

**Richard F. Mihok, P.E.**

*Consulting Engineer*

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**Date: 11-21-2019**

**Mr. Thomas Mocko, Environmental Planner**

**Town Of Glastonbury**

**1125 Main Street P.O. Box 6523**

**Glastonbury, CT 06033-6523**

**Dear Mr. Mocko:**

**Tabulated below are the Nitrogen Loadings for the subject subdivision.**

**Nitrogen Loading**

**Dorothy's Place II Subdivision – 180 Main Street**

**Glastonbury, Connecticut**

**Zone: GW-2**

**4 Lots**

**5 People/Dwelling (2 Proposed Rear Lots)**

**5 People/Dwelling (2 Proposed Front Lots)**

**Parcel Area: 362,964 Sq.Ft. = 8.3325 Ac.**

**Impervious Surface**

**Roof Area = 7,428 Sq.Ft.**

**Drives- Paved = 14,963 Sq.Ft.**

**Pervious Surface**

**Lawn Area = 160,000 Sq.Ft.**

**Natural Area = 340,573 Sq.Ft.**

**Connecticut Rainfall = 44 In./Yr.**

**Loading Factors:**

**Cape Cod Technical Bulletin 91-001**

**Roof: 0.75 mg/L**

**Paved Drive: 1.5 mg/L**

**Lawns: 3 Lb/1,000 SF @ 25% Leaching**

Natural Area Infiltration: 25%

Nitrogen Loading – 180 Main Street Glastonbury, Connecticut 11-21-2019 Page 2

Estimated Loading

Wastewater

$$4 \text{ Dwellings} \times 5 \text{ People/Dwelling} \times 75 \text{ GPD} \times 3.785 \text{ L/Gal} = 5,678 \text{ L/D} \times 24 \text{ mg/L} = 136,272 \text{ mg/D}$$

Roofs

$$7,428 \text{ Sq.Ft.} \times 44 \text{ In./Yr.} \times 1 \text{ Ft./12 In.} \times 1 \text{ Yr./365 D} \times 28.32 \text{ L/CF} = 2,113 \text{ L/D} \times 0.75 \text{ mg/L} = 1,585 \text{ mg/D}$$

Drives- Paved

$$14,963 \text{ Sq.Ft.} \times 44 \text{ In./Yr.} \times 1 \text{ Ft./12 In.} \times 1 \text{ Yr./365 D} \times 28.32 \text{ L/CF} = 4,257 \text{ L/D} \times 1.5 \text{ mg/L} = 6,385 \text{ mg/D}$$

Lawns

$$160,000 \text{ Sq.Ft.} \times 3 \text{ Lb./1,000 Sq.Ft./Yr.} \times 1 \text{ Yr./365 D} \times 454,000 \text{ mg/Lb.} \times 0.25 = 149,260 \text{ mg/D}$$

Natural Area


$$340,573 \text{ Sq.Ft.} \times 1.5 \text{ Ft./Yr.} \times 1 \text{ Yr./365 D} \times 28.32 \text{ L/CF} = 39,637 \text{ L/D}$$

Summary

<u>Wastewater</u>	<u>Roofs</u>	<u>Drives</u>	<u>+ Lawn</u>	<u>Total</u>
136,272 mg/D	1,585 mg/D	6,385 mg/D	149,260 mg/D	= 293,502 mg
<hr/>				
5,678 L/D	2,113 L/D	4,257 L/D	39,637 L/D	= 51,685 L

Nitrogen Loading of 5.679 ppm is within the Acceptable Range of Section 20.13.1 of the Groundwater Protection Regulations of Glastonbury Zoning Regulations

Respectfully Submitted,

  
Richard F. Mihok, P.E.&L.S.

Richard F. Mihok, P.E.  
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18 Laurel Lane  
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Date: 04-27-2020

Mr. Stephen M. Braun, P.E., Assistant Town Engineer  
Town Of Glastonbury  
2155 Main Street P.O.Box 6523  
Glastonbury, CT 06033-6523

Re: Dorothy's Place II Subdivision  
180 Main Street  
Glastonbury, Connecticut

Dear Mr. Braun :

Tabulated below are the requirements for Water Quality Volumes  
For the Four Lot Subdivision Houses and Drives.

### Water Quality Volume

#### Lot 1

Drive & Roof Drainage Area to Level Spreader: 33,547 Sq.Ft.

Impervious Area(Drive & Roof) = 4,657 Sq.Ft.

Contributing Area: 33,547 Sq.Ft.

$I = 4,657/33,547 = 13.9\%$

$R = 0.05 + 0.009 \times 13.9 = 0.175$

$WQV = 1 \times 0.175 \times 33,547/43,560 / 12 = 0.0123 \text{ Ac.Ft.} = 489 \text{ Cu.Ft.}$

23'L x 3'Base x 2'Deep w/4:1 Slopes Level Spreader = 489 Cu.Ft.

#### Lot 2

Drive & Roof Drainage Area to Level Spreader: 3,941 Sq.Ft.

Contributing Area: 11,729 Sq.Ft.

$I = 3,941/11,729 = 33.6\%$

$R = 0.05 + 0.009 \times 33.6 = 0.352$

$WQV = 1 \times 0.352 \times 11,729/43,560/12 = 0.007907 \text{ Ac.Ft.} = 344 \text{ Cu.Ft.}$

16'L x 3'Base x 2'Deep w/4:1 Slopes Level Spreader = 344 Cu.Ft.

#### Lot 3

Drive & Roof Drainage Area to Level Spreader: 3,734 Sq.Ft.

Contributing Area: 5,851 Sq.Ft.

$I = 3,734/5,851 = 63.8\%$

$R = 0.05 + 0.009 \times 63.8 = 0.624$

$WQV = 1 \times 0.624 \times 5,851/43,560/12 = 304 \text{ Cu.Ft.}$

14'L x 3'Base x 2'Deep w/4:1 Slopes Level Spreader = 304 Cu.Ft.

**Lot 4**

***Drive & Roof Drainage Area to Level Spreader: 3,333 Sq.Ft.***

***Contributing Area: 7,888 Sq.Ft.***

$$I = 3,333/7,888 = 42.25\%$$

$$R = 0.05 + 0.009 \times 42.25 = 0.430$$

$$WQV = 1 \times 0.4225 \times 7,888/43560/12 = 283 \text{ Cu.Ft.}$$

$$13'L \times 3' \text{Base} \times 2' \text{Deep w/4:1 Slopes Level Spreader} = 283 \text{ Cu.Ft.}$$

**Lot 3 & 4 Shared Drive**

***Pavement: 4,400 Sq.Ft.***

***Grass Shoulders: 1,540 Sq.Ft.***

***Contributing Area: 5,940 Sq.Ft.***

$$I = 4,400/5,940 = 74.07\%$$

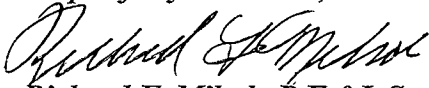
$$R = 0.05 + 0.009 \times 74.07 = 0.7166$$

$$WQV = 1 \times 0.7166 \times 5,940/43560/12 = 354 \text{ Cu.Ft.}$$

$$4\text{-Cultec 280HD Units w/18"Stone} = 354 \text{ Cu.Ft.}$$

***If you have any question regarding this submittal, please do not hesitate  
To contact me.***

***Respectfully submitted,***

  
***Richard F. Mihok, P.E.&L.S.***

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**2155 Main Street P.O. Box 6523**  
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**Re: Dorothy's Place II Subdivision**  
**180 Main Street**  
**Glastonbury, Connecticut**

**Dear Mr. Mocko:**

*Tabulated below are the Groundwater Recharge Volume Calculations for the subject subdivision.*

**Hydrologic Soil Group: A, F= 0.4 Inches**

**GRV = (F)(A)(I)/12**

**Lot 1 Roof, Drive Area**

**F=0.4**

**Roof: 1,857 Sq.Ft.**

**Drive: 2,800 Sq.Ft.**

**Grass: 28,890 Sq.Ft.**

**Total: 33,547 Sq.Ft.**

**I= 4,657/33,550 = 13.9%**

**GRV= 0.4 x 33,547/43,560 x 0.139/12 x 43,560 = 155 Cu.Ft.**

**Provide 23'L x 3'Base x 2'Deep w/4:1 Slopes Level Spreader = 489 Cu.Ft.**

**Lot 2 House, Drive**

**F=0.4**

**Roof: 1,857 Sq.Ft.**

**Drive: 2,084 Sq.Ft.**

**Grass: 7,788 Sq.Ft.**

**Total: 11,729 Sq.Ft.**

**I=3,941/11,729 = 33.6%**

**GRV = 0.4 x 11,729/43,560 x 0.336/12 x 43,560 = 144 Cu.Ft.**

**Provide 16'L x 3'Base x 2'Deep w/4:1 Slopes Level Spreader = 344 Cu.Ft.**

Lot 3 Roof, Drive

$F=0.4$

Roof: 1,857 Sq.Ft.

Drive: 1,877 Sq.Ft.

Grass: 2,117 Sq.Ft.

Total: 5,851 Sq.Ft.

$I = 3,734/5,851 = 63.8\%$

$GRV = 0.4 \times 5,851/43,560 \times 0.638/12 \times 43,560 = 124 \text{ Cu.Ft.}$

Install 14'L x 3'Base x 2'Deep w/4:1 Slopes Level Spreader = 304 Cu.Ft.

Lot 4 Roof, Drive

$F = 0.4$

Roof: 1,857 Sq.Ft.

Drive: 1,476 Sq.Ft.

Grass: 4,555 Sq.Ft.

Total: 7,888 Sq.Ft.

$I = 3,333/7,888 = 42.3\%$

$GRV = 0.4 \times 7,888/43,560 \times 0.423/12 \times 43,560 = 111 \text{ Cu.Ft.}$

Install 13'L x 3'Base x 2"Deep w/4:1 Slopes Level Spreader = 283 Cu.Ft.

Shared Drive – Lots 3 & 4

$F = 0.4$

Pavement: 4,480 Sq.Ft.

Total: 6,020 Sq.Ft.

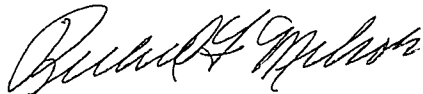
$I = 4,480/6,020 = 74.4\%$

$GRV = 0.4 \times 6,020/43,560 \times 0.744/12 \times 43,560 = 150 \text{ Cu.Ft.}$

Install 20'L x 3'W x 3'Deep Infiltration Pool = 180 Cu.Ft.

If you have any questions regarding this submittal, please do not hesitate to Contact me.

Respectfully submitted,



Richard F. Mihok, P.E. & L.S.