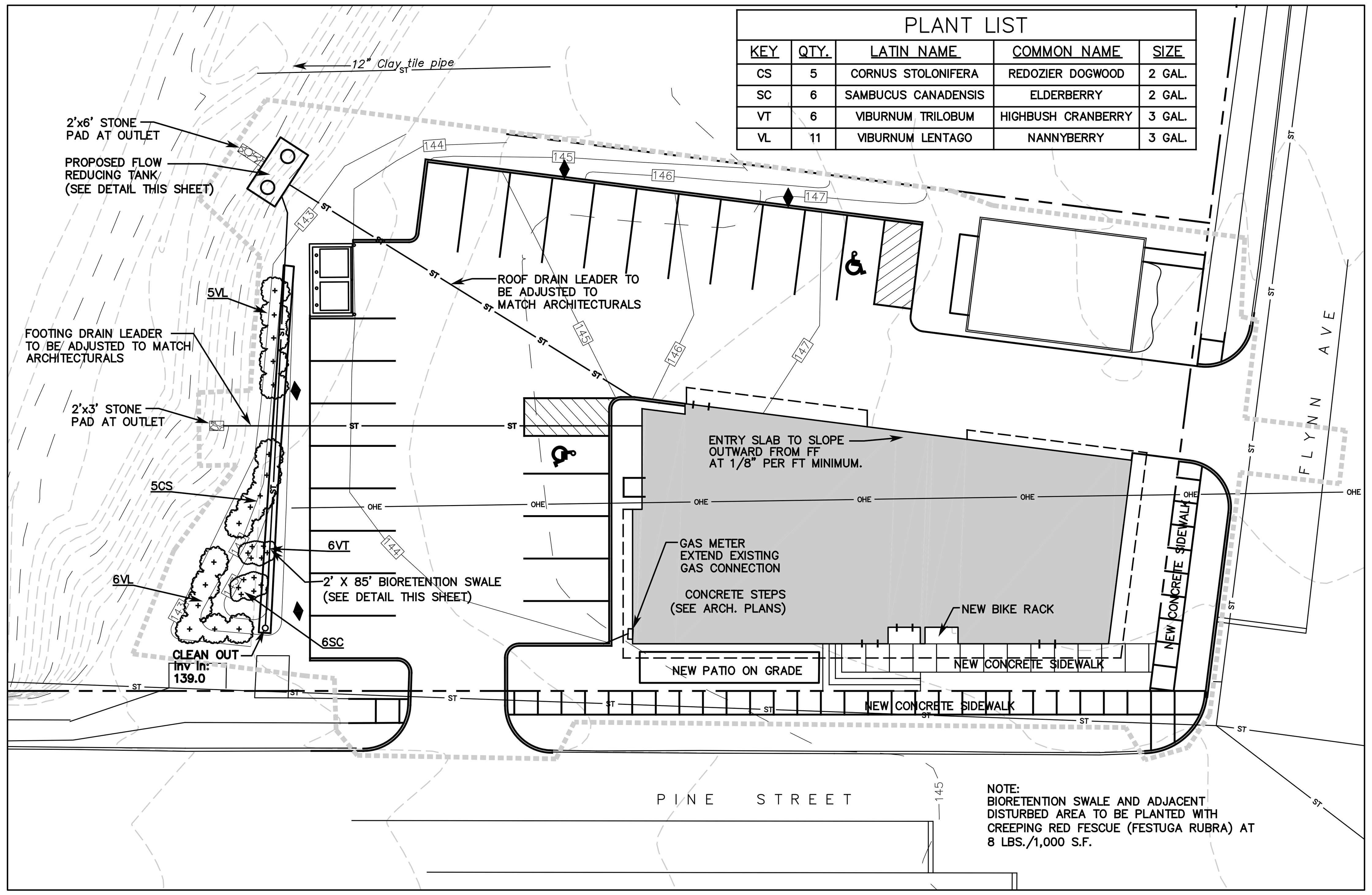
