

July 27, 2021

Martin Wencek, Permitting Supervisor
RIDEM Freshwater Wetlands Program
Office of Water Resources
235 Promenade Street
Providence, RI 02908

**RE: Elite Drive Minor Subdivision
Assessor's Plat 26 Lot 50
Elite Drive & Janet Drive
Cranston, RI
DE Project #: 2940-001**

Dear Mr. Wencek:

On behalf of the applicant, we respectfully submit this letter and attached materials for the proposed minor subdivision located at Elite Drive in Cranston, Rhode Island. The site is located on Assessor's Plat 26 Lot 50 and is currently a wooded, vacant site. The total existing lot area is approximately 7.51± acres. The intent of the applicant is to subdivide the existing lot into 4 lots with single-family homes.

The applicant proposes to construct 4 new single-family dwellings (along with associated infrastructure improvements including a driveway and utilities). Per Section 300.6 of the RI Coastal Resources Management Program (RICRMP) and Rule 7.12 of the DEM Rules and Regulations Governing the Administration of the RI Freshwater Wetlands Act, stormwater management and treatment is required for all new impervious areas greater than 600 ft². Each proposed dwelling will each have a footprint of 2,100 s.f. and impervious driveway. Stormwater runoff from the roof of each of the proposed homes will be managed by a stone drywell and stormwater from each of the driveways is proposed to be directed to a stone infiltration trench. Both stone drywell systems and the stone infiltration trenches have been designed using the Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development.

Soil evaluations were completed on June 18, 2021 by Christian Sutter (D4077), a RI registered Soil Evaluator. The soils are characterized as sandy loam soils very suitable for infiltration. Seasonal high groundwater table was observed at a depths ranging from 24" to 96" and greater.

Stormwater from each of the proposed homes will be collected from the rooftops using rain gutters and then routed to the stone drywell using underground roof leader systems. Section D of the Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development document was used for sizing the stone drywells. Using the soil evaluation data, soils were determined to be sandy loam soils. The drainage area for each proposed home (2,100 s.f.) was used for sizing. For Lots 1 & 2, consulting Table 10 and using a 36" depth yielded a 145 ft² drywell for each home. Section For Lots 3 & 4, consulting Table 10 and using a 18" depth yielded a 252 ft² drywell for each home. Section D of the Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development document has been attached with this letter for reference.

Section D of the Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development document was also used for sizing the stone infiltration trenches associated with the proposed driveways. Using the soil evaluation data, soils were determined to be sandy loam soils. The drainage area for each proposed driveway ranged from 1,470 s.f. – 2,300 s.f. For Lots 1 & 2, consulting Table 10 and using a 36" depth stone infiltration trench, an area of 123 ft² is incorporated for each driveway. For Lots 3 & 4, consulting Table 10 and using a 6" depth stone infiltration trench, areas of 549.7 ft² and 351.3 ft² are incorporated respectively for each driveway.

Section D of the Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development document has been attached with this letter for reference.

A summary of the design requirements for both the stone infiltration trenches and the drywell systems are shown by lot in the follow table.

	Roof ft ²	Drywell Required ft ²	Drywell Provided ft ²	Driveway ft ²	Stone Trench Required ft ²	Stone Trench Provided ft ²
Lot 1	2100	145 s.f. (36" depth)	156	1,777	123 s.f. (36" depth)	125
Lot 2	2100	145 s.f. (36" depth)	156	1,777	123 s.f. (36" depth)	125
Lot 3	2100	252 s.f. (18" depth)	256	2,300	549.7 s.f. (6" depth)	550
Lot 4	2100	252 s.f. (18" depth)	256	1,470	351.3 s.f. (6" depth)	358

As designed, the site meets the requirements set forth in Section 300.6 of the RI Coastal Resources Management Program and Rule 7.12 of the RIDEM Rules and Regulations Governing the Administration of the RI Freshwater Wetlands Act. Negative impacts of stormwater have been mitigated to the maximum extent practicable. The stormwater management design meets the Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development document; therefore, it is designed to capture and provide water quality treatment to the runoff from all new contributing impervious surfaces.

If you have any further questions on this matter, please feel free to contact me at your earliest convenience.

Sincerely,
 DiPrete Engineering Associates, Inc.

Eric Prive, PE
 Senior Project Manager

Appendix A: Rhode Island Stormwater Management Guidance for Individual Single-Family Residential Lot Development
Section D: Infiltration Trench and Dry Well

Appendix B: Soil Evaluations

D. Infiltration Trench and Dry Well

Infiltration trenches and dry wells are dug chambers backfilled with crushed stone that capture and temporarily store stormwater before allowing it to infiltrate into the soil over a maximum period of 48 hours.

