

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be dete Soil Amendments (Fertilizer and Lime Specifications) 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites leaving disturbed areas of 5 acres or more. Soil analysis may be performed by

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydrosceding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve. 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by

Where the subsoil is either highly scidic or composed of heavy clays, spread ground limestone at trate of 4 to 8 tons/scre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

Scope: Planting permanent, long lived vegetative cover on graded and/or cleared areas and areas that have been in temporary vegetation for more than 6 months.

Standards: The following notes shall conform to Section B-4 of the "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" published jointly by the Maryland Department of Environment - Water Management Administration, the National Fesource Conservation Service and the Maryland Association of

The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See section B-4-2.

For sites over 5 ac. soil tests will be performed. Soil tests will be conducted by the University of Maryland or a recognized commercial laboratory. Minimum soil conditions shall meet the requirements of section B-4-2-A-2-a, otherwise soil amendments or topsoil will need to be applied. Topsoiling may occur when soil conditions meet the minimum requirements as stated in section B-4-2-B. Soil amendments must meet the requirements as set forth in section B-4-2-C and must be applied as indicated by the soils tests.

For sites of 5 ac. or less of disturbance, the following fertilizer and hime rates shall apply. Fertilizer shall consist of a mixture of 10-20-20 and be applied at the following rates: N=45 lb. per acre (1 lb. per 1000 sq.ft.) P20s=90 lb. per acre (2 lb. per 1000 sq.ft.) K20 = 90 lb. per acre (2 lb. per 1000 sq.ft.) Lime shall be applied at a rate of 2 tons per acre (90 lb. per 1000 sq.ft.)

Seed type, turfgrass or sod application shall meet the requirements in section B-4-5. Seed tags shall be made available to the inspector to verify the type and application rate of seed used.

Mulch type and its application will meet the requirements in section B-4-3 a, b and c, and will be applied along with seed or immediately after seeding

Seeding mixtures shall be selected from or will be equal to those on Table B-3. The seeding chart below will need to be placed on and filled in on the sediment control plan

	Hardiness Zar Seed Mixture	Fertilizer Rate (10-20-20)			Lime Rate			
No.	Species	Application Flate (lb/ac)	Seeding Dates	Seeding Depths	N	P20s	K20	Entro Page
7	Creeping Red Fescue (Fescue Rubar Var. Rubar)	60	3/1-5/15	1/4-1/2 in	451bs/ac	90]bə/ac	901bs/ac	2 tane/ac (90 lb/1000 ef)
	Kentucky Bluegrass (poa Pratensis	15	8/1-10/15	1/4-1/2 in	(9e 0000)	(9 <u>0</u> 0, 94)	1000 sf)	(90 lb/1000 sf)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

A minimum of 48 hours notice must be given to the Howard County Department of inspections. Licenses and Permits. Sediment Control Division prior to the start of any construction, (313-1855).

All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.

Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1. b) 7 days as to all other disturbed or graded areas on the project site.

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL permanent seeding (Section B-4-5), temporary seeding (Section B-4-4), and mulching (Section B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates

do not allow for proper germination and establishment of grasses.

5. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control inspector.

6. Site Analysis: Total Area of Site 0.49 Acres Area Disturbed 0.42 Acres Area to be roofed or paved 0.12 Acres Area to be vegetatively stabilized 0.30 Acres 500 Cu. Ydø. Total Cut

Offsite waste area location N/A 7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance. Additional sediment control must be provided, if deemed necessary by the Howard

County Sediment Control Inspector. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter crosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial

approval by the inepection agency is made.

Trenches for the construction of utilities is limited to three pipe lengths or that which can be back-filled and stabilized by the end of each workday, whichever is shorter.

Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceeding grading unit has been stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time.

TEMPORARY SEEDING NOTES

Scope: Planting short term (no more than 6 Months) vegetation to temporarily stabilize any areas where soil disturbance has occurred, until the area can be permanently stabilized with vegetative

Standards: The following notes shall comform to Section B-4 of the "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SHDIMENT CONTROL" ublished jointly by the Maryland Department of Environment - Water Management administration, the National Resource Conservation Service and the Maryland Association of

The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See section B-4-2

For temporary stabilization, fertilizer shall consist of a mixture of 10-20-20 and be applied at a rate of 436 lb. per acre (10 lb. per 1000 sq. ft.) and will meet the requirements in section B-4-2. Lime shall be applied at a rate of 2 tons per acre (90 lb. per sq. ft.) and shall meet the uirements in section B-4-2 and B-4-4

Seed type and application shall meet the requirements in section B-4-3 Seed tags shall be made available to the inspector to verify the type and rate of seed used. Mulch type and its application will meet the requirements in section B-4-3 a, b and c and will be applied along with the seed or immediately after seeding

ceding mixtures shall be selected from or will be equal to those on Table B.1 (page B.20). Temporary Seeding Summary

The seeding chart below will need to be placed on and filled in on the sediment control plan

DETAIL E-1 SILT FENCE

ELEVATION

JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

USE WOOD POSTS 1% X 1%  $\pm$  % Inch (Minimum) square cut of sound quality hardwood, as an alternative to wooden post use standard "1" or "U" section steel posts weighing no less than 1 pound per likear foot.

. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.

EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

2011

HIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT

CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.

CONSTRUCTION SPECIFICATIONS

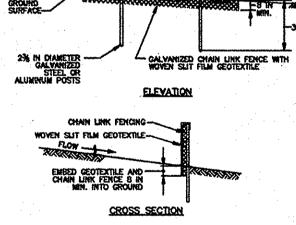
Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B.1): Fertilizer (10-20-20) Species 436 lb/ac 2 tons/ac (10 lb/1000 sf) (90 lb/1000 sf) 0.5"

36 IN MIN. FENCE POST LENGTH DROVEN MIN. 16 IN INTO GROUND

8 IN MIN. DEPTI

TIS IN MIN. HEIGHT OF WOVEN SUT FILM GEOTEXTILE

SHRUB-PLANTING DETAIL NOT TO SCALE DETAIL E-3 SUPER SILT FENCE |----SSF-----|



CONSTRUCTION SPECIFICATIONS INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTIMER THAN 10 FEET APART, DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROWNO. FASTEN 9 GAUGE OR HEAVER GALYANIZED CHAIN LINK FENCE (2% INCH MAJONUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.

WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDMENT BY PASS. S. EXTEND BOTH ENDS OF THE SUPER SELT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE AUGMNENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SELT FENCE.

. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. REMOVE ACCUMULATED SEDMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDMENT REACHES 25% OF FENCE HEIGHT, REPLACE GEOTEXTRE IF TORM, IF UNDERWINING OCCURS, REINSTALL CHAIN LIRK FENCING AND GEOTEXTRE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF ACROCULTURE 2011 MARTLAND DEPARTMENT OF ENVIRONMENT MATER MANAGEMENT ADMINISTRATION

ENGINEER'S CERTIFICATE

REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL B

ERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT

ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT OF

PPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC

DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A

THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

1/20/15

CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL

permeter #2 SYMBOL QNTY COMMON NAME | BOTANICAL NAME \* 185 LF

-

PERIMETER #1

 $\wedge$ 

105 LF

yes (1)

NO

-

-

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\*\*\*\*\*\*

HOSE OVER WIRE

- WIRE GUY

3" MULCH

DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

3" SOIL WELL

50008.00.0000000000

THIN 1/3 OF INITIAL BRANCHING.

- REMOVE COVERING FROM TOP

FIRST LATERAL ROOT FLUSH

- FINISMED GRADE

PLANTING SOIL

RETAINING NATURAL FORM

- STAKES (3 REQUIRED)

WITH FINISHED GRADE

Landscape Type

Linear Feet of <del>Readwa</del>y

(Yes, No. Linear Feet)

(Yes, No, Linear Feet)

Credit for Existing Vegetation

Credit for Wall, Fence or Berm

Number of Plants Required (1:604)

Other Trees (2:1 substitution)

(1) OPEDIT FOR 4 EXISTING TREES

Shrubs (10:1 substitution)

(Describe plant substitution credits

(Describe below if needed)

(Describe below if needed)

Shade Trees

Number of Plants Provided

Shade Trees

**Evergreen Trees** 

Shrubs

below if needed)

Evergreen Trees

Frontage/Perimeter

TOP OF FENCE LPROP GRADEP BOPT - Wall base X. GROUND rsa-lok standard unit RETAININ

RED DAK

Q'WIDE GRAVEL TRANSITION STRIP AT DRIVEWAY EDGE

PROVIDE 36"MIN, HEIGHT FENCE AT TOP DEMALL

LANDSCAPE SCHEDULE

QUERCUS RUBRIA

FENCE COLOR TO BE COMPATIBLE WITH BUILDING EXTERIOR --- A"X4"MAX A PERIMETER FENCE PRETAINING WALL

SIZE

2" - 2-1/2" Caliper

REMARKS

B & B

**NETAINING WALL NOTES (A)** 

DETAIL B-1 STABILIZED CONSTRUCTION

Mili.

PROFILE

PLAN VIEW

PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE, USE MINIMUM LENGTH OF 50 FEET (\*30 FEET FOR SINGLE RESIDENCE LOT), USE MINIMUM WOTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE DISTING ROAD TO PROVIDE A TURNING RADIUS.

PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTARRING POSITIVE DRAWAGE, PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5.1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE, PROVIDE PIPE SPECIFIED ON APPROVED PIPE SPECIFIED ON APPROVED PIPE IS SCENED AT A MICH SPOT AND HAS NO DRAW TO CONVEY, A PIPE IS NOT NECESSARY, A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT

PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

AS, DEPARTMENT OF AGRICULTURE 2011 MARTMAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**ENTRANCE** 

Retaining walls shall only be constructed under the observation of a Registered Professional Engineer and (NICET, WACEL or equivalent) certified soils technician. The required bearing pressure beneath the footing of the wall shall be verified in the field by a certified soils technician. Testing documentation shall be provided to the Howard County Inspector prior to the start of construction. The required test procedure shall be the Dynamic Cone Penetrometer Test ASTM STP-39

3. The suitability of fill material shall be confineed by the opeite soils technician. Each eight (8)inch lift shall be compacted to a minimum of 95% Standard Frocter Density and the testing report shall be make available to the Howard County Inspector upon completion of construction.

4. For "CRITICAL" walls, one soil boring shall be required every 100' along the entire length of the wall. Copies of all boring reports shall be provided to the Howard Co Inty Inspector prior to the start of 5. The retaining wall shown on this plan is a maximum of 3'-0" or less in height. If during construction the retaining wall exceeds the 3'-0" maximum height measured from finished grade at the front of the

wall, the wall shall require structural design by a Registered Professional Engineer. minimum height fence along the top of the retaining wall is required for the retaining

ELSCE!

-PIPE (SEE NOTE 6)

VERSA-LOK CONCRET VERSA-LOK ACCENT MODULAR CONCRETE UNITS-DRAINAGE AGGREGATE THICK MIN. OUTLET @ END OF WA GRANULAR L SECTION-UNREINFORCED RETAINING WALT

3 TO <5 5 TO <7 2 7 3 TO <5 5 TO <7 2 CALIFORNIA BEARING RATIO (CBR) ROAD AND STREE CLASSIFICATION HMA WITH CONSTANT GA MEN HIMA WITH GAS PAVENENT MATERIAL (INCHES) RESIDENTIAL AND MON-RESIDENTIAL
WRIGHTO DRIVE ASSLES;
RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE
THAN 2. HEAVY TRUCKS PER DAY HIMA SUPERPAVE INTERMEDIATE SURFACE (NA) HMA SUPERPAVE BASE 19.0 kW, PG 64-22, LEVEL 1 (ESAL) PAVING SECTION \* **Bepartment of Public Works** 

SEQUENCE OF CONSTRUCTION

Obtain grading permit. 2. Notify the Howard County Department of Public Works/ Construction of work

The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done. Install stabilized construction entrance and super silt fence in accordance with the approved grading and sediment control plan.

1 Day Clear and grub the individual trees shown to be removed on the approved grading plan. Rough grade for proposed driveway and house. 7. Install private water and sewer house connections.

Note: The disturbed areas of the site shall be stabilized at the end of each work day in accordance with the temporary seeding notes on this sheet.

Install surface paving for new private driveway. With the permission of the sediment control inspector, stabilize any remaining disturbed areas in accordance with the permanent

With the permission of the Sediment Control Inspector, construct Rain gardens. Upon Completion of Rain garden construction, stabilize any remaining disturbed areas in accordance with permanent seeding notes on this sheet.

Date

4/16/15

R-2.01P-1 1 Day

1 Day

I Day 1 Day Obtain permission from the sediment control inspector to proceed.

3 Days 3 Days

4 Days 8. Fine grade house pad and driveway. Install driveway base 3-1/2 Months 9. Construct house 10. Immediately stabilize all remaining disturbed areas in accordance with the permanent seeding notes on this sheet. 1 Day With the permission of the sediment control inspector, remove the 1 Day remaining super silt fence and stabilized construction entrance. 1 Day

seeding notes on this sheet.

6 Months TOTAL ESTIMATED CONSTRUCTION TIME:

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO: 19184. EXPIRATION DATE: 6/30/15."

BRUCE

REVISIONS	
Description	
OVE RETAINING WALL, FENCE NOTES AND DETAILS	

NOTES

This plan has been prepared in accordance with the provisions of Section 16.124 of the Howard County Code and Landscape Manual. 2. The Owner/Developer is responsible for the planting of all plant material required to meet the standards established by the Howard County Landscape Manual.

3. The Landscape surety of \$ 900,00 will be posted with the Grading Permit for 4. Should any tree designated for preservation for which landscaping credit is given, die prior to release of bonds, the owner will be required to replace the tree with the equivalent species or with a tree which will obtain the same height, spread and growth characteristics. The replacement tree must be a minimum of 3 inches in caliber and installed as required in the Howard County Landscape Manual.

5. The owner, tenant and/or their agents shall be responsible for maintenance of the required landscaping, including both plant materials and berms, fences and walls. All plant material shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently

maintained in good condition and when necessary repaired and replaced. 6. At the time of installment, all shrubs and other plantings herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscaping Manual. In addition, no substitutions or relocation of required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from this approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revision made to applicable plans and certificates.

TREE PLANTING NOTES

1. Notify "Miss Utility" 72 hours prior to installation of all plant material. 2. Plant installation must conform to the minimum standards cited in the latest edition of Landscape Specification Guidelines, published by the Landscape Contractors Association.

3. Plants to be located in the field by the owner or owner's representative. Notify owner 72 hours in advance of planting. 4. A Certification of Landscape Installation is required as per the Howard County Landscape Ordinance.

5. The number, size, location of plants shall not be changed without the approval of the Landscape Architect. Substitutions must be included in the recommended plant list in the Howard County Landscape Ordinance.

6. Trees may not be planted within 5 feet of drain inlets, 5 feet of an open space access strip and 10 feet of a driveway.

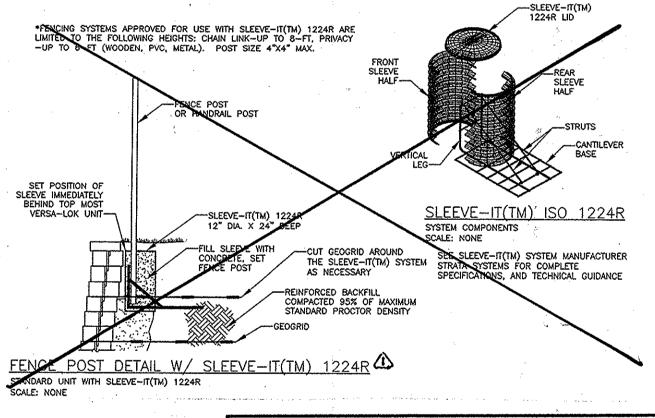
7. Balled and burlapped plant material shall not be accepted if ball is cracked or broken before or during planting. Protect all plants from drying by either sun of wind.

8. Tree pits shall be backfilled with 50% topsoil, 25% peat 25% sand with one pound of 10-10-10 fertilizer

. Top soil shall be sandy loam soil free from noxious weeds or grasses, roots, clay clumps, stones, sticks, etc. Peat moss shall be commercial with ph 4.5 to 5.5, free of woody material or harmful minerals. 10. All plants shall be watered at planting with weekly watering thereafter for the first 80 days. Watering shall continue bimonthly or as necessary to maintain plants in a healthy condition during the guarantee period.

Maintain the site in an orderly manner. Streets and sidewalks shall be swept clean. All rejected or dead materials shall be immediately removed from the

12. Plant material to be alive and healthy at the time of the guarantee period (one year), as specified in the Howard County Landscape Ordinance. 13. Maintenance shall begin immediately after planting and continue to the end of guaranteed period. 14. Maintenance consists of pruning, watering weeding, re-mulching, resetting plants to proper grades as needed and repairing guys and stakes as needed.



DEVELOPER'S / BUILDER'S CERTIFICATION CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE LANDSCAPE MANUAL. I FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF NOTICE, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, AND A COPY OF THIS PLAN WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

David N. Elliott II Property PLAT #22556 6th LDE Inc.

SIGNATURE OF DEVELOPER / BUILDER

Engineers • Surveyors • Planners Historic Carriage House + 7520 Main Street + Suite 203 + Sykesville, Maryland + 21784 (410)795-6391 + (410)795-6392 + FAX(410)795-9540 + www.Landsurvevormd.com CONSTRUCTION, SEDIMENT CONTROL & LANDSCAPING NOTES & DETAILS

AS NOTED B.D.B. David N. Elliott II Property RAWING Lot 2 L.D.E. 3 of 4 Plat No. 22556 JOB NO. CHECKED Tax Map 36 Grid 19 Parcel 56 6th Election District - Howard County, Maryland 13-002 Previous Submittals: F04-138, WP05-073, F14-027, WP14-125 Thomas E. & Eva May B. Smith OWNER/DEVELOPER 8221 Lexington Drive 12/2014 SDP 14-023 Severn, Maryland 21144-2714 443-213-0927

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the microbioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or

maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson

grass, or other noxious weeds as specified under COMAR 15.08.01.05. The planting soil shall be tested and shall meet the following criteria:

- Soil Component Loamy Sand or Sandy Loam (USDA Soil Textural Classification) • Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- · Clay Content Media shall have a clay content of less than 5%. • pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are

excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design Compaction can be alleviated at the base of the bioretention facility by using a primary tilling

operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the

engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment. Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are

not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance. Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

## 6. Underdrains

4. Plant Material

- Underdrains should meet the following criteria:
- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g.,
- Perforations If perforated pipe is used, perforations should be '4" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/2" (No. 4 or 4x4) galvanized Gravel – The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the
- The main collector pipe shall be at a minimum 0.5% slope.
- A rigid, non-perforated observation well must be provided (one per every 1,0000 square feet) to
  provide a clean-out port and monitor performance of the filter. A 4" layer of pea gravel ("" to "" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet 7. Miscellaneous

These practices may not be constructed until all contributing drainage area has been stabilized

B.4.B Specifications for Permeable Pavements & Reinforced Turi

These specifications include information on acceptable materials for typical applications and are not exclusive or limiting. The designer is responsible for developing detailed specifications for

Pervious Concrete Specifications

Design Thickness - Pervious concrete applications shall be designed so that the thickness of the concrete slab shall support the traffic and vehicle types that will be carried. Applications may be designed using either standard pavement procedures (e.g., AASHTO, ACI 325.9R, ACI 330R) or using structural values derived from flexible pavement design procedures.

Mix & Installation - Traditional Portland cements (ASTM C 150, C 1157) may be used in pervious concrete applications. Phosphorus admixtures may also be used. Materials should be tested (e.g., trial batching) prior to construction so that critical properties (e.g., settling time, rate of strength development, porosity, permeability) can be determined

Aggregate – Pervious concrete contains a limited fine aggregate content. Commonly used gradations include ASTM C 33 No. 67 (% in. to No. 4), No. 8 (% in. to No. 16) and No. 89 (% in. to No. 50) sieves. Single-sized aggregate (up to 1 inch) may also be used.

Water Content - Water-to-cement ratios between 0.27 and 0.30 are used routinely with proper inclusion of chemical admixtures. Water quality should meet ACI 30a. As a general rule, potable water should be used although recycled concrete production water meeting ASTM C 94

Admixtures - Chemical admixtures (e.g., retarders or hydration-stabilizers) are used to obtain special properties in pervious concrete. Use of admixtures should meet ASTM C 494 (chemical admixtures) and ASTM C 260 (air entraining admixtures) and closely follow manufacturer's

Base Course - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

Permeable Interlocking Concrete Pavements (PICP)

Paver Blocks - Blocks should be either 31/2 in. or 4 in. thick, and meet ASTM C 936 or CSA A231.2 requirements. Applications should have 20% or more (40% preferred) of the surface area open. Installation should follow manufacturer's instructions, except that infill and base course materials and dimensions specified in this Appendix shall be followed.

Infill Materials and Leveling Course - Openings shall be filled with ASTM C-33 graded sand or sandy loam. PICP blocks shall be placed on a one-inch thick leveling course of ASTM C-33

Base Course - The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30).

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION &

hand dieglin PLANNING DIRECTOR

IOPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)]

a. The Owner shall periodically sweep (or vacuum porous concrete pavement) the pavement surfaces to reduce sediment accumulation and ensure continued surface porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Washing or compressed air units should not be used

to perform surface cleaning. The Owner shall periodically clean drainage pipes, inlets, stone edge drains and

DISCONHECTION

RAIN GARDEN #

ROOF PLAN

9CALE: 1"= 301

NO. BOTTOM DIM.\* SURFACE AREA

95 SF

185 SF

ENGINEER'S CERTIFICATE

CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD

16' X 22'

14' X 25'

28' X 28'

658 SF (M.

DISCONNECTION

(N-1) 255 SF

other structures within or draining to the subba The Owner shall use deicers in moderation. Deicers should be non-toxic and be applied either as calcium magnésium acetate or as pretreated salt.

d. The Owner shall ensure snow plowing is performed carefully with blades set oneinch above the surface. Plowed snow piles and snowmelt should not be directed to permeable pavement.

## IOPERATION AND MAINTENANCE SCHEDULE FOR EANDSCAPE INFILTRATION (M-8) MICRO-DIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8),

- 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.
- 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
- 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
- d. The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

## [OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), PROPERTY OF NON-ROOFFOR RUNOFF (N-2

Maintenance of areas receiving disconnected runoff is generally no different than that required for other lawn or landscaped areas. The Owner shall ensure the areas receiving runoff are protected from future compaction or development of impervious area. In commercial areas, foot traffic should be discouraged as well.

**SECTION VIEW A-1** 

NOT TO SCALE SEE PLAN FOR ALL ORMENSIONS

3% Stope --->

**PLAN VIEW** 

NOT TO SCALE SEE PLAN FOR ALL ODJENSIONS

LAYOUT OPTION 1

Proposed Poiling/ Hardscooling Cross—Stoped to Crowel Trench

LAYOUT OPTION 2

Proposed Poring/ Hordscoping Cross-Sloped to Grown Trench

Optional Gross-Strip Buller (2 foot min.)

PROP. GRAVEL TRENCH

GRAVEL TRANSITION STRIP

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMEN

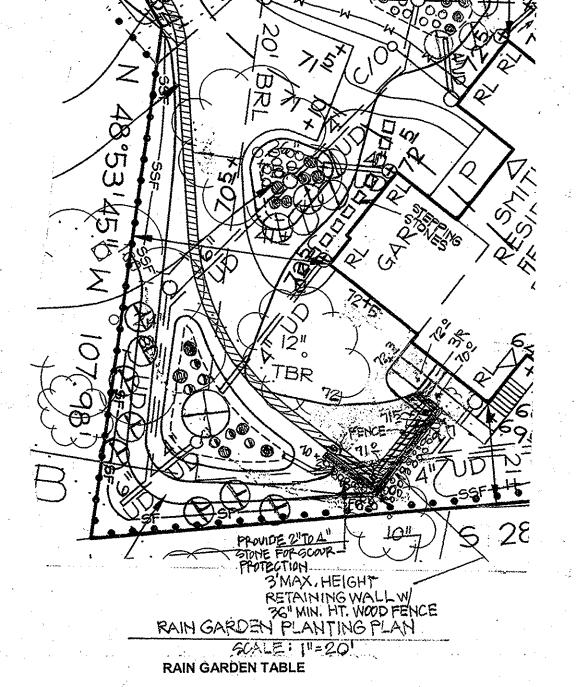
CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

A-1 PROP. GRAVEL TRENCH

Length Vories

- Trench Kitch Vortes - ----

	•	•			
			,		
Table B:4.1 Materials Spe	cifications for <del>Micro Bloret</del>	ention, Rain Gardens &	e Landscape Infiltration		
Material	Specification	Size	Notes		
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific		
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%		
	or sandy loam (30%), coarse sand (30%) & compost (40%)				
Organic content	Min. 10% by dry weight (ASTM D 2974)				
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips		
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")			
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"			
Geotextile		n/a	PE Type 1 nonwoven		
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")			
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4-in galvanized hardware cloth		
Poured in place concrete (if required)	MSHA Mix No. 3; f. = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required:  28 day strength and slump test; all concrete design (cast-in-p or pre-cast) not using previously approved State or local standards requires design drawings scaled and approved by professional structural engineer licensed in the State of Mary - design to include meeting ACI Code 350.R/89; vertical load [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking		
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand		



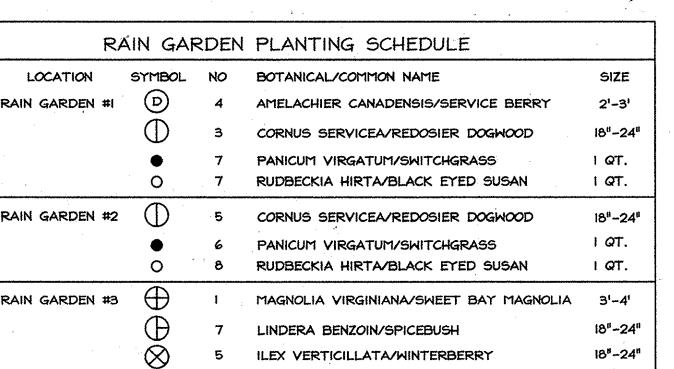
BOTTOM

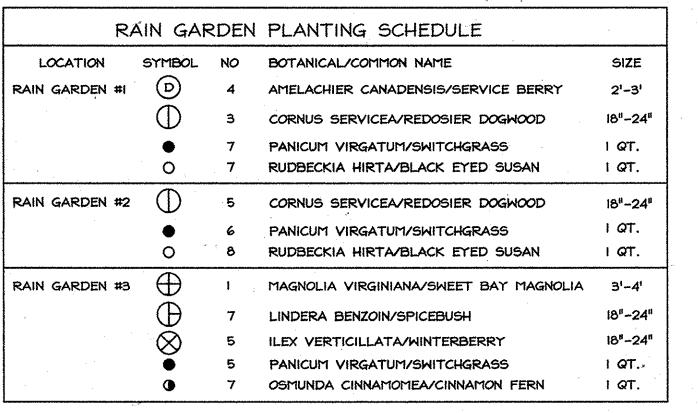
SUBGRADE EL

367.92

366.42

\* BOTTOM OF RAIN GARDENS ARE IRREGULARLY SHAPED TO CONFORM TO GRADED CONTOURS.





TOP MULCH EL. PONDING EL.

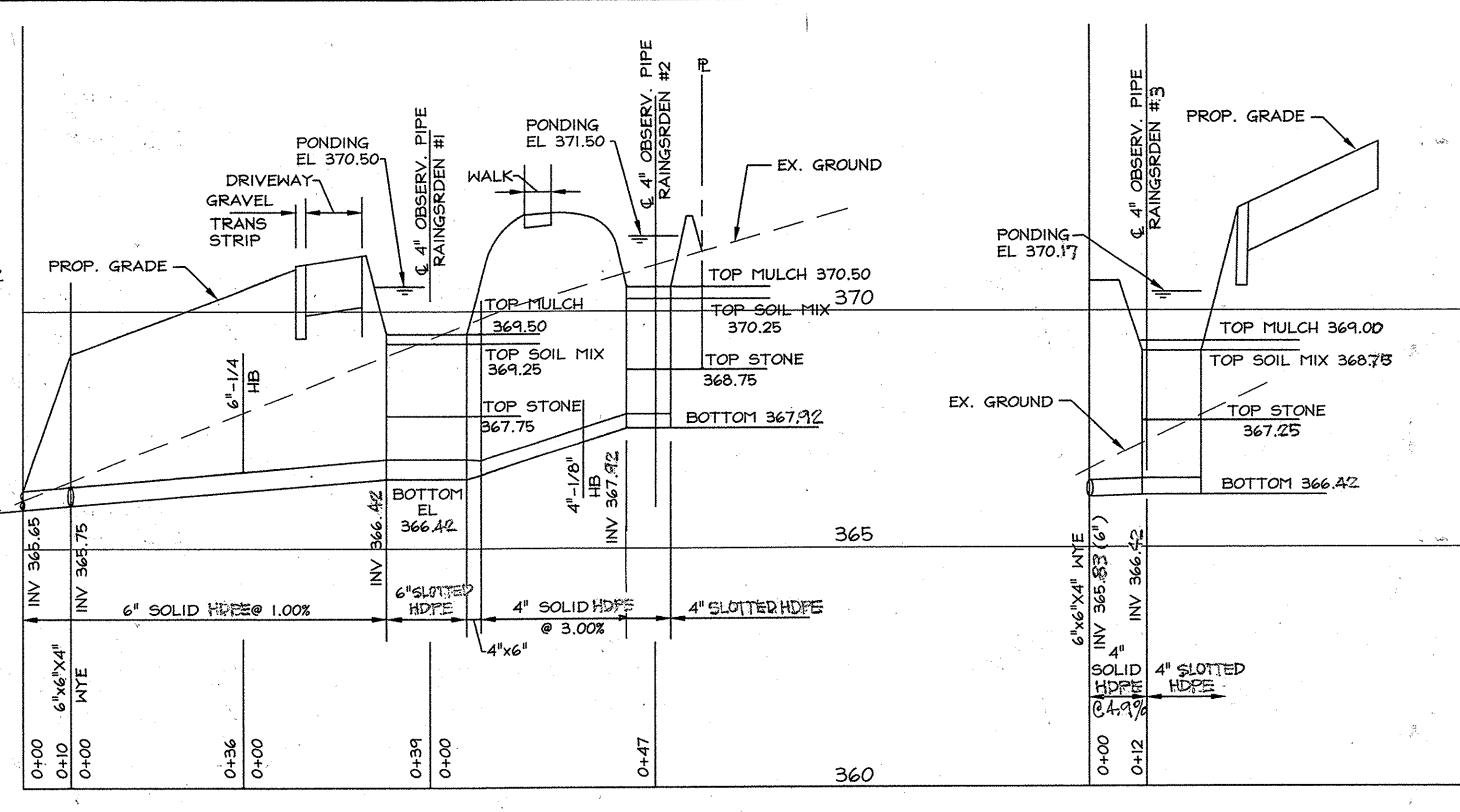
370.50

369.00

370.50

371.50

370.17



RAINGARDEN PROFILE

SCALE: HOR. I"=201

BIO PLANTINGS

VERT. I"=2"