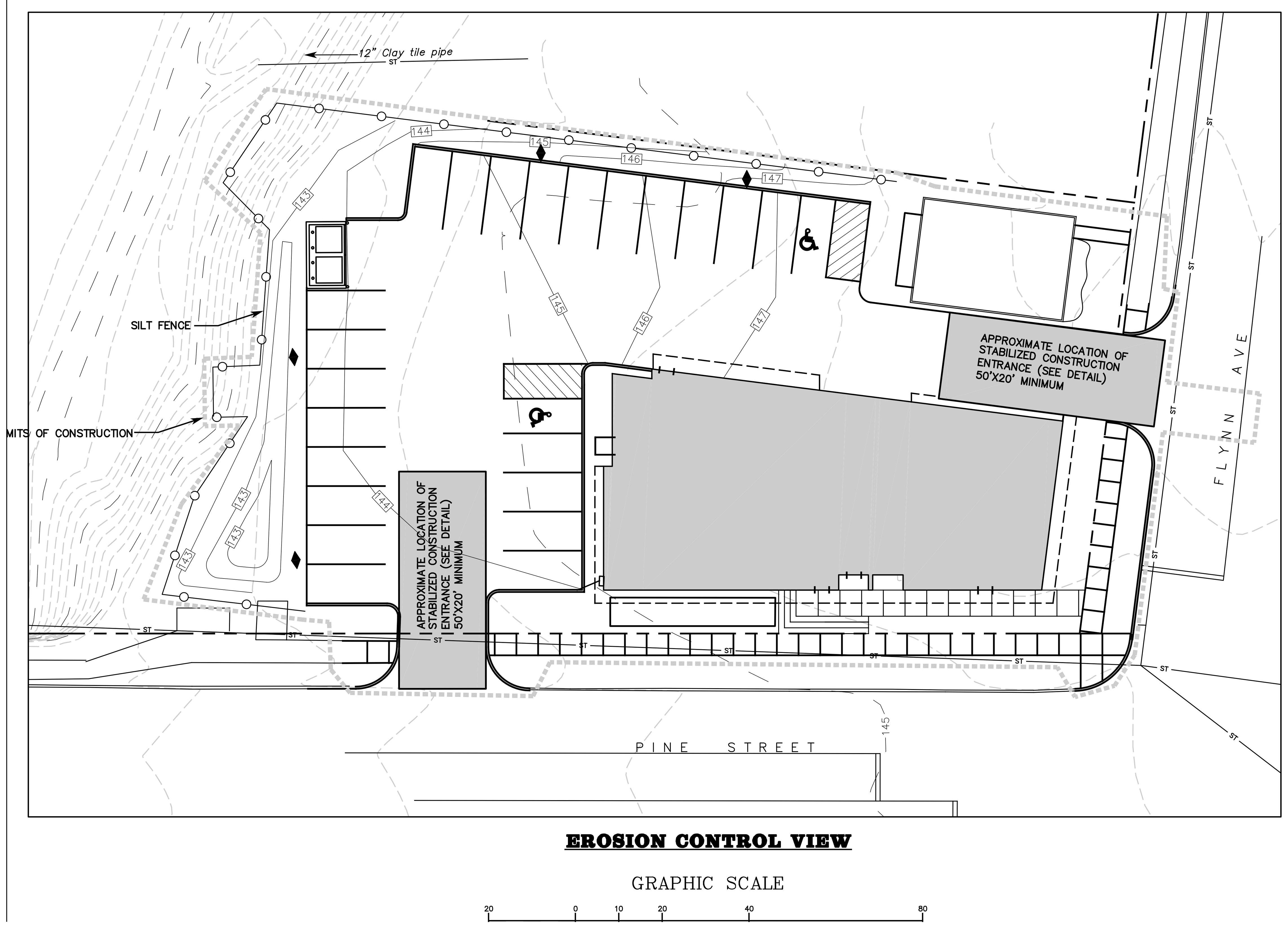


