacent recreation areas including Rockhouse Hill Sanctuary. There is no public transit serving the property.

To improve future access, the town should consider establishing a second formal trailhead parking area at the site of the pull-off near Hull Road on Route 188. Route 188 between Route 34 and Route 334 (Great Hill Road) has a significantly lower traffic volume (3600 Annual Average Daily Traffic, AADT) than Route 188 north of Route 332 (5200 AADT) or Route 34 (9600 AADT) making it a safer option. Appropriate sightlines should be achieved in both directions with minimal clearing. There is an area inside the gate along the access road that is (relative to the rest of the property) fairly level, and would be a good place for a small gravel parking area. The Town should contact CT DOT District 4 prior to any work for a review and signoff by the department. An encroachment permit may be necessary for an improved driveway in addition to any local permitting requirements.

Open Space Considerations

Birmingham Utilities sold the two parcels[1] that today constitute Great Hill Reservoir to the Town of Seymour in 1998. There is an interesting open space provision in the deed: "at least eighty-five percent (85%) of the Premises shall be perpetually used for 'open space or recreational purposes'" as defined in the CT General Statutes. Generally, restrictions of this nature are accompanied by a map that demonstrates *which* 85% must be maintained as open space, but not in this case. The calculation is further complicated by the fact that five parcels totaling 224.03 acres were conveyed through that single deed, so it is unclear how the 85% would be applied to Great Hill Reservoir.

[1] Seymour Land Records, Vol. 252, Pg. 962. Parcel IV (70.62 acres) and Parcel V (18.31 acres) listed in the deed make up the Great Hill Reservoir property.

This property is part of a sizeable open space and wildlife corridor, sharing boundaries with open space belonging to a water company, land trust, and municipality:

- South Central CT Regional Water Authority holds 4.99 acres of Class III land along the southeastern border.
- Seymour Land Conservation Trust holds 45.32 acres along the southwestern border.
- The Town of Oxford holds the 120 acre "Rocky Hill Sanctuary" along the northwestern border.

Several other holdings, including a portion of the Naugatuck State Forest, are separated only by roads. The size of this contiguous network is at least 1,029 acres, with several parcels under review potentially contributing as well. The parcel's position at the relative center renders it a linchpin of the open space corridor.

Developed land across Route 118 supports low-density residential, suggesting the presence of potential recreational users nearby. The property already hosts trails and a trailhead with a gazebo and benches. The expansion of multiuse trails, picnic areas, birdwatching blinds, or other similar features could introduce additional passive recreation with minimal disturbance to the sensitive species identified in the NDDB analysis. The indigenous history of the area and colonial era historical sites throughout the property, including ruins of dams and mills, would make exceptional subjects of interpretive signage. The approximately 12-acre reservoir could support water-based recreation, but the possibility of dam removal would dramatically change both Great Hill Reservoir and Fourmile Brook, making it difficult to plan for something like a fishing pier or kayak launch.

To protect both ecologically sensitive and historically valuable areas within the property, the development of ATV trails or sports fields is discouraged. Even mountain biking, which is sometimes categorized as passive recreation, could lead to habitat and wildlife disturbance if not properly managed. Seymour has other areas for active recreation, like Chatfield Park or French Memorial.

History & Archaeology

Report by Peter and Barbara Rzasa
Local Historians

Background

The Keith Mitchell Forest is a 229-acre Seymour owned preserve extending from the Great Hill Reservoir south-west along Route 188 to Route 34. The area encompassing Keith Mitchell tract has been called Squantuck since the time of English settlement. The land was bought by Seymour from Birmingham Utilities in 1998 after it was determined the Great Hill Reservoir and watershed were no longer needed as a source of drinking water. In 1998, it was dedicated and named after Keith Mitchell, Seymour's tree warden, an unpaid post he held for 25 years. Keith was a member of the Audubon Society, a commissioner of the Housatonic Council, Boy Scouts of America and active in his church. He was also a volunteer docent at the New York Botanical Gardens. Keith spearheaded a Thanksgiving tree-planting program in Connecticut. He worked regularly as a mechanic for the town. Keith Mitchell passed away on June 17, 2012. The town of Oxford also bought an adjacent tract of land bordering the northern border of the Keith Mitchell Forest in 1998, now named the Rockhouse Hill Sanctuary.

Keith Mitchell Forest is bordered by Route 188 on the Northeast and on the Southeast borders, Route 34 on the Southwest and by Oxford's 500-acre Rockhouse Preserve on the North. Water from Great Hill Reservoir empties into Four Mile Brook and then into the Housatonic River at

Route 34. In the late 1600's, early English explorers named the stream the "Four Mile Brook" because it was located four miles from the town of Derby.

The main trailhead is at the parking area off Route 34. A public kayak/canoe launch is located there, allowing quick access to the Housatonic River. A nearby gazebo offers a picnic area. The remains of a keystone bridge are located at the canoe launch. Before 1933, Route 34 was a dirt road that once passed over the Four Mile Brook by way of this bridge.

The History of the Squantuck Area - Seymour Connecticut
Unfortunately, Seymour, Oxford and Derby historical books do not provide much information on the outskirt areas of Seymour such as Squantuck. The Paugussett (Paugasuck, Paugassett) Native American people that lived in that area originally called the area Wesquantuck and Wesquantook. Early English settlers later shortened the name to Squantuck. Paugassett means "place where the river widens".

Native Americans at Squantuck
As the Colonists pushed north from Derby, and those in Woodbury pushed south, the local Indians found themselves being squeezed out of a home. In 1680, the Paugasuck Indians from the Great Neck area in Derby moved to Wesquantuck. The Indians of Stratford also found their land reduced and in 1663 they moved to Pomperaug (Southbury) and Newtown. In 1680, these groups moved again, this time to Wesquantuck. In 1687, the Indians sold all of their land at Wesquantuck and moved to Kent, Connecticut. Several references for the Paugasuck settlements at the Squantuck area of Seymour can be found in local history books. For example:
In 1663, the Stratford Indians moved to Pomperaug (Woodbury) and Newtown.
" Much complaint by the Indians had been made that the white men's hogs, which pastured in the woods, destroyed the Indian's corn, and the matter being brought to Court an effort was put forth to lead the Indians to make fences around their corn, but this they would not or would not do; and hence resolved, in order to end the difficulty, not to plant on the "side of the great river" but to resolve further up the river, or on the north side of the river, which they did by going to Potatuck, at the mouth of a stream by the same name in Newtown, and not long afterwards, and to Wesquantuck, and Pomperaug. Orcutt, Samuel, *The Indians of the Housatonic and Naugatuck Valleys (1882).* Page 15. Potatuck meaning Great River is now called the Housatonic River.

"The chief seat of the Paugasucks was for many years at the 'Great Neck' between the Housatonic and Naugatuck in the vicinity of what is now Baldwin's corners." Orcutt, Samuel, *The Indians of the Housatonic and Naugatuck Valleys (1882).* Page 17. Baldwin's Corner is in Derby near the Griffin Hospital.

There was a fort called "Old Indian Fort" here built in that area and another along the Housatonic River called the "New Indian Fort". "The Indians of the Neck collected about this fort (the New Fort) along the river bank for some years, and then removed to Wesquantook, where quite many appear to have been living in 1680, and which territory they sold in 1687 and removed westward, many of them to Potatuck (Newtown), and some of them to Weantinock,

now in New Milford. " Orcutt, Samuel, *The Indians of the Housatonic and Naugatuck Valleys (1882).* Page 17.

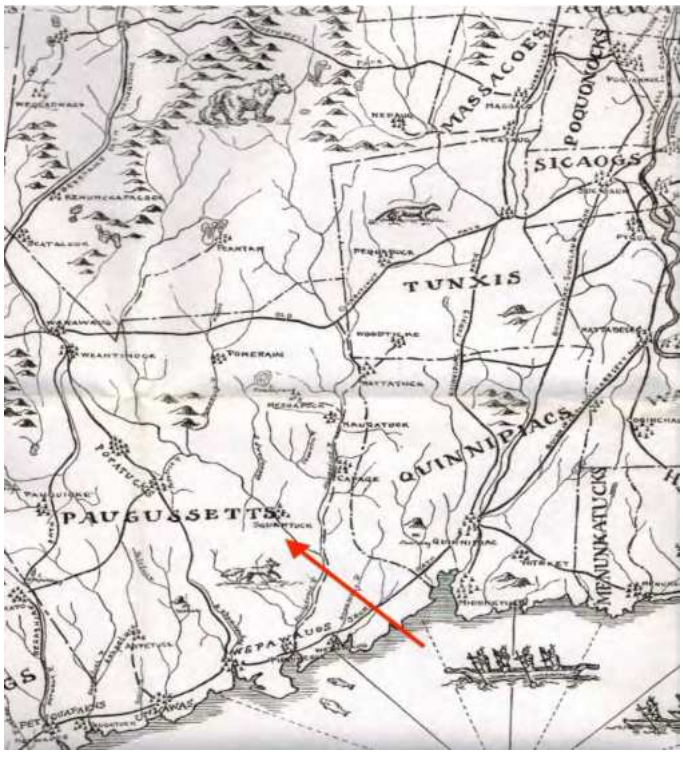
"Wesquantook appears to have been the last place of residence of the Sachem Okenuck, yet he may have removed with Cockapatana to Potatuck at the mouth of the Pomperaug, where the latter chief remained probably until his death, which Lambert says occurred at his house in Derby in 1731." Orcutt, Samuel, *The Indians of the Housatonic and Naugatuck Valleys (1882).* Page 18.

In 1698, 'another deed was given covering the same territory as that of 1687, namely, that including Wesquantuck Indian Village, called by the people of Derby the 'Quaker's Farm purchase" … After the sale of Wesquantook the only land owned by the Indians along the Housatonic on the north side was their reservation at Potatuck, the northern boundary of which extended from the bend in the river Pomperaug, west to the Shepaug Falls…" Orcutt, Samuel, *The Indians of the Housatonic and Naugatuck Valleys (1882).* Page 20. Indian Trails, Villages, Sachemdoms, The Connecticut Society of the Colonial Dames of America, 1930

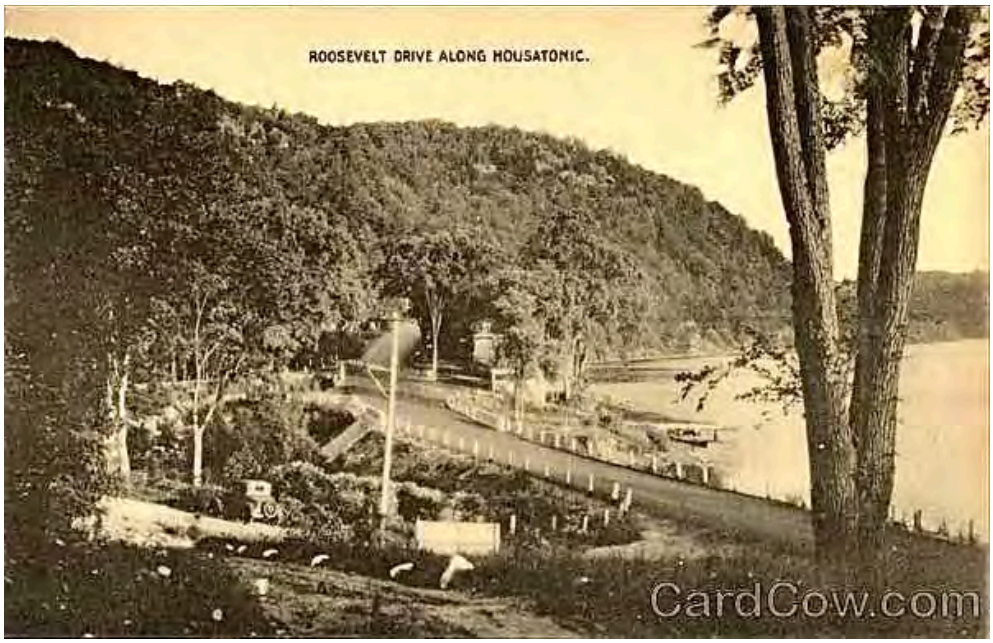
Historical and Archaeological Highlights
Beginning at the Keith Mitchell Forest Trailhead on Route 34, Seymour.

Original Keystone Bridge Over Four Mile Brook
A 6x8 bridge was built over the Four Mile Brook at Squantuck in 1869 (Columbian-Register, 1869). A 6x8 bridge may refer to the height and span in feet of a culvert. In this case, it may refer to the opening (culvert) that allows water to pass under the bridge.

Below is a photo of the keystone bridge found at the Keith Mitchell Trailhead off today's Route 34. This bridge originally carried ox carts, wagons and later automobiles over the Four Mile Brook. A new bridge was constructed by Connecticut Highway Department in 1935, about 100 feet downstream from the keystone bridge.



Keystone bridge in 2012.



Keith Mitchell Trailhead area

Dams and Water-powered Mills Along Four Mile Brook
The remains of three early milldams, a diversion/water supply dam and a reservoir dam can be found along the Four Mile Brook flowing from the Great Hill Reservoir to the trailhead off Route 34. There is a strong possibility that remains of two other dams and mills may be discovered. A small community living at Squantuck and neighboring Great Hill owned and worked the mills since the early 1700's and perhaps during the late 1600's.

The family of Henry Tomlinson was prominent in the early Seymour history, and particularly at Squantuck. "In 1668 he purchased land at Derby of the Indians, which went to his son Jonas" (Sharpe). William Tomlinson and others in 1693 bought land from Indians between the four and five mile brooks in today's Seymour and Oxford.

Peter and Edwin Tomlinson were known to have a sawmill in this area.
*Each of these dams had an old road leading up to Squantuck Road (Route 188).

Beginning at the Keith Mitchell Trailhead and heading upstream along the Four Mile Brook

Dam #1 – A Mill Dam
The area around this dam is an intriguing and complicated site. This is a large dam with a dry millpond behind it. The dam and millpond are found about 50 – 60 feet above the Four Mile Brook, flowing to the right of the dam, indicating the pond was filled by means of a sluice from an upstream water source. Because the stream is so far below the millpond, the dam was never breached as others were along the Brook. There would have been no danger of flooding or drowning since the millpond was dry and had no functioning sluiceway. Fortunately the Birmingham Utilities left it intact. Other remains at this site include mill foundations, possible

water wheel well and tail race. The dam is approximately 192 feet long and curves upstream on the right.

Rough map of the dam by Barbara Rzasa 2024

Mysterious hole in the face of the dam.

Nick Bellantoni, Emeritus Sate Archaeologist, and several industrial archaeologists have never seen such a hole in the face of a dam. A large stone slab can be observed in the "roof" of the hole. There are no openings to let water enter from the dam. It may have been used as storage and perhaps as a root cellar?

Dam #2 – A diversion dam
A small dam that served to divert water to a race for Dam #1
Remains of the race and supply pond are visible. Most of this dam has deteriorated. Remains of a zig-zag stone wall can be seen along the race. This dam may be the oldest in this area. It was used to divert water through a sluiceway to dam #1. There is also evidence that it diverted water from Four Mile Brook to the old millpond along "The Island" as indicated on the LiDAR map.

Dam 2

Dam #3 – J.W. Tomlinson Sawmill

This is a large dam partially breached with a 7-foot waterfall. An old road from Route 188 leads to this dam and mill. There are very well preserved remains of a mill foundation, wheel well, race, penstock, chimney, millpond. This was the sawmill owned by J. W. Tomlinson James Willard TomlinsonBorn in January 1834 Parents: Son of James C. and Laura Tomlinson, 5th of 8 children. They resided in Wesquantuck. James C. died on June 5, 1856 and Laura on March 6, 1863. James Willard Tomlinson married Frances M. Wooster, July 23, 1864. He had two children (Sharpe). J.W. and Laura had two children: Laura born November 15, 1865 and Arthur born on April 15, 1867. J.W. Tomlinson was a "Dealer and Manufacturer of Lumber in Squantuck" from the 1868 map.

The Abner Priest House is a noteworthy house in Seymour and is still standing.
Rev. Abner Smith was called to the church on great hill. Remaining until 1829 or 1830
1781 the great hill congregational church was built

J.W. Tomlinson Saw mill

Water well

Collapsed Chimney

Dam #4 – An unknown milldam and millpond

I could find no mention of this dam and mill on any of the old Seymour maps and references. The early settlers of Great Hill and Squantuck may have built. There were no other streams along Great Hill Road, and they would have needed a gristmill. The Four Mile Brook. Would have met that need. The footprint of the mill appeared smaller than the first two dams.

Breached dam

Dam #5 – The reservoir dam

The dam for the Great Hill Reservoir. Surface area approximately 11 acres. Part of the upper pond is owned by Oxford. The reservoir has three beaver lodges of which one may be active. The reservoir is fished and used by rowboats. People have ice fished there. Eagles and great blue herons have been seen.

Tannery and Cider Mill near the Traffic Circle Area

There was a cider mill and tannery west of the traffic circle shown on a 1934 traffic map and on the map below. Old cellar foundations can still be found in this area. And may be the remains of the tannery and cider mill. The tannery was run by Philo Gillette. The old school house appears to be across the road the above structures.

"The tannery at Great Hill was located at the northeast angle of the crossroads near the schoolhouse. On the 12th of March, 1846, Daniel Holbrook sold to Philo Gillette for $12 the corner between the schoolhouse and the distillery, containing 54 rods (891 feet) of land, with one half the water of Broad Brook (Four mile Brook). The deed mentions that Gillette had built one half of the building 24 x 36 feet for a tannery, one half the building and waterpower to be retained by Holbrook for the cider mill and distillery. Holbrook, as assignee of Philo Gillette, sold the property Jan. 5, 1854, for $300, to William Gillette, Asa Hawkins, Judson English and Eli Gillette, who carried on the tanning business for some years as a joint stock company, with Philo Gillette as superintendent. They sold out to Capt. James Baker and the business was soon discontinued." (Sharpe)

Power for grinding the bark was supplied by the dam. Remains of the dam have not been found. Philo Gillette was born September 30, 1814 and died on August 28, 1877. He resided in Oxford, Ct.

The LiDAR map below indicates the position of the foundations and possible section of a mill dam that would have supplied power to the mill and tannery. The roads around the traffic circle have been modified greatly in the last 350 years. See section on the Woodbury Path.

LiDAR of the lower Squantuck area showing dam

This dirt road from Rte 188 leads to the dam. The partially abandoned Hull Road coming down from upper Seymour crosses Rte 188 and meets up with the dam road. Taking a right here leads to the old road in the previous photos.

Hull Road crosses Squantuck Road and travels down to the dam. People from upper Great Hill used this road to access the Woodbury Path to Rockhouse Hill and Woodbury.

References

Orcutt, Samuel. *History of the Old Town of Derby, Connecticut, 1642 – 1880*. 1886. Reprint.

Orcutt, Samuel, *The Indians of the Housatonic and Naugatuck Valleys (1882).* Reprint

Sharpe, William C. and Campbell, Rev. H. A. Campbell. *Seymour, Past and Present*, 1902 (First published as *History of Seymour* in 1879). Reprint

W. C. Sharpe, *History of Seymour, Connecticut with Biographies and Genealogies*, 1878. Reprint.

1868 Seymour Map From New Haven County 1868, Connecticut
Published by Beers, Ellis & Soule in 1868.

King's Mark. Ansonia-Derby Water Company Lands, Environmental Review Team Report, 1984.

King's Mark, Birmingham Utilities Land Acquisition, Environmental Review Team Report Oxford, Connecticut, 1998.

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Thank you!

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