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DRAINAGE CALCULATIONS

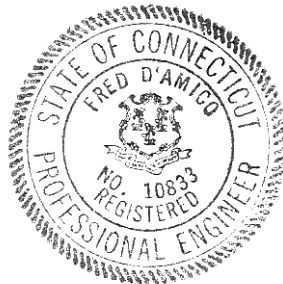
For

2 High Ridge Road
Monroe, CT 06468

Dated May 10, 2021
Revised June 9, 2021



Fred D'Amico P.E., L.S.



TOTAL IMPERVIOUS AREA

RETENTION AREA A

$$\text{DWELLING} = \frac{1480}{1480 \text{ TOTAL SQFT.}}$$

REQUIRED VOLUME FOR 1" OF RUNOFF
1480 SQFT. (1")/12=123 FT³ VOLUME REQUIRED

USE 8 -24" X 48" X 8' GALLEYS
VOLUME/GALLEY 1.5 X 3.5 X7.5 = 39.4
39.4(8) = 315 FT³

VOLUME FOR 1' OF STONE AROUND GALLEY

$$64+20=84(2) =168$$
$$168(0.4) = 67$$

TOTAL VOLUME PROVIDED
315 + 67 = 382 SQ. FT.

RETENTION AREA B

$$\text{DWELLING} = 1400$$
$$\text{DRIVEWAY} = \frac{1900}{3300 \text{ TOTAL SQFT.}}$$

REQUIRED VOLUME FOR 1" OF RUNOFF
3300 SQFT. (1")/12=275 FT³ VOLUME REQUIRED

USE 8 -24" X 48" X 8' GALLEYS
VOLUME/GALLEY 1.5 X 3.5 X7.5 = 39.4
39.4(8) = 315 FT³

VOLUME FOR 1' OF STONE AROUND GALLEY

$$64+20=84(2) =168$$
$$168(0.4) = 67$$

TOTAL VOLUME PROVIDED
315 + 67 = 382 SQ. FT.

UNDERGROUND DETENTION WATER QUALITY CALCULATIONS

AS DEFINED BY "2004 CONNECTICUT STORMWATER QUALITY MANUAL"

DETERMINE WATER QUALITY VOLUME (WQV)

$$WQV = \frac{1''(R)(A)}{12}$$

R = VOLUMETRIC RUNOFF COEFFICIENT = 0.05 + 0.009(I)
R = 0.05 + 0.009(7.19) = 0.1147
I = PERCENT IMPERVIOUS COVER = 7.19%
A = SITE IN ACRES = 1.00

$$= \frac{1''(0.1147)(1.00)}{12} = 0.0096 \text{ AC-FT} = 418 \text{ CF}$$

PER THE MANUAL, THE INFILTRATION STRUCTURES SHOULD BE DESIGNED TO MAINTAIN AT LEAST THE WATER QUALITY VOLUME (WQV).

AS DESIGNED THE DETENTION SYSTEM HAS A TOTAL CAPACITY OF 456 CF, WHICH EQUATES TO 109% OF THE WQV.

THEREFORE, THE SYSTEM COMPLIES WITH THE REQUIREMENTS OF THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL FOR UNDERGROUND INFILTRATION SYSTEMS.

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