PLANT LIST

KEY	QTY.	LATIN NAME	COMMON NAME	SIZE
CS	5	CORNUS STOLONIFERA	REDOZIER DOGWOOD	2 GAL.
SC	6	SAMBUCUS CANADENSIS	ELDERBERRY	2 GAL.
VT	6	VIBURNUM TRILOBUM	HIGHBUSH CRANBERRY	3 GAL.
VL	11	VIBURNUM LENTAGO	NANNYBERRY	3 GAL.

STORMWATER MANAGEMENT VIEW



EROSION CONTROL VIEW

GRAPHIC SCALE

STORMWATER SYSTEM MAINTENANCE REQUIREMENTS

1. The system is to be inspected annually after spring snow melt, prior to June 15th. The inspection shall evaluate the operation and maintenance and condition of the stormwater collection, treatment and control system.
2. The stormwater treatment tank is to be inspected monthly and after significant rainfall events.
3. The owner shall prepare an annual inspection summary which shall be submitted to the Burlington Department of Public Works and the State of Vermont Stormwater Office by July first of each year. The report shall include the dates and details of all stormwater system maintenance and repairs performed in the previous year.
4. The inspection shall include an evaluation of all catch basins, treatment tank, and natural areas. The features are to be inspected for sediment accumulation and stability.
5. Sediment shall be removed from the catch basins when the sediment level is within 10" of the pipe invert and from the treatment tank when the depth reaches 6".
6. Any sediment or erosion observed on the site shall be removed/repaired and full vegetation reestablished.

PROJECT DESCRIPTION

The project consists of the construction of a Multi-Use Building at 316 Flynn Avenue on the lot of the currently operating Pine Street Deli and the associated utilities, parking and landscaping. The improvements will include reconstruction of the adjacent city sidewalks and the installation of a stormwater attenuation and treatment tank.

Using the state of Vermont stormwater guidelines, the risk category has been defined as "Low". The site improvements include items that will be phased (building excavation and construction, sidewalk replacement, site regarding, utility installation and replacement, etc.) to minimize the time of exposed soils.

EXISTING CONDITIONS

The site runoff from the existing site runs to Englesby Brook via sheet flow, gutter flow, a catch basin in Flynn Avenue and the Outlet drainage pipe in Pine Street. The site has no collection system with all the runoff exiting the site via sheet flow and overland flow. The majority of the site is covered by paved parking and rooftops.

Soils –

The soils along the brook are mapped by the NRCS as Munson and Belgrade Silt Loams with C & D Hydrologic Soils Groups.

STORMWATER TREATMENT AND DRAINAGE CONSIDERATIONS -

The proposed stormwater treatment methods are the result of space limitations and the poor infiltration properties of the underlying soils. The inclusion of catch basins and roof drain systems create a concentration of runoff to a new culvert to Englesby Brook. The installation of a Flow Attenuator/Sedimentation Tank prior to the final discharge is the most efficient method of improving the runoff characteristics of the site. Impervious portions of the site will continue to drain to the adjacent street systems and runoff directly to Englesby Brook.

Site Runoff will continue to enter the City of Burlington Municipal Stormwater system and the adjacent brook (Englesby) via overland flow, gutter flow, on-site and municipal catch basins, storm pipes and a new treatment structure. The overall impervious area of the site will be reduced by approximately 2,200 sf with 9,000 sf of the new roof and paved surfaces being routed through the treatment tank.

RUNOFF ATTENUATION -

The resulting stormwater design, including the Flow Reducer Tank, based on a TR-55 runoff model, will result in a reduction of the peak design flows for the 1, 2, 10, 25 and 100-year, 24-hour design storms as specified in the table included on the design plans and stormwater management details.

Existing Impervious Lot Coverage

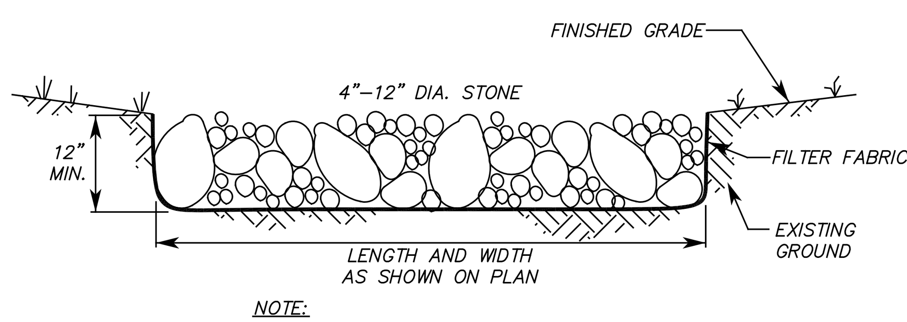
Total Lot	26,424 s.f.	0.61 acre	100%
Paved Area	14,697 s.f.	0.34 acre	55.6%
Building Area	4,742 s.f.	0.11 acre	18.0%
Total Coverage	19,439 s.f.	0.45 acre	73.6%

Proposed Impervious Lot Coverage

Total Lot	26,424 s.f.	0.61 acre	100%
Paved Area	11,101 s.f.	0.25 acre	42.0%
Building Area	6,119 s.f.	0.14 acre	23.2%
Total Coverage	17,220 s.f.	0.40 acre	65.2%
Effective Impervious	17,220 s.f.	0.40 acre	65.2%
New Impervious	−2,219 s.f.	−0.05 acre	−8.4%