Table 9. Required Elements for Infiltration Practices (Trenches and Dry Wells) on Single-Family Residential Lots	
Location	<ul style="list-style-type: none"> <input type="checkbox"/> Trenches and dry wells must meet the setback requirements in Table 5 above. <input type="checkbox"/> Trenches and dry wells cannot be placed in locations that cause water problems (such as seepage which may cause slope failure) to downgrade properties.
Treatment	<ul style="list-style-type: none"> <input type="checkbox"/> The bottom of the stone reservoir should be completely flat or nearly so in order that infiltrated runoff will be able to infiltrate through the entire bottom surface area. <input type="checkbox"/> The bottom of infiltration practices must be separated by at least two feet vertically from the seasonal high groundwater table (SHGWT). Depth to the SHGWT should be determined by a licensed soil evaluator, registered professional engineer or certified soil scientist. <input type="checkbox"/> The bottom of infiltration practices must be located in the soil profile.
Construction	<ul style="list-style-type: none"> <input type="checkbox"/> Great care must be taken to prevent the infiltration area from compaction by marking off the location before the start of construction at the site and constructing the infiltration practice last. <input type="checkbox"/> An observation well shall be installed in every infiltration trench or dry well, consisting of an anchored 4- to 6-inch diameter perforated PVC pipe with a screw-top cap installed flush with the ground surface.
Maintenance	<ul style="list-style-type: none"> <input type="checkbox"/> Infiltration practices shall be inspected annually and repaired if necessary to ensure proper drainage. <input type="checkbox"/> Accumulated sediment and debris shall be removed from the surface of the infiltration practice annually.

Figure 6. Infiltration Trench, Typical Cross-Section

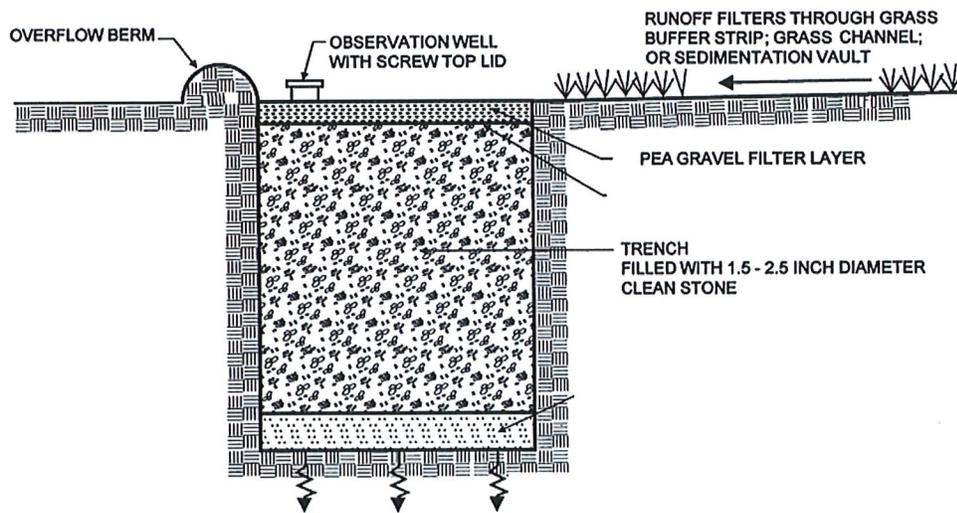
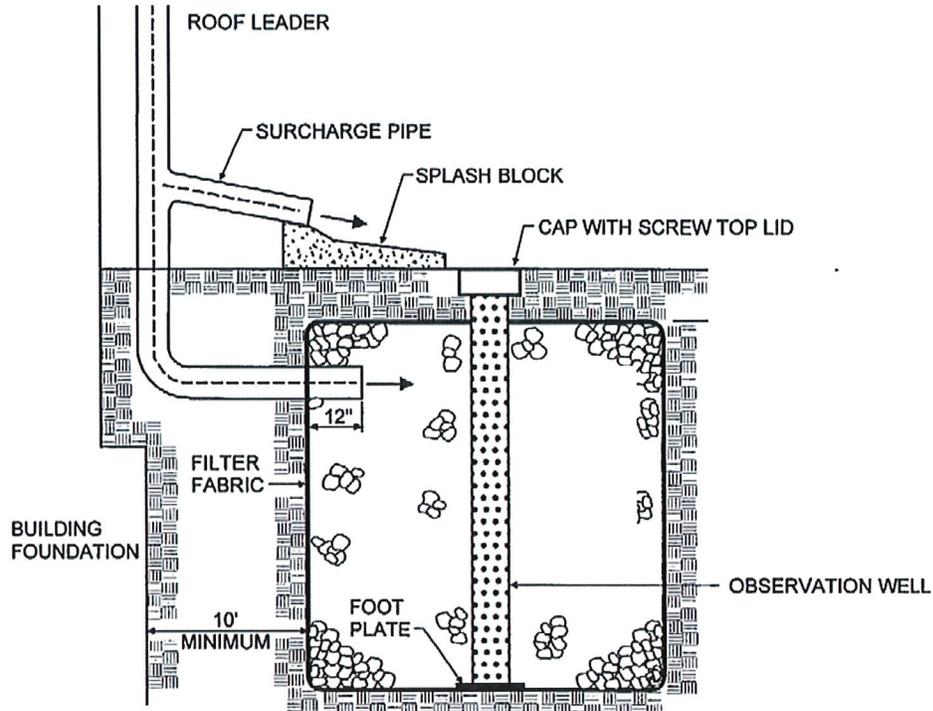