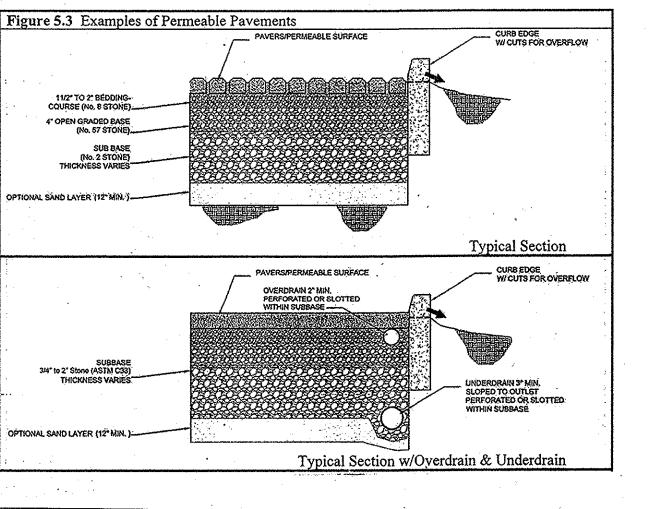


FIGURE 3
STANDARD DOWNSPOUT FITTINGS

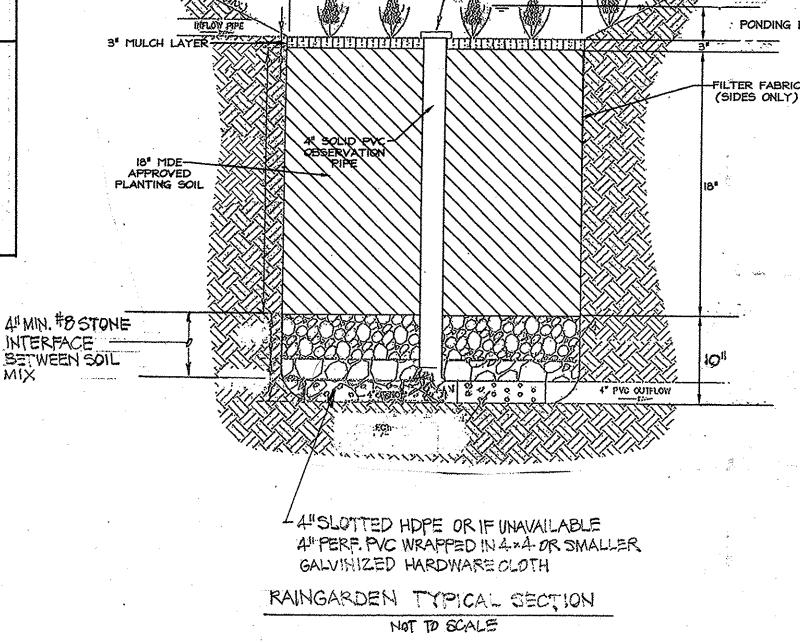
2" X 9" X 4" SAD DOWNSPOUT ADAPTER

Incoming water from Rooftop

2'X 9'ROOF LEADER

TO RAINGARDEN

Date



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO: 19184, EXPIRATION DATE: 6/30/15."

REVISIONS

David N. Elliott II Property Election District Census Tract 6067.01 PLAT #22556 R-20 LDE Inc. Engineers • Surveyors • Planners Historic Carriage House • 7520 Main Street • Suite 203 • Sykesville, Maryland • 21784 (410)795-6391 + (410)795-6392 + FAX(410)795-9540 + www.Landsurveyormd.com

STORMWATER MANAGEMENT DETAILS & SPECIFICATIONS AS NOTED B.D.B. Residential Single Family Detached David N. Elliott II Property PRAWING Lot 2 4 of 4 Plat No. 22556 JOB NO. CHECKED Tax Map 36 Grid 19 Parcel 56 6th Election District - Howard County, Maryland 13-002 Previous Submittals: F04-138, WP05-073, F14-027, WP14-125 Thomas E. & Eva May B. Smith OWNER/DEVELOPER 8221 Lexington Drive 12/2014 SDP 14-023 Severn, Maryland 21144-2714 443-213-0927

EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

1/20/15 I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL B DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND