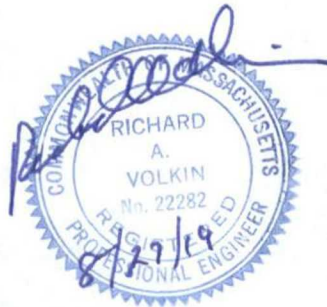


STORM WATER MANAGEMENT PROGRAM
(VOLUME BASED)

63 BOURNE STREET,
NEWTON, MASSACHUSETTS.

AUGUST 22, 2019

RAV & ASSOCIATES, INC.



RICHARD A. VOLKIN, PE

RAV & ASSOCIATES, INC.

21 HIGHLAND AVENUE
NEEDHAM, MA.

Telephone: (781) 449-(8200)
e-mail: MDEYCH@YAHOO.COM
Telephone: (857) 498-0951

Project:
63 BOURNE STREET,
NEWTON,
MASSACHUSETTS.

Calculations by: MD
Revised
Date: August 22, 2019,

STORMWATER MANAGEMENT PROGRAM

Lot = 11,355 SF = 0.261 Acres

Proposed Roof=1,137 S.F. = 0.026 Acres

Because the increase of impervious area is greater than 4%, it triggers the city of Newton stormwater management requirements infiltration for roof/driveway runoff is proposed. Percentage impervious increase per lot size 10%

STORMWATER MANAGEMENT REPORT UTILIZING RATIONALE METHOD
FOR DEVELOPMENT 70 HELENE ROAD, NEWTON, MASSACHUSETTS – 100
YEAR STORM.

Runoff Coefficients:

Roof 0.95

Q = CIA

Q = Quantity, CFS

C = Runoff Coefficient

I = Rainfall Intensity (8.78")

A = Area, Acres

Roof:

Q = CiA

Q = (0.95) (0.732 F) (0.026) = 0.018 CFS

Total proposed design runoff from 63 Bourne Street, Newton, Mass.

0.018 CFS = 1.08 CFM = 64.8 CFH

Capacity of STORMTECH SYSTEM

Capacity of single STORMTECH UNIT = 49 CF

The storage volume provided by the crushed stone surrounding the STORMTECH CHAMBERS is calculated by taking the total volume of the infiltration system and removing the STORMTECH STORAGE volume to get the total volume of crushed stone. Multiplying the volume of crushed stone by the crushed stone's void of 0.4 will provide the infiltration storage volume within the crushed stone

SYSTEM

Crushed stone below system volume: $(7' \times 11' \times 3') = 231 \text{ C.F.}$

Capacity of 1 UNIT = 49 CF

Crushed stone around system volume: $(7' \times 11' \times 2.7') - 49 \text{ C.F.} = 207.9 - 49 = 158.9 \text{ C.F.}$

Total storage volume in crushed stone $231 + 158.9 = 389.9 \text{ C.F.} \times 0.4 = 156.0 \text{ C.F.}$

TOTAL STORAGE STORMTECH SYSTEM:

$49 \text{ C.F.} + 156.0 = 205 \text{ C.F.}$

NO PERCOLATION CREDIT

$205/64.8 = 3.2$

SYSTEM CAN HOLD 100 YEAR STORM EVEN 3.2 HOURS

Therefore, given the known area of the project, 1-SC 740 STORM TECH CHAMBERS
Can encapsulate a 100 year storm.

DEEP OBSERVATION HOLE LOG #1

GENERAL SOIL CONDITIONS FOR THE AREA
PERFORMED AT 63 BOURNE STREET BY RAV &
ASSOCIATES, INC. HOLE NUMBER: 1 DATED:

08/22/2019

TP - 1 08/22/19

GENERAL SITE CONDITIONS:

GRASS AND TREES

GROUND WATER NOT FOUND AT 9.3' (ELV.=39.8')

PERFORMED BY: RICHARD A. VOLKIN, PE.

TP #1

ELEVATION	DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	OTHER
48.0'-43.0'	0" -60"	Ao	SL	10YR 2/2	NONE	FRIABLE, PEBBLES
43.0'-40.0'	60" - 96"	Bw	S	10YR 4/4	NONE	FRIABLE, PEBBLES
40.0'-39.8'	96" - 110"	C	SC	7.5YR 4/6	NONE	FRIABLE, PEBBLES

NO GROUNDWATER