Figure 7. Dry Well, Typical Cross-Section



Sizing Infiltration Trenches and Dry Wells:

Determine the size (in square feet) of the impervious surface that will drain to your infiltration trench or dry well. This is the drainage area. Use Tables 10 and 11 below to determine the size of your infiltration trench or dry well. The sizing recommendations in the tables below are based on the sizing equations provided in the Rhode Island Stormwater Design and Installation Standards Manual, Section 5.3. For additional sizing information see Chapter 5 of the Manual at www.dem.ri.gov/pubs/regs/regs/water/swmanual.pdf. Be sure to detail which sizing method was used in your submitted application.

Tables 10. and 11. Sizing Guidance for Infiltration Trenches and Dry Wells

**Infiltration Trench / Dry Well Surface Area (square feet)
in Sandy Soils (Sands, Loamy Sands and Sandy Loams)**

Drainage Area (sq. ft.)	6 in. deep	12 in. deep	18 in. deep	24 in. deep	30 in. deep	36 in. deep	48 in. deep
100	24	16	12	10	8	7	5
200	48	32	24	19	16	14	11
300	72	48	36	29	24	21	16
400	96	64	48	39	32	28	21
500	119	80	60	48	40	34	27
600	143	96	72	58	48	41	32
700	167	112	84	67	56	48	38
800	191	128	96	77	64	55	43
900	215	144	108	87	72	62	48
1000	239	160	120	96	80	69	54



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
Office of Water Resources
Onsite Wastewater Treatment Systems Program



Site Evaluation Form
Part A - Soil Profile Description Application Number

Property Owner: David Devaney
Property Location: Elite Drive (AP 26 Lot 50), Cranston, RI
Date of Test Hole: June 18, 2021
Soil Evaluator: Chris Sutter License Number: D-4077
Weather: Clear, 70's Shaded: Yes No Time: 8:00 AM

Table with 11 columns: TH Horizon, Depth, Horizon Boundaries (Dist, Topo), Soil Colors (Matrix, Re-Dox Features), Re-Dox (Ab., S., Contr.), Texture, Structure, Consistence, Soil Category. Contains data for two soil profiles (TH 1 and TH 2).

TH 1 Soil Class Ablation Till Total Depth 120" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT 24" (og)
TH 2 Soil Class Ablation Till Total Depth 96" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT 24" (og)

Comments:



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Table with 11 columns: TH Horizon, Depth, Horizon Boundaries (Dist, Topo), Soil Colors (Matrix, Re-Dox Features), Re-Dox (Ab., S., Contr.), Texture, Structure, Consistence, Soil Category. Contains data for TH 3 and TH 4 horizons.

TH 3 Soil Class Ablation Till Total Depth 77" Impervious/Limiting Layer Depth 77" (og) GW Seepage Depth N/A SHWT 48" (og)
TH 4 Soil Class Ablation Till Total Depth 120" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT 30" (og)

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Table with 11 columns: TH Horizon, Depth, Horizon Boundaries (Dist, Topo), Soil Colors (Matrix, Re-Dox Features), Re-Dox (Ab., S., Contr.), Texture, Structure, Consistence, Soil Category. Contains data for TH 5 and TH 6 horizons.

TH 5 Soil Class Ablation Till Total Depth 84" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT 84" (og)
TH 6 Soil Class Ablation Till Total Depth 108" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT 96" (og)

Comments:



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Property Location: Elite Drive (AP 26 Lot 50), Cranston, RI
Date of Test Hole: June 18, 2021
Soil Evaluator: Chris Sutter License Number: D-4077
Weather: Clear, 70's Shaded: Yes No Time: 8:00 AM

Table with 11 columns: TH Horizon, Depth, Horizon Boundaries (Dist, Topo), Soil Colors (Matrix, Re-Dox Features), Re-Dox (Ab., S., Contr.), Texture, Structure, Consistence, Soil Category. Contains data for TH 7 and TH 8 horizons.

TH 7 Soil Class Ablation Till Total Depth 108" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT 96" (og)
TH 8 Soil Class Ablation Till Total Depth 96" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT 96" (og)

Comments: