

# **Project Narrative**

## **57 Garrison Drive**

### **Scituate, Massachusetts**

#### **Project Summary**

The applicants, Lawrence & Laureen Modder, propose to construct a pool house at 57 Garrison Drive, Scituate, MA. The property is listed as assessor's parcel 52-5-6, is residentially zoned and is approximately 63,363 S.F. in size. The property has frontage on Garrison Drive to the south, and is abutted by residentially zoned property to the north, east, and west. This report contains a narrative review of the stormwater management systems associated with the proposed project in accordance with the Town of Scituate Stormwater Bylaw.

The work proposed by this project is described as the construction of a pool house, associated patio, retaining walls, fence, grading, lawn, and a stormwater management system. The proposed project will alter approximately 7,000 S.F. of land, all which is upland and will be restored and stabilized with the proposed structures and loam and seeded lawn surfaces.

#### **Pre-Development Condition**

The existing project area consists of a single family dwelling, shed, swimming pool, patio, retaining walls, woodland, lawn in fair condition and lawn in good condition. The site slopes in a northerly direction, towards the on-site bordering vegetated wetland.

Soils information was obtained through a review of the web-based USDA Soil Survey. The USDA Soil Survey describes the soils as Montauk fine sandy loam, Hydrologic Soil Group C, Map Unit Symbol 300B and as Broadbrook very fine sandy loam, Hydrologic Soil Group C and Map Unit Symbol 341B.

In both the pre-development and post-development stormwater analysis, the watershed area analyzed was approximately 33,026 s.f. consisting of the project area. Refer to Watershed Delineation Plan WS-1 for a delineation of drainage subareas for the pre-development design condition.

HydroCAD version 9.0 was utilized to develop the stormwater model. HydroCAD uses the SCS Technical Release 20 (TR-20) Program for Formulation Hydrology developed by the Soil Conservation Service (SCS) to develop rates of runoff from subcatchment areas.

Drainage calculations were performed for the pre-development condition for the 1, 2, 10 and 100-year Type III storm events. Refer to Appendix B for computer results, soil characteristics, cover descriptions and times of concentrations for all subareas.

### **Post-Development Condition**

In the post-development condition stormwater analysis, the same watershed area was analyzed for the purpose of analyzing the rates and volumes of runoff from the proposed project area. The roof runoff from the proposed pool house will be directed into subsurface drywell systems. Refer to Watershed Delineation Plan WS-2 for a delineation of post-development drainage subareas. The design point for the post-development design condition corresponds to the design point for the pre-development design condition and it is shown on Plan No. WS-1 and Plan No. WS-2.

The stormwater management system was designed to be in compliance with the DEP Stormwater Management Policy to the extent practicable.

There is no loss of annual recharge to the groundwater table because the project proposes roof drywells to capture runoff and promote recharge.

**Recharge Volume = (0.25 inches of runoff)(Total Proposed Impervious Area)\*\*  
(Hydrologic Soil Group C)**

The proposed construction results in a total of 2,353 s.f. of impervious area.

*Therefore* Minimum Recharge Volume = 0.25 in. \* 2,353 s.f. X (1 ft./12 in.) = 50 c.f. (min.)

PROVIDED RECHARGE = 156 c.f.  
(Provided within drywells – see HydroCAD results in Appendix B)

**Requirement: Provide 90% TSS Removal of the Water Quality Volume.**  
Water Quality Volume (WQV) = (1.0 inches of runoff) (Total Impervious Driveway Areas\*)

*Therefore:* Minimum WQV = 1.0 inches \* 0 s.f. X (1 ft./12 in.) = 0 c.f. (min.)\*

PROVIDED = 0 c.f.

*\*Total impervious area for Std. 4 Calculation is not required to include roof or patio runoff, as roof and patio runoff is considered clean and free of suspended solids (non-metal roof is proposed).*

There were three objectives in designing the proposed drainage facilities, which are described below:

- 1.) Maintain existing drainage patterns: The proposed site does not alter the direction of existing surface water runoff or propose any discharges to abutting properties. The runoff from the development will be collected onsite and directed to the northerly portion of the lot where existing runoff enters the on-site bordering vegetated wetland.
- 2.) Provide Groundwater Recharge: The proposed site utilizes two systems of drywell chambers to promote groundwater recharge.
- 3.) The project has been designed to mitigate peak rates and volumes of runoff. See below for calculations of the runoff discharges and volumes for the 1, 2, 10 and 100-yr. storm events.

#### RATES OF RUNOFF (C.F.S.)

Event	1-yr.	2-yr.	10-yr.	100-yr.
Pre-Dev.	0.76	1.37	2.34	4.13
Post-Dev.	0.69	1.26	2.19	4.06

#### VOLUME OF RUNOFF (Ac-ft.)

Event	1-yr.	2-yr.	10-yr.	100-yr.
Pre-Dev.	0.056	0.098	0.166	0.296
Post-Dev.	0.051	0.091	0.158	0.286

#### **Erosion and Siltation Control**

Erosion control consisting of a mulch sock will be placed along the down gradient limit of work where there is potential for erosion prior to project commencement. The integrity of the erosion control barrier will be maintained by periodic inspection and replacement as necessary. The barrier will remain in place until all disturbed surfaces have been loamed and seeded and vegetation has been established.