

PROJECT NAME:	Country Acres Detention Basin Retrofit	DATE:	12/14/07
ADDRESS/BLOCK & LOT	Union Township Block 17, Lot 4.15 & 4.16 (Basin) – 78 & 80 Country Acres Dr.		
FACILITY TYPE:	Existing Detention Basin	PRIORITY:	5

1. ISSUES AND CONCERNS:

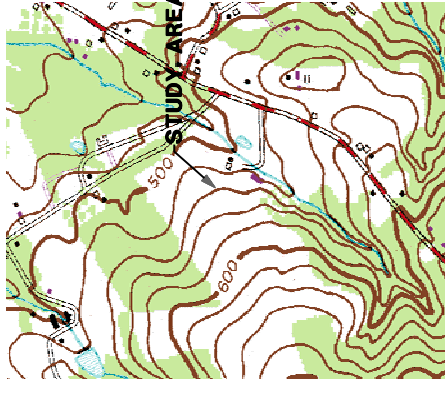
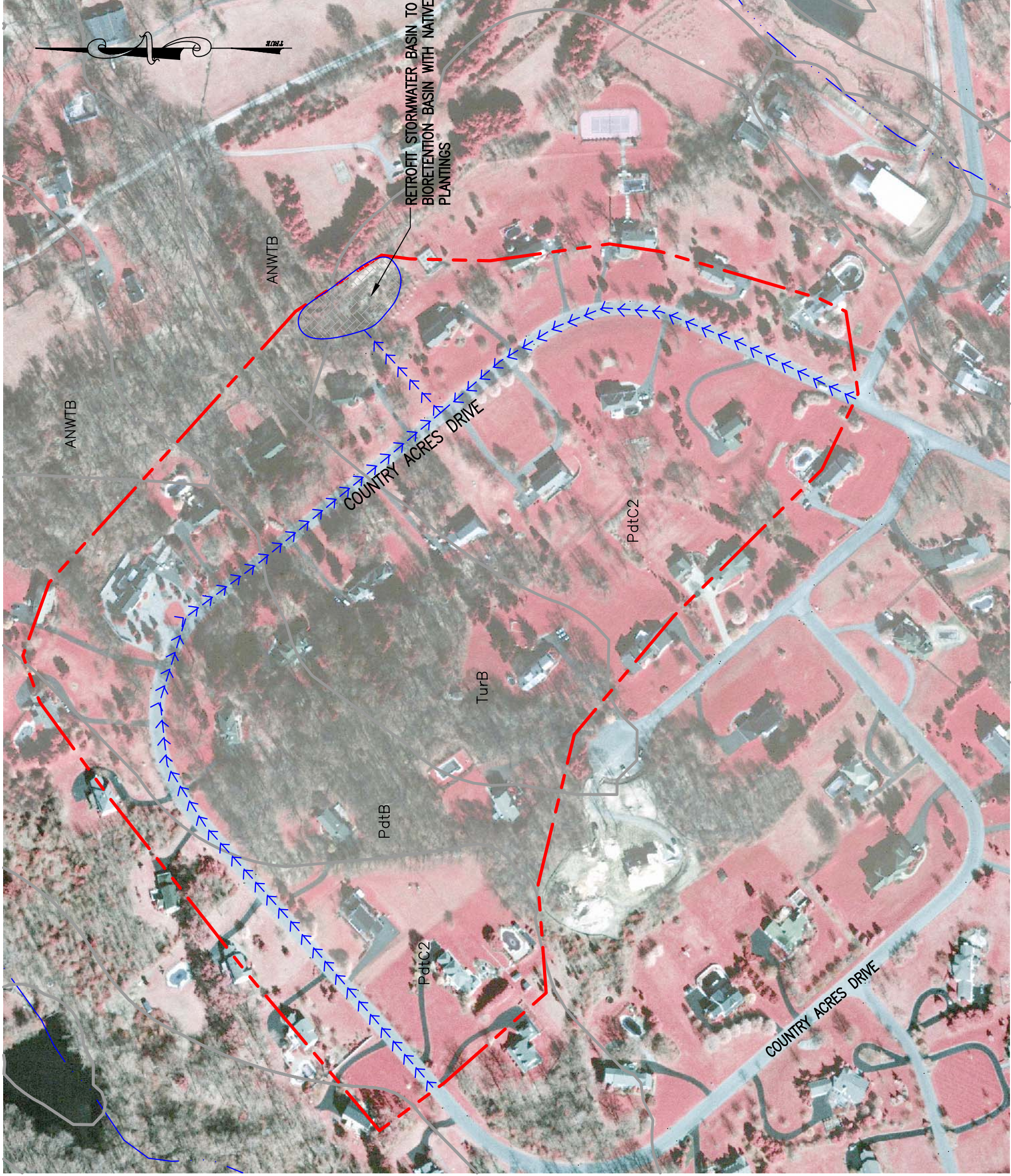
Traditional approaches to stormwater infrastructure design focus on capturing and controlling large stormwater runoff volumes to protect against flooding. These systems are designed to effectively control peak stormwater discharge rates and volumes during the 25-yr, 50-yr, and 100-yr storm events from developed sites. This water quantity design approach has been applied and installed throughout New Jersey for the past 30 years and only just recently have engineers and scientists looked to evaluate the water quality impacts associated with new development and the need for stormwater management systems that can protect streams and waterways from nonpoint source pollution. Based on a preliminary field evaluation to the County Acres development, the existing detention basin has become overgrown with woody vegetation and appears to be silted in, limiting the functional capacity of the outlet structure which is causing significant ponding in the facility. The discharge pipe from the detention basin is in immediate need of stabilization and repair to reduce erosion impacts in the open channel downstream of the development.

