

F-13-002

F-13-002

## STORMWATER MANAGEMENT NOTES

- 1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER
- MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.

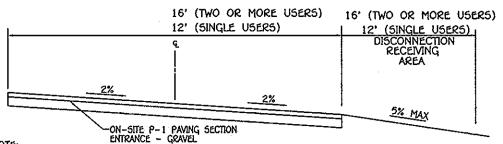
  2. MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 500
- 3. DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5%. THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.

## OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

- a. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- b. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE. C. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY
- d. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A
- SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- . ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

## ESD Narrative:

- 1. There are no existing Wetlands, Wetland Buffers, Streams, Stream Buffers Or 100 Year Floodplains Located On This Site.
- 2. The existing drainage patterns will maintained as closely as possible during and after the development of the site.
- Efforts have been made to reduce the impervious areas; however, when the final house types is selected, it may be possible to reduce the site imperviousness though better
- 4. The required Sediment and Erosion control measures consisting of super silt fence; a stabilized construction entrance and Erosion Control Matting have been designed in accordance with the latest Howard County Soil Conservation District and Maryland Department of the Environment regulations. Based on the type and location of the ESD practices, there was no need to incorporate these measures into the SWM strategy.
- 5. The proposed Environmental Site Design measures have been implemented to the Maximum Extent Possible and meet the targeted Pe for this site. As such, no major structural practices as described in Chapter 3 of the above cited Manual will be required.

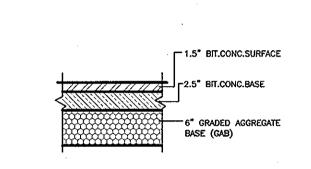


ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.

TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION

#### OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF NONROOFTOP RUNOFF

. MAINTENANCE OF AREAS RECEIVING NO DISCRIPTION RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS.
THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE
COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.



P-1 DRIVEWAY PAVING SECTION

STRUCTURE

---- \* 50' MINIMUM

PROFILE

PLAN VIEW

Stormwater Management Note

driveway as follows:

Declarations of Covenance.

Stormwater Management requirements for

accordance with the Maryland Stormwater

1. Lot 1 will meet stormwater

2. Lot 2 will meet stormwater

this site will be met using Environmental Site Design to the Maximum Extent Possible in

Design Manual, Volumes 1 & II. effective May. 2010. Proposed practices will be located on individual lots and the Use-in-Common

requirements using Drywells (M-5),

Non-Rooftop Disconnection (N-2)

requirements using Drywells (M-5)

and Non-Rooftop Disconnection (N-2)

Micro-Bioretention (M-6) And

These practices shall be privately owned and maintained in accordance with individual

STABILIZED CONSTRUCTION ENTRANCE

STORMWATER MANAGEMENT SUMMARY CHART

TOTAL SITE AREA = DEVELOPMENT AREA = 0.887 ACRES

\*\* GEOTEXTILE CLASS 'C' -

EXISTING GROUND

TARGET RCN = 55

TARGET PE = 1.6"

OR BETTER

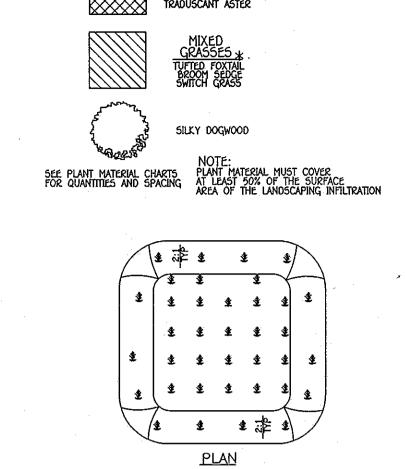
(N.T.S.)

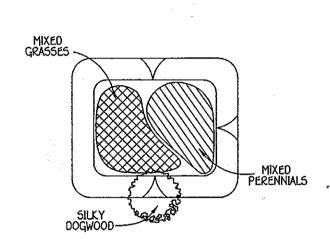
MINIMUM 6" OF 2"-3" AGGREGATE

OVER LENGTH AND WIDTH OF

- MOUNTABLE

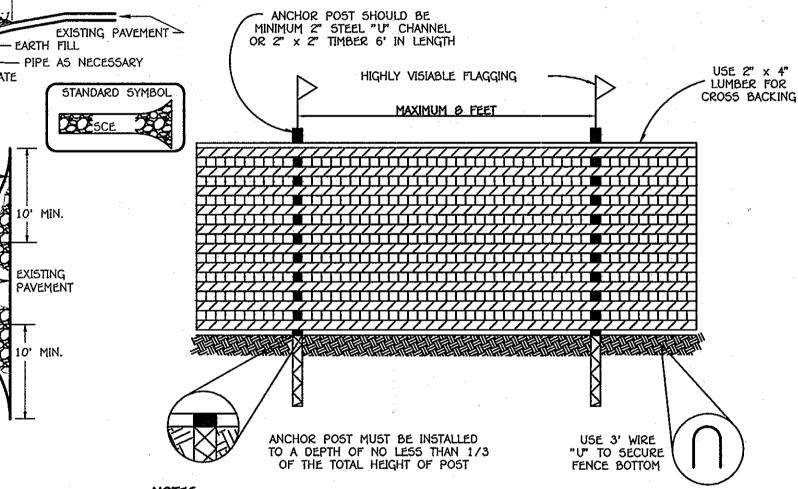
BERM (6" MIN.)





# MICRO-BIORETENTION PLANTING DETAIL

BLAZE ORANGE PLASTIC MESH



## NOTES:

- FOREST PROTECTION DEVICE ONLY. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE. ROOT DAMAGE SHOULD BE AVOIDED.
- PROTECTIVE SIGNAGE MAY ALSO BE USED. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

# TREE PROTECTION DETAIL

SWM SUMMARY CHART					
AREA ID	ESDV REQ. cu.ft.	ESDV Pvd. cu.ft.	REMARKS		
LOT 1	WILL BE ADDRESSED ON 5DP USING ACTUAL HOUSE SIZES	475	DRY WELLS (M-5) & MICRO-BIORETENTION (M-6) &		
LOT 2	,,	518	DRY WELLS (M-5)		
ALL DRIVEWAYS	WILL BE ADDRESSED ON SDP USING ACTUAL PAVED AREAS	317	NON-ROOFTOP DISCONNECTION (N-2)		
TOTAL5	1370	1310*			

\*(260+215+518+317)

CALCULATE THE PE PROVIDED AS FOLLOWS: Pe Provided =  $E50V \times 12 = 1310 \times 12 = 12720 = 66,630.41/43.560 = 1.53"/1.6"=0.96%$ Rv X A 0.266x0.89 0.2359

Through The Application Of Approved Chapter 5 Practices, Runoff Characteristics Of "Woods In Good Condition" RCN Of 55 For This Environmental Concept Plan Have Been Met Through The Application Of Environmental Site Design (ESD) To The Maximum Extent Practicable (MEP). Once The Final House Types And Grading Have Been Determined At The Site Development Plan Stage Of This Project, The Design Can Be Refined To Meet 100% Of The Pe Requirement.





## OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

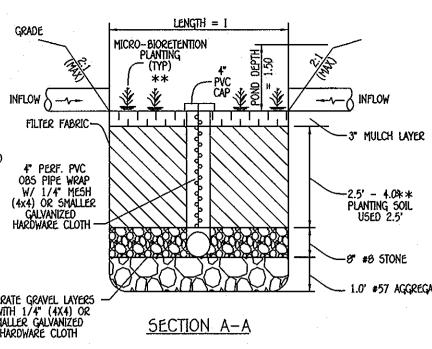
A. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING, PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING:

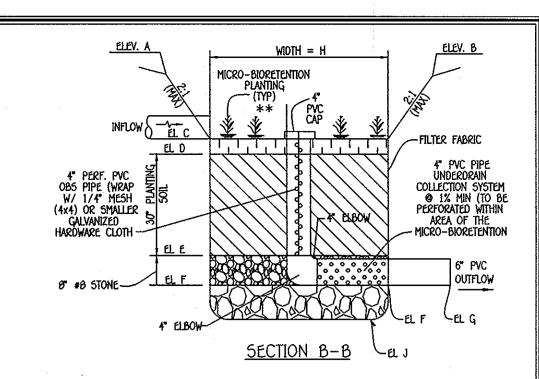
2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2. 8. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS AND REPLACE ALL DEFICIENT STAKES AND WIRES. C. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER

D. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

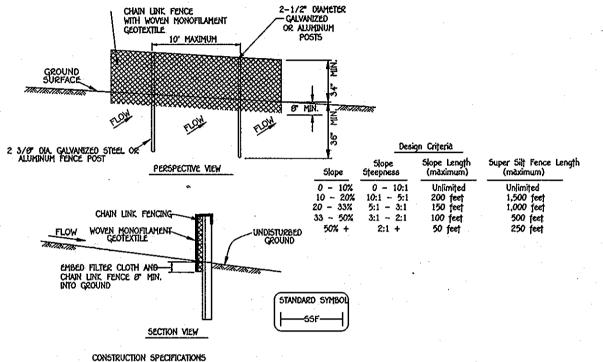
MICRO-BIORETENTION

594.00 594.00 593.00 592.75 590.25 589.58 589.00 10' 22' 588.58





# MICRO-BIORETENTION DETAIL (M-6)



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2 3/8" DIAMETER GALVANIZED STEEL OR ALUMINUM POSTS SIX FEET IN LENGTH, PLACED NO FURTHER THAN 10 FEET APART. DRIVE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.

2. FASTEN MINIMUM 9 GAUGE CHAIN LINK FENCE (2 3/8" MAX. DIAMOND) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR STAPLES.

3. FASTEN WOVEN MONOFILAMENT GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE CHAIN LINK WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.

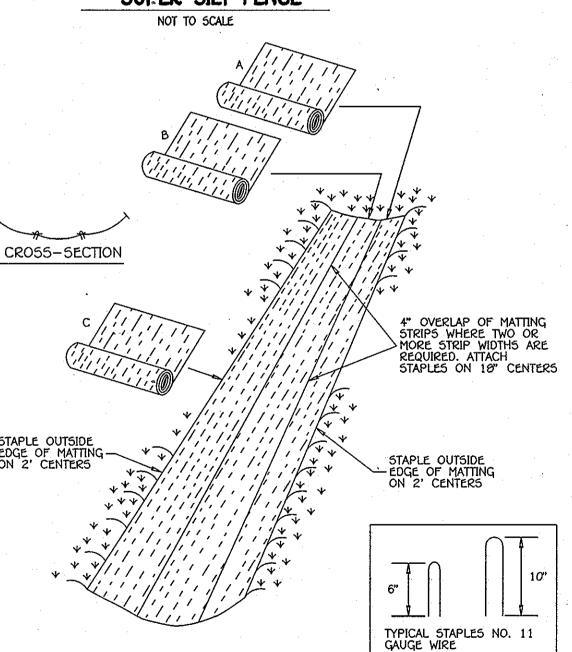
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.

5. REMOVE ACCUMULATED SEDIMENTS WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SEDIMENTS REACH 25% OF THE FENCE HEIGHT.

6. EXTEND BOTH ENDS OF THE SUPER—SILT FENCE A MINIMUM OF 5 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER—SILT T. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS SET FORTH IN THE MATERIALS SPECIFICATION.

8. INSPECT AND PROVIDE NECESSARY MAINTENANCE PERIODICALLY AND AFTER EACH RAIN EVENT.

# SUPER SILT FENCE



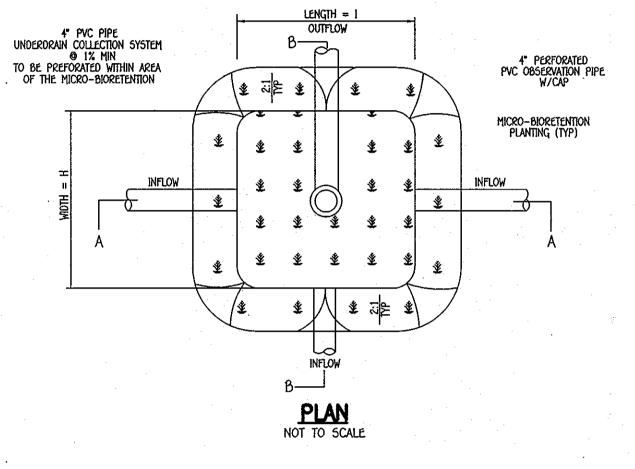
CONSTRUCTION SPECIFICATIONS 1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES. ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6". 2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING

- BETWEEN STAPLES. 3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
- 4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER. 5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
- SECURED WITH 2 DOUBLE ROWS OF STAPLES. NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA

EFFECTED BY THE FLOW MUST BE KEYED-IN. EROSION CONTROL MATTING

NOT TO SCALE

6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY



	.,			
MICRO-BIORETENTION PLANT MATERIAL				
QUANTITY	NAME	MAXIMUM SPACING (FT.)		
45	MIXED PERENNIALS	1 FT.		
45	MIXED GRASSES	1 FT.		
1	SILKY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION		

SUPPLEMENTAL PLAN LANDSCAPE, TOPOGRAPHY, SOILS AND STORMWATER MANAGEMENT

# TROTTER CIRCLE

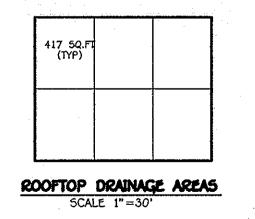
LOTS 1 & 2 5857 TROTTER ROAD, CLARKSVILLE, MD 21029

> TAX MAP No. 35 GRID No. 2 PARCEL No. 220 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND Zoned: R-20 SCALE: NONE DATE: SEPTEMBER 7, 2012 SHEET 2 OF 2

F-13-00

F-13-002

APPROVED: DEPARTMENT OF PLANNING AND ZONING



FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

ial square office park — 10272 baltimore national pike

OWNER AND DEVELOPER 1819 PANARAMA COURT

McLEAN, VIRGINIA 22101

PHONE # 703-442-3278