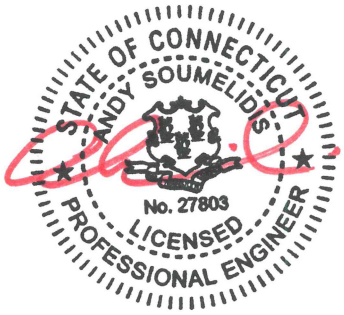
LANDTECH

Civil / Site Engineering · Site Planning
Environmental Science & Engineering
Landscape Architecture · Land Surveying
Permit Coordination & Management
Construction Management & Financing

STORMWATER MANAGEMENT REPORT for **29 Danbury Ave.** Westport, CT November 14, 2024	

***Narrative**:*

The owner of 29 Danbury Ave, Westport, CT propose to construct a new single-family residence, deck, terrace, driveway, and related improvements on the existing 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 0.115± acres in size, it is located at the southern corner of Bradley Street and Danbury Avenue. There are no inland or tidal wetlands on the property. The entire property lies within an area that is tidally influenced by the Long Island Sound.

The NRCS soils map indicates the upland soils in the vicinity of the proposed improvements to be Agawam-Urban land complex, a well-drained soil in Hydrologic Soil Group B. Based on field observation, a conservative infiltration rate of 4"/hour (observed infiltration rate of 1" in 10 min.) was utilized in the design for the proposed drainage systems. It is assumed that the underlying soils will allow the detained storm water to infiltrate within 72 hours, per CT DEEP guidance (requires a 0.14"/hour infiltration rate).

As previously mentioned, the entire 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. Portions of the proposed roof area will be split between the stone reservoir under the proposed driveway and concrete galleries located to the west of the proposed residence. Water quality volume (WQV) calculations are attached herewith and made part of this report.

Table 1 summarizes the required and proposed water quality volumes (WQV) and runoff control for the 25-year storm event.

TABLE 1 – WQV & 25 YEAR STORM		
	PRE-DEV/ REQUIRED	POST DEV PROVIDED
WATER QUALITY (cf)	181.1	255.4

It is our professional opinion that upon construction of the proposed improvements, stormwater discharge from the site will comply with the applicable rules and regulations of the Town of Westport.