2. EXISTING CONDITION BASED ON FIELD EVALUATION:

The existing detention basin in the Country Acres subdivision is located on the north side of the development and is approximately 20,400 square feet in size. The basin is located within a drainage easement on two adjoining residential lots and discharges to a small tributary stream located on an adjacent property. The area draining to the basin is estimated to be 74 acres. The traditional stormwater management detention approach does little to minimize impacts to water quality. Water is collected off the development and conveyed to the stormwater basin. This original design and function does not provide for detaining runoff, filtering pollutants, or allowing for infiltration, during smaller water quality storm events. Stormwater is collected and conveyed via reinforced concrete piping and a curb and gutter system located in the road right-of-way to the detention basin. The basin has not been routinely maintained and the outlet structure appears to be in immediate need of maintenance and possibly repair. In brief discussions with one adjoining neighbor, the basin is approximately 20 years old and was originally vegetated with a grass seed mix. The basin has never been mown or cleared. The outlet was cleaned several years ago, as standing water was becoming a significant concern as well as downstream erosion from the outlet structure.






3. PROPOSED SOLUTIONS:

Several recommended actions have been proposed to upgrade the existing system and improve water “quality” performance of the basin. Actions include removing the sediment accumulated in the basin and installing naturalized plantings to enhance pollutant removal. The recommended BMP modifications would provide pollutant removal from stormwater runoff generated by the residential streets and properties. The BMPs would also reduce runoff volume and increase recharge for the site, specifically targeting reductions and treatment during the smaller more frequent rainfall events. Depending upon seasonal-high water table elevations, either wetland or bioretention components should be considered to target treatment of the water quality design storm (1.25”) runoff volume. The NJ Stormwater BMP Manual has adopted a TSS removal rate of 90% for this BMP system. A more detailed hydrologic and hydraulic analysis would be needed to determine all contributing catchment areas and then assess how much storm water can be treated by the facility without compromising its capacity to meet water quantity requirements during larger storm events.



USGS QUAD LOCATION MAP
(PITTSOWN, NOT TO SCALE)

LEGEND

-  DRAINAGE AREA
-  STREAM
-  SOILS
-  PROPOSED BMP RETROFIT LOCATION
-  RUNOFF FLOW DIRECTION

SOILS:
 ANWTB - Annandale and Gladstone Gravelly Loams, 3-8% Slopes
 PdtB - Pattenburg Gravelly Loam, 2-6% Slopes
 PdtC2 - Pattenburg Gravelly Loam, 6-12% Slopes, eroded



SITE PLAN	
COUNTRY ACRES BMP RETROFIT	
DATE: DECEMBER 14, 2007	BLOCKS 17, LOT 4, 15 & 4, 16 BLOCKS 18, LOT 11 UNION TOWNSHIP HUNTERDON COUNTY, NEW JERSEY
SCALE: 1" = 200'	OMNI ENVIRONMENTAL
SHT. NO. 1 of 1	321 WALL STREET PRINCETON, NJ 08540 PH: (609) 924-8821 FAX: (609) 924-8851

BIORETENTION BASIN AND SWALE SEED MIX

QTY (PLS)	BOTANICAL NAME	COMMON NAME
20 lb/acre	Festuca Rubra	Creeping Red Fescue
10 lb/acre	Agrostis perennans	Autumn Bentgrass
2 lb/acre	Eragrostis trichodes	Sand Lovegrass

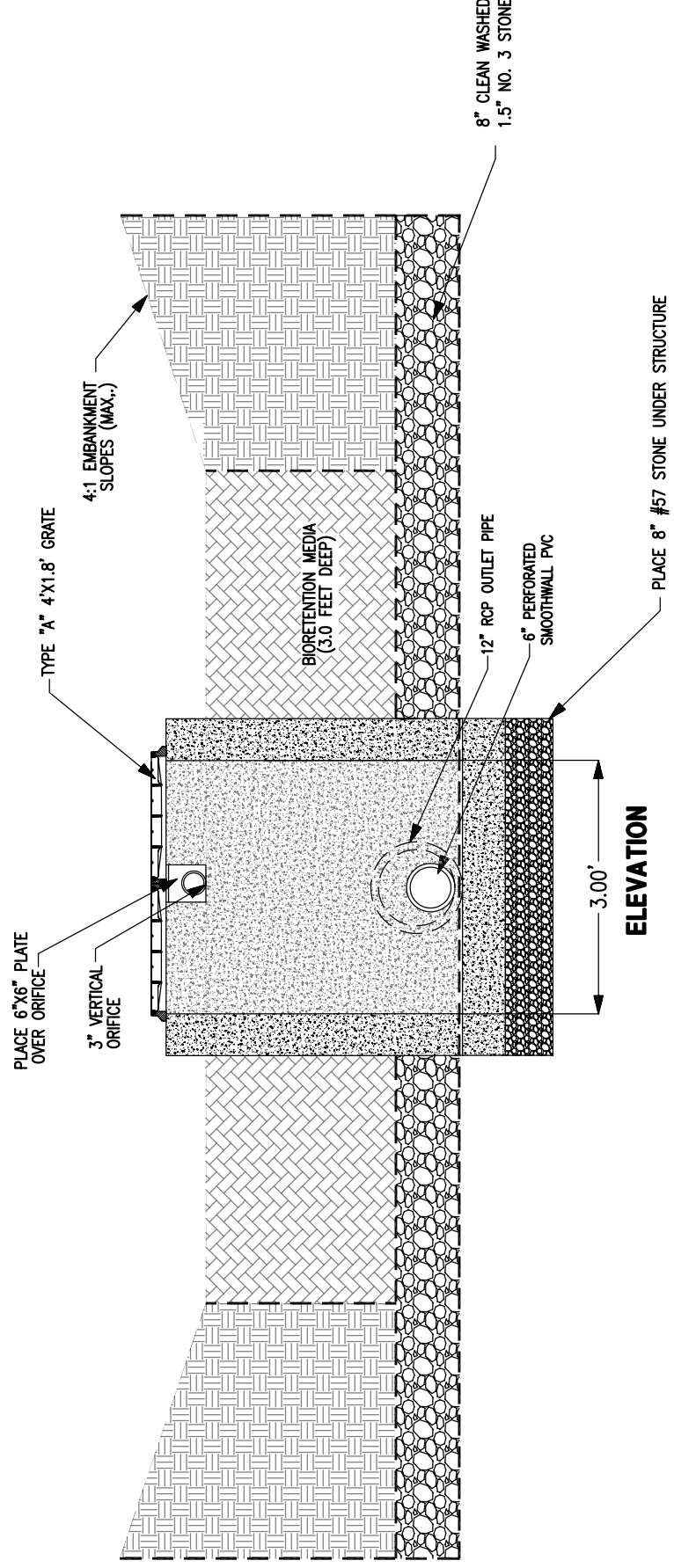
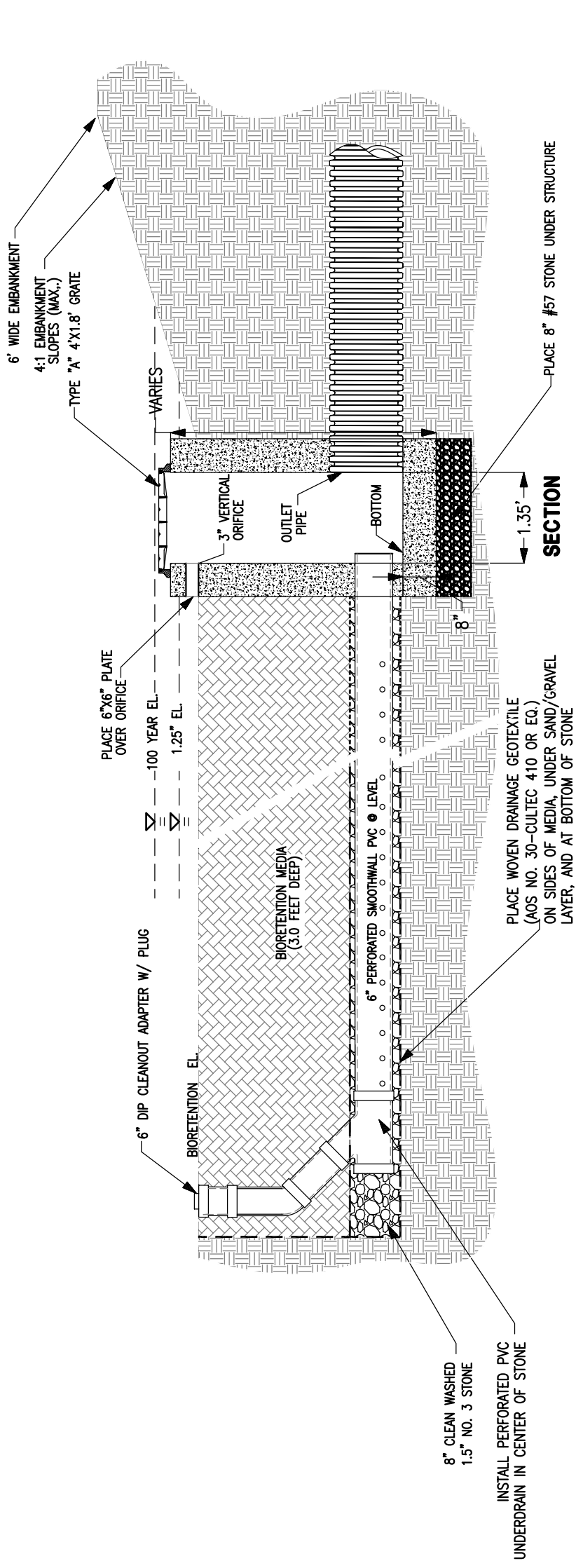
PLANTING NOTES:

- CONTACT VENDORS FOR SEED PRICING AND AVAILABILITY.
- ALL SEEDED AREAS ON SLOPES SHALL BE STABILIZED WITH A BIODEGRADABLE EROSION CONTROL BLANKET SUCH AS LANDLOCK C2, NORTH AMERICAN GREEN S150, OR EQUIVALENT MATERIAL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SEE SEDIMENT AND EROSION CONTROL PLAN FOR LOCATION OF EROSION CONTROL BLANKET.
- TURF MAY BE SUBSTITUTED FOR THE NATIVE SEED MIX, ALTHOUGH THE SWALE SEED MIX IS RECOMMENDED.

**BIORETENTION SEED MIX (TYP.)
N.T.S.**

NOTE: BMP DETAILS ARE GENERIC AND ARE NOT MEANT FOR DETAILED BMP DESIGN.

BIORETENTION BASIN & RAIN GARDEN DETAILS	
MULHOCKAWAY CREEK STORMWATER BMP RETROFITS	
DATE: DECEMBER 14, 2007	
SCALE: NTS	OMNI/ENVIRONMENTAL
SHT. NO. 1 of 1	321 WALL STREET PRINCETON, NJ 08540 PH: (609) 924-8821 FAX: (609) 924-9851



**BIORETENTION BASIN AND RAIN GARDEN DETAILS (TYP.)
N.T.S.**