Impervious Surface Management

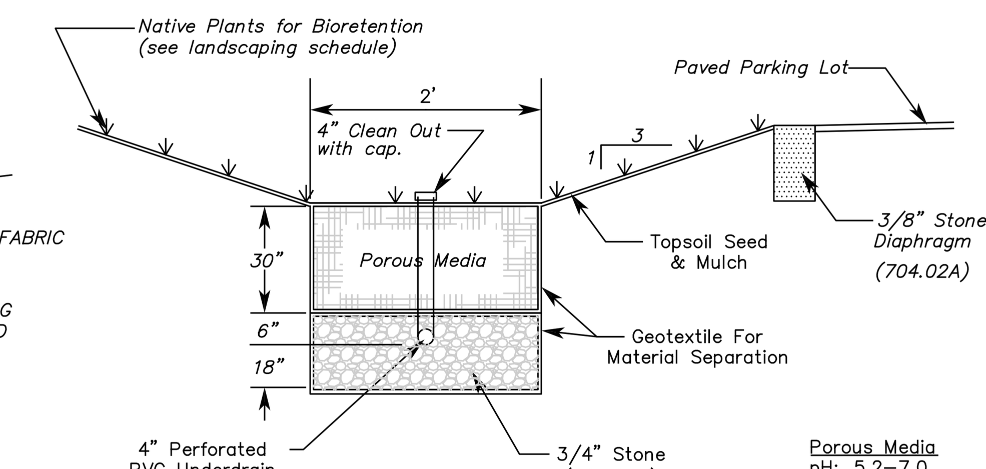
Standard	Net New Impervious	Redeveloped/Existing Impervious
Water Quality	0 s.f.	13,373 s.f.
Runoff Reduction	0 s.f.	13,373 s.f.
Q1 Peak Control	0 s.f.	13,373 s.f.
Q10 Peak Control	0 s.f.	13,373 s.f.



NOTE: APRON SIZE FOR FLOWS LESS THAN 5 cfs AT 12" PIPE OUTLET

STONE PAD DETAIL

N.T.S.



SECTION

BIORETENTION SWALE DETAIL

N.T.S.

- Void Ratio= 0.4
- Vertical Permeability of Porous Media = 10 Min/Inch
- Max Q For 1" Orifice = 0.07 cfs
- Storage Volume : 2' Wide Swale = 20 C.F./L.F.
  4' Wide Swale – 40 C.F./L.F.

Porous Media
pH: 5.2–7.0
Organic Matter: 1.5–4.0%
Magnesium: 35 lbs. per acre, minimum
Phosphorus (P2O5): 75 lbs. per acre, minimum
Potassium (K20): 85 lbs. per acre, minimum
Soluble salts: 500 ppm
Clay: 10–25%
Silt: 30–55%
Sand: 35–60%

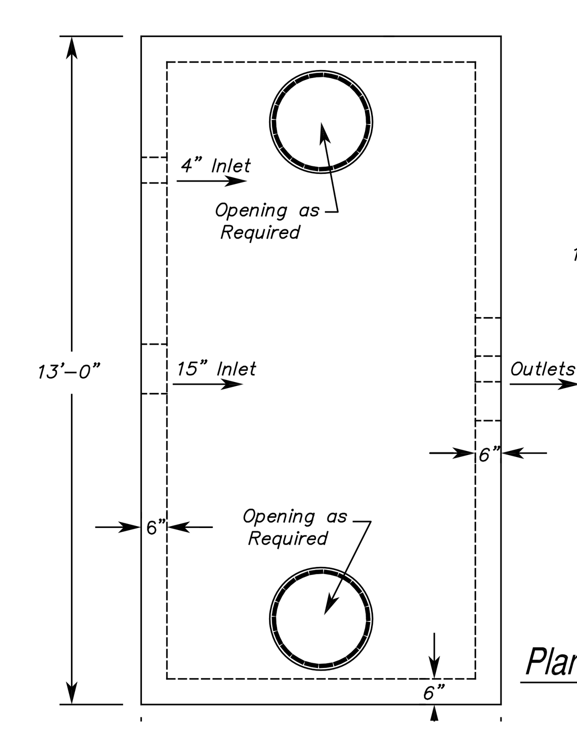
Q-in / Q-out Of Treatment Tank

Storm	Q-in	Q-out
WQ Storm	0.25 c.f.s	0.24 c.f.s.
Chit. 1yr-24hr	0.64 c.f.s.	0.58 c.f.s.
Chit. 2yr-24hr	0.71 c.f.s.	0.63 c.f.s.
Chit. 10yr-24hr	1.00 c.f.s.	0.85 c.f.s.
Chit. 25yr-24hr	1.28 c.f.s.	1.05 c.f.s.
Chit. 100yr-24hr	1.63 c.f.s.	1.55 c.f.s.

Q Into Englesby Brook Before and After Construction

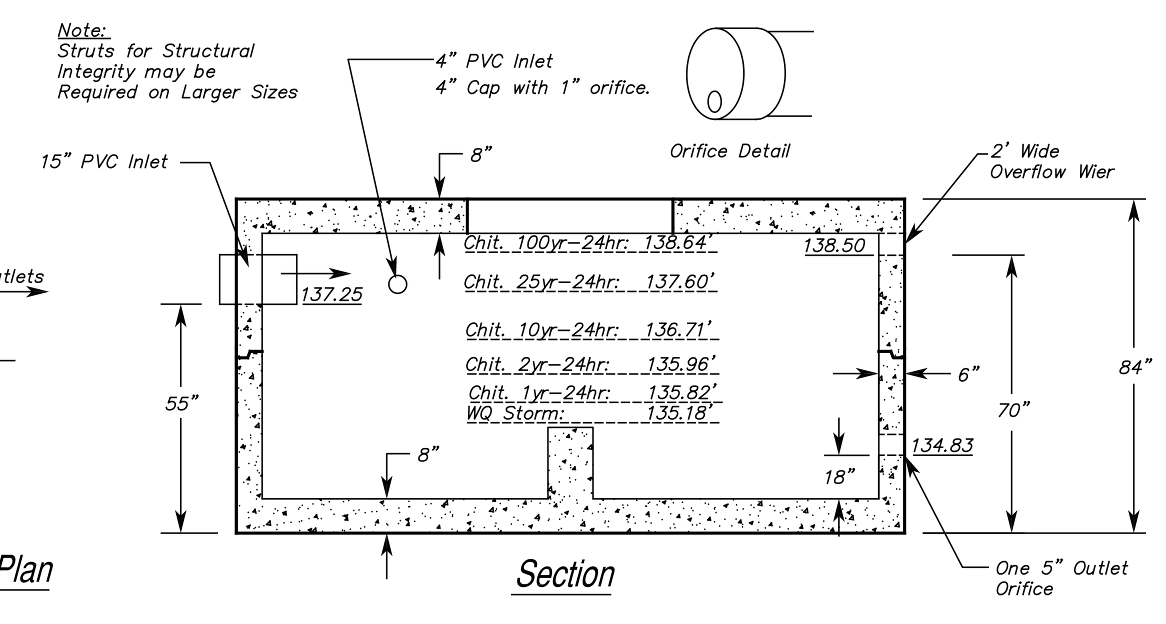
Design Storm	Q-Pre Development	Q-Improvement Goal	Q-Post Development
WQ Storm	0.61 c.f.s.	0.49 c.f.s.	0.18 c.f.s.
Chit. 1yr-24hr	1.49 c.f.s.	0.75 c.f.s.	0.55 c.f.s.
Chit. 2yr-24hr	1.67 c.f.s.	0.90 c.f.s.	0.61 c.f.s.
Chit. 10yr-24hr	2.46 c.f.s.	1.63 c.f.s.	0.86 c.f.s.
Chit. 25yr-24hr	3.26 c.f.s..	2.42 c.f.s..	1.10 c.f.s..
Chit. 100yr-24hr	4.25 c.f.s.	3.41 c.f.s.	1.39 c.f.s.

Note: WQ flows based on calculations to maintain the minimum WQ Volume of 0.2"
Q-Improvement Goal models the site as if half the existing impervious is returned to natural condition.



Plan

Note: Struts for Structural Integrity may be Required on Larger Sizes



Section

SPECIFICATIONS:
- *Concrete Minimum Strength 5000psi @ 28 days*
- *Steel Reinforcement Grade 60*
- *Joints Sealed with Butyl Sealant*
- *Inlet and Outlet Baffles by Others*
- *H-20 Loading Available – Weight 33,400 lb*

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Project

Drawing Title: STORMWATER MANAGEMENT PLAN AND DETAILS

Project No. 8163 Drawn By BEG Date 3/24/15 Scale N.T.S.

Floor(s)

Drawing No. D3

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