

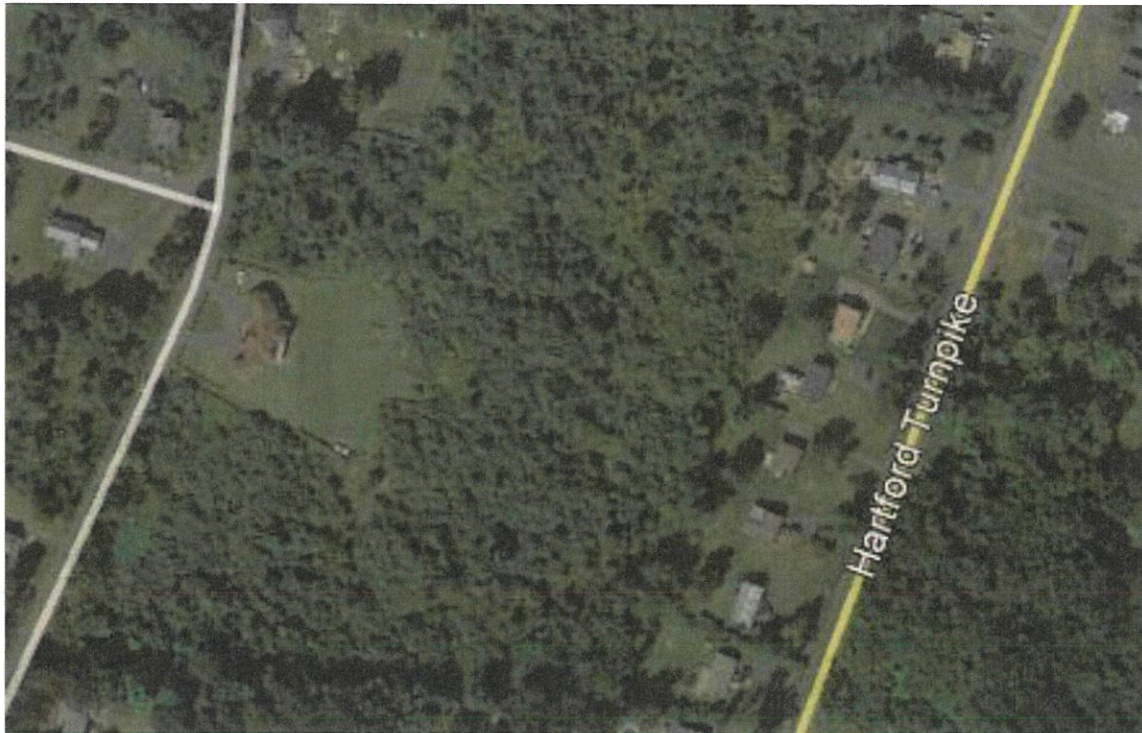


Martin Brogie, Inc.
ENVIRONMENTAL SERVICES

- Environmental Site Investigations
- Building Contaminant Surveys
- Wetlands Consulting
- Remediation Contract Management

Wetland Delineation and Assessment Report

**318 Kings Highway
North Haven, Connecticut**



SUBMITTED TO:

The LRC Group
160 West Street, Suite E
Cromwell, CT 06416

September 2020

28 Arbor Lane
Madison, CT 06443

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1. Introduction

1.1 Purpose

Martin Brogie, Inc. (MBI) is pleased to submit the following report regarding the Connecticut Regulated Wetlands identified on property located at 318 Kings Highway in North Haven, Connecticut.

The general scope of services was to complete a wetland delineation on the property, conduct an assessment of the wetlands to assess their specific functions and values and to prepare a report describing the wetland delineation, wetland and upland characteristics, and wetland functions and values. In addition, MBI evaluated the proposed construction plans and details to assess potential wetland impacts that may result from construction and/or design implementation. As needed, MBI provided wetland mitigation recommendations/design alternatives to offset potential impacts.

1.2 Background

Martin Brogie, Inc. (MBI) was engaged to conduct this assessment by LRC Group of Cromwell, Connecticut. MBI conducted the wetland evaluation on September 8, 2020 in anticipation of New Haven Inland Wetland Commission review of the proposed project. Martin Brogie, Certified Soil Scientist with MBI conducted the assessment and field inspection aspects of the project.

2. Site and Vicinity Characteristics

2.1 General Site Description and Location

The subject property consists of a densely overgrown former agricultural field located in a moderately developed residential area approximately 2 miles north of downtown North Haven. The site is bordered to the west by Kings Highway and a single-family residence. Wooded land and single-family residences border the site to the north and south. Single-family residences constructed in the 1960s, border the site to the east and are located along Hartford Turnpike.

The site slopes moderately down from west to east and overland stormwater flows are expected to follow topography. No direct drainage discharges from adjacent streets or developed properties were observed on the site.

A Site Location Map is provided as Figure 1. An aerial view is provided as Figure 2. Photographs are provided as Attachment A.

2.2 Site Soils

The Natural Resource Conservation Service WEB Soil Survey indicates that the subject area soils consist of Ludlow Silt Loam and Wethersfield Loam. Both soils are located in areas of “red parent material” (e.g. New Haven Arkose”) and exhibit dense silty conditions. The Ludlow series consists of moderately well drained soils formed in loamy lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to strongly sloping soils on till plains, hills, and drumlins. Slope ranges from 0 to 15 percent. The Wethersfield series consists of very deep, well drained loamy soils formed in dense glacial till on uplands. The soils are moderately deep to dense basal till. They are nearly level to steep soils on till plains, low ridges, and drumlins.

An area of wetland soils was identified in the southeast corner of the site with Wetland Flags #1 through #9. Soil in this area appeared consistent with the poorly drained Wilbraham Soil Series and contained high and low chroma mottles dominating the soil matrix at 15 to 18 inches below grade. Typically, these soils are very deep and poorly drained. They formed in dense basal till materials in drainageways and low-lying depressions. Typically, Wilbraham soils have silt loam or very fine sandy loam textures to a depth of 60 inches or more. This soil type has low chroma mottles throughout the subsoil layers. Wilbraham soils contain a densely compacted layer called hardpan with an upper boundary normally between 16 to 32 inches below the ground surface.

2.3 Site Hydrology

Dense sloping sites tend to shed water quickly and do not develop wetland soils provided the slope remains consistent. Areas where topography pinches and forms ravines and areas where topography becomes more level at the base of slopes are locations where we typically find wetland soil. The southeast corner of the site contains a pinched slope followed by a level area where the identified wetland soils were located.

No active overland flow paths were identified. Some evidence of scour and puddling was noted and appear to be storm-related.

2.4 Site Vegetative Cover Types

The delineated wetland area is dominated by Red Maple (*Acer rubrum*) and includes Eastern Cottonwood (*Populus deltoides*). Red-Osier Dogwood (*Cornus sericea*) dominates the shrub layer with some Spicebush (*Lindera benzoin*) and Multiflora Rose (*Rosa multiflora*) clusters interspersed. The shrub layer is largely overtaken by Grape vines (*Vitis spp.*). The herbaceous layer is dominated by Sensitive Fern (*Onoclea sensibilis*).

Upland area species include Eastern Red Cedar (*Juniperus virginiana*), Red Maple, Russian Olive (*Elaeagnus angustifolia*), Multi-flora Rose, Grape vine, and Raspberry (*Rubus spp.*). Upland areas are very heavily overgrown with invasive species and passage across the site required cutting tools.

3. Wetland Delineation

MBI conducted the wetland evaluation on February September 8, 2020. Martin Brogie, Certified Soil Scientist (Society of Soil Scientists of Southern New England) with MBI conducted the assessment and field inspection aspects of the project. Using a drain spade and Dutch Auger, site soil to a depth of 30 inches was inspected for texture (USDA SCS) and color using a *Munsell*[™] Soil Color Charts. Typically, a gleyed soil matrix (color with Chroma of 2 or less) was encountered within 20 inches of the surface at this site and these criteria were utilized to formulate the wetland limits. Using confirmed wetland soil locations and microtopography, the wetland limits were extrapolated in the field. Numerically sequenced wetland boundary flagging tape was affixed to locations along the boundary such that all identified wetlands within the study area were captured.

Wetland Flags WF-1 through WF-9 were placed in a level to gently sloping area identified in the southeast corner of the site. The area appeared to have been disturbed as evidenced by hummocks and a berm on the eastern side of the delineated area.

4. Wildlife Habitat and Utilization

The investigated property is bounded by developed properties and has been disturbed as a result of historic agricultural activities. The vegetative cover is dominated by invasive species which do offer some food sources and abundant cover in both upland and wetland areas. Typical native mammals would likely utilize the site on a temporary basis although some opportunities for small dens and protected burrows present themselves. Native bird populations likely utilize the site for nesting and feeding given the dense cover. Pollinators are less likely to utilize the site due to the closed canopy and limited presence of flowering plants.

No areas that would appear to form Vernal Pools were noted.

The Connecticut Department of Energy and Environmental Protection (CTDEEP) Natural Diversity Database Map for North Haven (June 2020) does not depict any mapped State or Federal Listed Species or Significant Natural Communities on or adjacent to the property.

5. Wetland Functions and Values

A qualitative review of the functions and values of the on-site wetlands was performed to assist in determining wetland impacts resulting from the project. Wetland functions consistent with U.S. Army Corps of Engineers methodology were assessed and are summarized below.

Groundwater Recharge/Discharge – This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface. Given the position in the landscape and the deep, moderately well-drained soils, the wetland has both discharge and recharge functions although little to no evidence of onsite discharge was observed.

Floodflow Alteration - (Storage & Desynchronization) - This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events. The wetland receives some diffuse overland flow but offers little in the way of flood storage capacity.

Sedimentation/Shoreline Stabilization – This function relates to the effectiveness of a wetland to stabilize streambanks and shorelines against erosion. This function is not present in the identified wetland.

Sediment/Toxicant Retention and Nutrient Removal/Retention/Transformation – Some stormwater from adjacent developed areas (residences) pass through the heavily vegetated site. No significant retention or removal is provided by the site wetland due to its small size and the sites overall lack of significant sediment/toxicant input.

Production Export – This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms. The wetland offers some wildlife food sources (Red-Osier Dogwood berries), but it would not be considered a major function.

Fish and Shellfish Habitat – This function considers the effectiveness of seasonal or permanent waterbodies associated with the wetland in question for fish and shellfish habitat. This function is not present in the wetland.

Wildlife Habitat - This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/ or migrating species are considered. Overall, some typical, limited wildlife habitat functions and values are present. See Section 3.

Endangered Species Habitat – The Connecticut Department of Energy and Environmental Protection (CTDEEP) Natural Diversity Database (June 2020) does not depict any mapped State or Federal Listed Species or Significant Natural Communities on or adjacent to the Property.

Visual Quality/Aesthetics – The wetland is disturbed and largely overgrown with invasive species. It offers little value in terms of visual qualities and aesthetics.

Educational/Scientific Value, Recreation, and Uniqueness Heritage – The wetlands do not offer these values.

Overall, the functions and values of the site wetland area are limited due to the small size of the wetlands and the overgrown invasives present on the site and in the wetlands. Some stormwater attenuation is provided by the wetlands which serves the nearby downgradient residences. Some wildlife habitat is offered by the ubiquitous shelter and berry bearing shrubs.

6. Proposed Project Improvements

The proposed project calls for the sub-division of the site in to 8 single-family residential lots. Two shared driveways are proposed. Each lot will utilize a rain garden to capture and infiltrate stormwater run-off generated by the house, lawn and driveway and thereby substantially reducing any increases in flow as a result of the development.

The proposed erosion and sedimentation control plan is adequate to control run-off/siltation during construction. E&S controls should be maintained and inspected routinely throughout the course of the development project.

7. Impacts, Mitigation and Recommendations

The proposed project has no direct impacts (filling, construction, etc.) to the delineated site wetlands and all work will be outside the regulated area. Given the disturbed and overgrown condition of the wetland, its small size, and the few functions and values its offers, no project mitigation is provided.

The site soils are prone to erosion and siltation when disturbed due to their high silt content and the moderate slopes. It is recommended that the erosion control measures proposed be maintained and inspected routinely. The measures should be maintained until all new vegetation (lawns and rain gardens) has taken hold.

Sincerely,



Martin Brogie, LEP
Soil Scientist
President

w/attachments

7. References

DeGraaf, Richard M. and Yamasaki, Mariko. 2001. New England Wildlife Habitat, Natural History, and Distribution. University Press of England

Martin, et. al., 1951. American Wildlife and Plants – A Guide to Wildlife Food Habits. Dover Books, General Publishing Co., Ltd., 1951

U.S. Army Corps of Engineers, The Highway Methodology Workbook Supplement, November, 1995

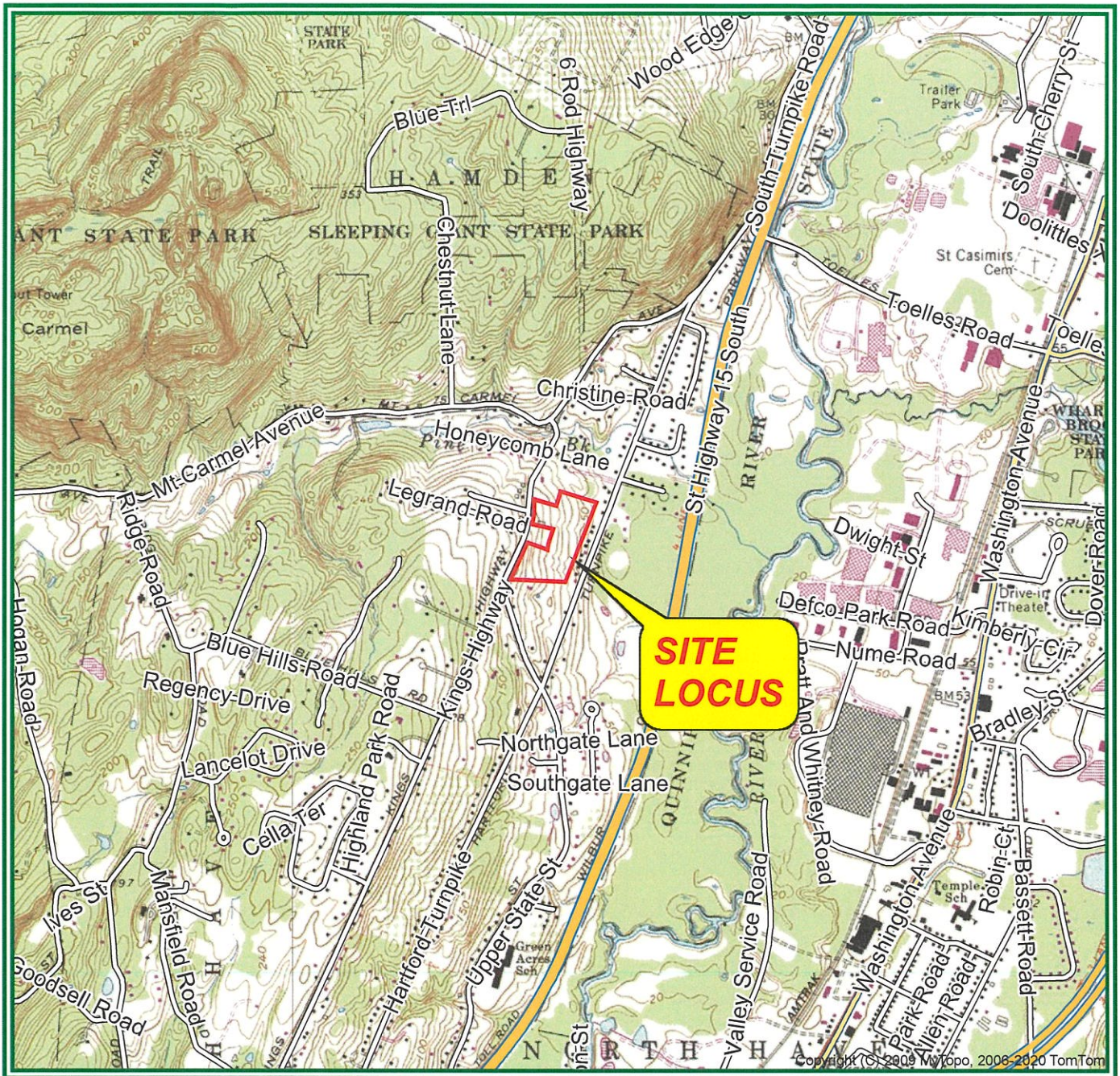
ATTACHMENT A



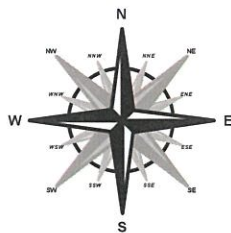
Typical Upland Area



Typical Upland Area



WALLINGFORD Topographic 1967 41072-D7-TF-024 National Geodetic Vertical Datum 1929



SCALE 1:24000



Site Coordinates:

041° 25' 17.11" N, 072°
51' 42.53" W

Project: 90 Main Street

Date: 8/29/20

Site Location:

90 Main Street,
Tolland County,
Stafford Springs, Connecticut



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Figure 1 - Site Locus Map



0 100 200 300
 (approximate scale in feet)

— APPROXIMATE PROPERTY BOUNDARY



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Figure 2 - Aerial Site Plan

318 Kings Highway
 Tax Map 98, Lot 1
 North Haven, New Haven County, Connecticut

Project: Kings Highway

Drawn by: HC

Date: 9/4/20

Scale: AS SHOWN