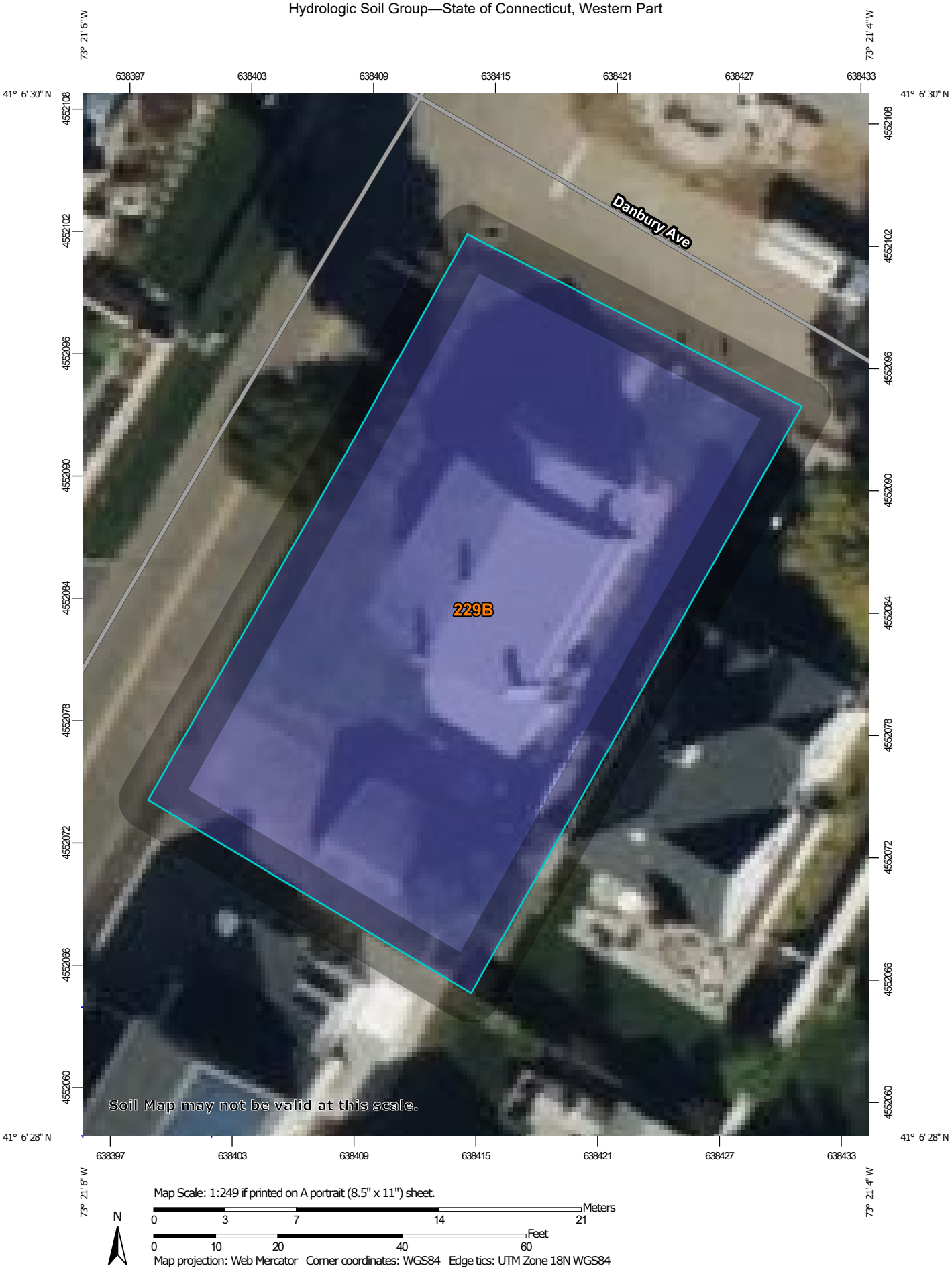
***Exhibits**:*

- NRCS Soils Report
- Water Quality Volume Calculations

Exhibits

NRCS Soils Report
Water Quality Volume Calculations

Hydrologic Soil Group—State of Connecticut, Western Part



Map Scale: 1:249 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 3 7 14 21

Feet: 0 10 20 40 60

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
229B	Agawam-Urban land complex, 0 to 8 percent slopes	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

Project:	**29 Danbury Avenue**	By:	**CM**	Date:	**11/14/2024**
	Westport, CT	Checked:	**CL**	Revised:	

1. Water Quality Volume

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

	Proposed	
Total Drainage Area, *A*	0.053	acres
Total Impervious Area	0.053	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*	0.053	acres	
Runoff Coefficient, *R*	0.950		
Water Quality Volume, *WQV*	0.004	acre-foot	
Water Quality Volume, *WQV*	**181.13**	**cf**	***Required***

WQV in Driveway

Driveway Stone Area =	392.00	sf	
Stone Depth =	0.87	ft	
% Voids =	0.40		
Volume =	**136.42**	**cf**	***Provided***

WQV in Driveway	**136.42**	**cf**	
WQV, in Concrete Galleries	**119.00**	**cf**	
Total:	**255.42**	**cf**	***Provided***

Water Quality Volume provided > required

Pond INF-1: Concrete Galleries - Chamber Wizard Field A

Chamber Model = Concrete Galley 4x8x1 (Concrete Galley, UCPI 12" Low Profile Galley or equivalent)
Inside= 42.0"W x 9.0"H => 2.49 sf x 7.50'L = 18.7 cf
Outside= 48.0"W x 12.0"H => 3.88 sf x 8.00'L = 31.0 cf

3 Chambers/Row x 8.00' Long = 24.00' Row Length +6.0" End Stone x 2 = 25.00' Base Length
1 Rows x 48.0" Wide + 6.0" Side Stone x 2 = 5.00' Base Width
6.0" Stone Base + 12.0" Chamber Height + 6.0" Stone Cover = 2.00' Field Height

3 Chambers x 18.7 cf = 56.0 cf Chamber Storage
3 Chambers x 31.0 cf = 93.1 cf Displacement

250.0 cf Field - 93.1 cf Chambers = 156.9 cf Stone x 40.0% Voids = 62.8 cf Stone Storage

Chamber Storage + Stone Storage = 118.8 cf = 0.003 af
Overall Storage Efficiency = 47.5%
Overall System Size = 25.00' x 5.00' x 2.00'

3 Chambers
9.3 cy Field
5.8 cy Stone