**STORMWATER MANAGEMENT**

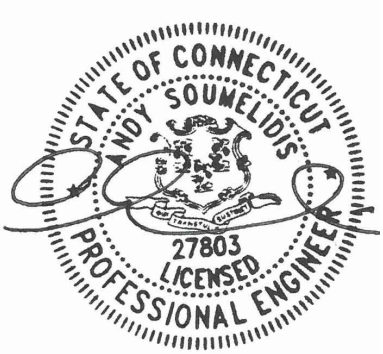
**REPORT**

for

**66 Harbor Road**

Westport, CT

June 13, 2024




***Narrative:***

The owners of 66 Harbor Road, Westport, CT propose to raze the existing shed and asphalt driveway, elevate the existing single-family residence to be FEMA compliant, and construct new additions to the existing residence, driveway, and related improvements in the western portion of the previously developed property. Improvements are limited to the areas related to the construction of the above-listed structures and lawn areas as shown on the site plans prepared by LANDTECH.

The property is 0.057± acres in size, it is located on the corner of Harbor Road and Rowland Place. There are no wetlands on the property, but the project area is located directly across Harbor Road from the mouth of the Saugatuck River. The subject property lies in the lower 1/3 of the watershed and is within a tidally influenced area.

The NRCS soils map shows the site to be Udorthents-Urban land complex, a moderately well-drained soil in Hydrologic Soil Group B. The grades throughout the site are elevation ±7.0, therefore, no soil testing has been conducted based on the Town of Westport drainage standard requiring all new drainage improvements to be installed no lower than elevation 5.0. Confirmation soil testing can be conducted at the time of installation if requested by the Town of Westport DPW staff. No infiltration volume was used in sizing the proposed drainage system. It is assumed that the underlying soils will allow the detained stormwater to infiltrate within 72 hours, per CT DEEP guidance (requires a 0.33”/hour infiltration rate).

The property lies within a tidally influenced area, therefore, no reduction of the discharge rate for the 25-year storm event is proposed, only water quality for the proposed impervious areas. The proposed drainage system will consist of a 24” deep gravel driveway with a 6” perf. pvc pipe embedded within the stone to provide a connection point for the roof leaders of the proposed porch and front half of the main roof area as well as aide in evenly distributing the runoff routed to the stone reservoir. In addition to the water quality improvements provided by the installation of the proposed drainage system, there will be a net reduction in the overall impervious areas on the property by approx. 250 sf as a result of the proposal which is an improvement to both the water quality and runoff control for the site. Water quality volume (WQV) calculations are attached herewith and made part of this report.

Table 1 summarizes the required and proposed water quality volumes.

| TABLE 1 – TOTAL WATER QUALITY VOLUME (WQV) | | |
|---|---|---|
| | PRE-DEV/ REQUIRED | POST DEV PROVIDED |
| WATER QUALITY | 51.85 CF | 144.00 CF |

It is our professional opinion that upon construction of the proposed improvements, water quality will be improved in accordance with the rules and regulations of the Town of Westport.

***Exhibits**:*

- NRCS Soils Report;
- Water Quality Volume (WQV) Calculations;

# Exhibits

NRCS Soils Report
Water Quality Volume Calculations

# NRCS Soils Report

Hydrologic Soil Group—State of Connecticut, Western Part
(66 Harbor Road)


Map Scale: 1:192 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 2 5 10 15

Feet
0 5 10 20 30

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

## MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**

A

A/D

B

B/D

C

C/D

D

Not rated or not available

**Soil Rating Lines**

A

A/D

B

B/D

C

C/D

D

Not rated or not available

**Soil Rating Points**

A

A/D

B

B/D

C

C/D

D

Not rated or not available

**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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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.

# Hydrologic Soil Group

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|---|---|---|---|---|
| 306 | Udorthents-Urban land complex | B | 0.1 | 100.0% |
| **Totals for Area of Interest** | | | **0.1** | **100.0%** |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff: None Specified*

*Tie-break Rule:* Higher

# Water Quality Volume Calculations

| | | | | | |
|---|---|---|---|---|---|
| Project: | **66 Harbor Road** | By: | **CL** | Date: | **6/13/2024** |
| | **Westport, CT** | Checked: | **AS** | Revised: | |

**1. Water Quality Volume**

**a. Compute volumetric runoff coefficient, R** R = 0.05+0.009(*I* )

| | **Proposed** | |
|---|---|---|
| Total Drainage Area, *A* | 0.015 | acres |
| Total Impervious Area | 0.015 | acres |
| Percentage of Impervious Area, *I* | 100.0% | |
| Runoff Coefficient, *R* | 0.950 | |

**b. Compute water quality volume, WQV** WQV = [(1")(*R* )(*A* )]/12

| | | | |
|---|---|---|---|
| Total Project Area, *A* | 0.015 | acres | |
| Runoff Coefficient, *R* | 0.950 | | |
| Water Quality Volume, *WQV* | 0.001 | acre-foot | |
| **Water Quality Volume, *WQV*** | **51.85** | **cf** | |

| | | | | |
|---|---|---|---|---|
| **WQV in Stone Below Driveway** | Area | 180.00 | sf | |
| | Depth | 2.00 | ft | |
| | % Voids | 40% | | |
| | **Volume** | **144.00** | **cf** | ***Provided*** |

***Water Quality Volume provided > required***