### GENERAL NOTES 1. Existing Zoning: PEC-MXD-3 per April 2004 Comprehensive Zoning Plan and ZB Case No. 979-m. 2. Deed Reference: 8549/334 3. Plat Reference: 16078 4. Gross Area of Tract: 2.82 ac. 5. Area of 100 Year Floodplain: N/A 6. Area of Steep Slopes: 0.00 ac. 7. Net Area of Tract: 2.82 ac. 3. Number of Proposed Lots/Parcels: 9 3. Area of Proposed Lots/Parcels: 9 FINAL ROAD CONSTRUCTION PLANS BENCHMARK a) Buildable Lots: 1.515 ac. b) Open Space Lots: 0.989 ac.(35% of This Resubdivision) 38.5% Provided Under F-03-13 c) Minimum open space required is 35% d) Area of proposed public roads: 0.317 AC. DESCRIPTION d) Area of proposed public roads: 0.317 AC. 10. This plan has been prepared in accordance with the provisions of Section 16.124 of the Ho. Co. Code. Financial surety for the required landscaping in the amount of \$11,400.00 must be posted as part of the Developer's Agreement (25 shade trees, 26 evergreen trees). 11. This project is in conformance with the latest Howard County Standards unless waivers have been approved. 12. The existing topography shown hereon is based on a field survey prepared by DeMario Design Consultants, Inc. dated March, 2006. 13. Landscaping for this development and landscaping surety will be provided as part of the Developers Agreement, at final plan stage, in accordance with the latest edition of the Howard County Landscape Manual and the approved Emerson Landscape and Street Tree Design criteria. Landscaping for Lots 1 through 9 shown herein is provided in accordance with a certified landscape plan on file with this plat in accordance with section 16.124 of the Howard County code and the landscape manual. 14. The forest conservation obligation for this development have been met by retention under F-03-13. Development of Emerson 2, Phase 4 (F-03-13) under the current forest conservation act involves the clearing of approximately 5.48 acres of forest, and the retention of approximately 5.20 acres on the net tract area. When evaluated cumulatively with previous phases of the project, 47.15± acres of forest clearing and 51.03± acres of reforestation was provided in previous phases and may be used to offset reforestation requirements for future phases of this development. 15. The conditioned should be provided in the provided phases of this development. 16. The conditioned should be provided about the provided phases of this development. 17. The conditioned should be provided upon the Howard County Geodetic Control, which is BENCHMARK #1 N. 536615:0157 N: 537177.216 EMERSON SECTION 2, PHASE 8A -1353679,1226 E: 1353008,600 BM. X-CUT#6 -47DC-ELEVI 356.91 <del>343.249</del> BENCHMARK #2 BENCHMARK #2 536212.7456 N: 537495.914 1354833:6405 E: 1353027.340 LOTS 1 THRU 4 \$ 6 THRU 8 OPEN SPACE LOTS 5 \$ 9 8.M. X-CUT#7 354.296 ELEV: 362.72 A RESUBDIVISION OF EMERSON SECTION 2, PHASE 4, LOTS 117-120 TAX MAP 47, GRID 8, PARCEL P/0 1053 phases of this development. 15. The coordinates shown hereon are based upon the Howard County Geodetic Control, which is based upon the Maryland State Coordinate System. Howard County Monument No's 47DC \$ 47EB were used for this project. 16. This property is within the Metropolitan District. 17. Stormwater management for this development will be provided by the following means: Il SHADED CONC. MON ELEV: 346.60 13 DAY HOWARD COUNTY, MD 6TH ELECTION DISTRICT Recharge volume (REV) will be provided via a grass channel with check dams. The water quality (WQV) will be provided through a wet-pool extended detention pond. Channel protection volume (CPV) will be provided through the wet-pool extended detention pond. Overbank flood protection volume and extreme flood protection volume are not required. To be privately owned and extreme flood protection volume are not required. Existing utilities shown hereon are based on field surveys and record drawings. 19. There is no floodplain onsite. 20. There are no wetlands onset based on Plat 16078, recorded July 28, 2003. 21. Traffic study prepared by Wells & Associates, inc. dated February, 2006.. 22. The geotechnical study for this project was prepared by Hillis Carnes Engineering Associates, Inc. in February, 2006. 23. Project Background Information: CORNER INLET DRAWING INDEX MONUMENT RECOVERY SKETCH COVER SHEET FINAL ROAD CONSTRUCTION PLAN & PROFILE CL INLET GRADING & SEDIMENT CONTROL PLAN SEDIMENT EROSION CONTROL DETAILS SEDIMENT EROSION CONTROL NOTES a) Subdivision Name: Emerson Section 2 Phase 8A b) Tax Map/Block/Parcel: 47/8/1053 c) Zoning: PEC-MXD-3 d) Election District: 6th e) Total (Gross) Tract Area: 2.820 ac. f) Number of Proposed Lots/Parcels: 9 g) Applicable Department of Planning & Zoning File Nots: S-99-12(Key Property), F-03-13, P-02-15, WP-03-46, WP-99-96, PB-339, PB359, ZB-979M, P-06-12 STORMWATER MANAGEMENT DETAILS SKYLARK STORM DRAIN DRAINAGE AREA MAP LANDSCAPE PLAN BLVD. 9 LANDSCAPE DETAILS & NOTES 24. There are no dwelling on the site. 25. The proposed access street shall be public. 26. BRL denotes the Building Restriction Line. 27. Sediment and erosion control measures will be provided in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control and will be shown on the Final Plan. MINIMUM LOT SIZE CHART LOT GROSS PIPESTEM MINIMUM NO. AREA AREA LOT SIZE 0.187 AC 0.011 AC 0.176 AC Final Plan. 28. Street trees will be provided an the access street in accordance with Section 16.124 of the Howard County Subdivision Regulations. 29. Sidewalks are are provided in accordance with Section 16.134 of the Howard County Subdivision Regulations. 30. A Community Input Meeting is not required in the MXD zone. 31. Open Space Lot 5 and Lot 9 is to be owned and maintained by the HOA. 32. This plan is a resubdivision of Emerson, Section 2, Phase 4 Lots 117-120, F-03-13. The purpose of this plan is to provide 3 additional allocation. The 4 lots exist under F-03-13 as part of the 120 units as Lots 117-120. 33. The minimum building setback restrictions from property lines and public road right-of-way lines for the SFD residential lots shall be in accordance with the comprehensive Sketch Plan Development Criteria approved under S-99-12, PB-339 and PB-359. 34. Phasing for this project is in accordance with the Decision and Order for Zoning Board Case No. 979-M and the Decision and Order approved for PB-339 (Comprehensive Sketch Plan, 9-99-12). 8 0.225 AC 0.030 AC 0.195 AC COORDINATE CHART DE THE OF 729.96' 263.96' 20'43'08" N51"17'36"W 262.53' EAST NORTH 197.00' 23.05' 6'42'17" S46'52'12"W 23.04' 181.00' 21.18' 6'42'17" N46'52'12"E 21.17' 1353831.7 537028.9 159.95' 120.67' 43"13"25" N21"53"59"E 117.83" 1353491.2 536874.5 199.96' 150.85' 43'13'25" N21'54'01"E 147.30' There are no historic structures or cemeteries located on the subject property. 36 No grading, removal of vegetative cover or trees, paving and new structures shall be permitted within the wetlands, stream or their required buffers, flood plain and forest conservation 181.00' 21.18' 6'42'17" S40'09'55"W 21.17' 1353443.0 536930.1 197.00' 23.05' 6'42'17" N40'09'55"E 23.04' 37. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable. 38. The contractor shall notify the Department of Public Works/Bureau of 1353238.1 886.50' 29.91' 1'55'59" N19'44'07"W 29.91' 537094.2 2501.37 112.51 2'34'38" N17'28'49"W 112.50' 537189.3 1353245.4 1353419.2 537186.3 (5) working days prior to the start of work. 39. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done. 40. Traffic control devices, markings and signings shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (AULTON) All street and provides about he in place prior to 1353619.1 1353787.9 537164.3 (MUTCD). All street and regulatory signs shall be in place prior to placement of any asphalt. 41. Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume III (1993) and as modified by "Guidelines for Street Lights in Residential Developments June (1993)." A minimum spacing of 20' shall be maintained between any streetlight and any tree. All sign posts used for traffic control signs installed in the County right-of-way shall be mounted on a 2" galvanized steel, perforated, square tube post (14 gauge) inserted into 2-1/2" galvanized steel perforated square tube sleeve (12 gauge)-3' long. A galvanized steel pole cap shall be mounted on top of each post. 42. Water is public and tied to contract # 24-4389-D. 43. Sewer is public and tied to contract # 24-4389-D. 44. This plan is subject to a design waiver to Figure 2.97 approved July 24, 2006, subject to providing a deceleration lane to Skylark Blvd. Per DED No decel lane provided since there is sufficient room for turning vehicles. 45. 95% compaction in fill areas per AASHTO-TI80. 46. The Articles of Incorporation have been filed with the State Department of Assessments and Taxation with incorporation number D06439459. The covenants for the Emerson Community Association, Inc. were recorded in the Land Records of Howard County, Maryland in Liber 5728 Folio 464. 47. The contractor shall inspect and install any necessary maintenance on the sediment Number Pharmacount and devices about on the plan The inspection shall be on a daily basis. 537136.2 TOPOGRAPHY SHOWN HEREON BASED ON A FIELD SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC. DATED MARCH, 2006. BOUNDARY SHOWN HEREON IS BASED ON RECORDED PLATS BY EMERSON, SECTION 2 & 3 OVERALL DEVELOPMENT TRACKING CHART DeMario Other Res. U nits Other Res. FOREST CONSERVATION TRACKING CHART Design 3.6 (43% Consultants, Inc. 8.0 (8.2%) 40.1 (41%) F-01-137 120 SFA 9.4 D.U./Ac. 47. The contractor shall inspect and install any necessary maintenance on the sediment F-01-145 erosion control devices shown on the plan. The inspection shall be on a daily basis and after every rainfall. 6.5 (35.1%) 120 SFA 10 D.U./Ac. 12.0 (64.9%) 47.5 (68.3% 3.41 8.9 (72.4%) 16.77 F-02-178 17.1 (38.5%) Westminster, MD 21157 27.4 (61.5%) 9.91 2.1 (70%) 0.7 (23.3%) DRAWING LEGEND 100 SFA -0-9.4 (90.4%) OWNER: 2.6 (8.9%) 39.47 2/5A & 3/3 EMERSON LAN \_\_\_\_\_\_682 \_\_\_\_ EXISTING MINOR CONTOUR (2' INTERVAL) 14.1 (59%) 6.9 (28.9 %) F-04-127 2/5B & 3/4 2.18 3.91 11.4 D.U./Ac. 33 SFA (OR) \_\_\_\_\_ 680 \_\_\_\_ EXISTING MAJOR CONTOUR (10' INTERVAL) 1.3 (21.0%) COLUMBIA, MD 21044 410-992-6000 5.24 F-05-93 47 SFA 5.24 SITE ADDRESS: 13.8 D.U./Ac. 12.72(44.2%) 7. 58 (26.3%) 8.5(29.5%) 5.77 5.24 SKYLARK BOULEVARD 5.77 12 D.U./Ac. 140.9 (37.7%) 61.82(16.5%) 3.91 3.91 Max. Res. Units Allowed PROPOSED MINOR CONTOUR (2' INTERVAL) Overall Density Tabs 3.91 395 (34.5%) **Overall SFD Density** PROPOSED MAJOR CONTOUR (10' INTERVAL) 250 (21.8%) 250 (20.8%) Overall OR Density PROP. STANDARD CURB & GUTTER PROP. REVERSE CURB & GUTTER PROP MOUNTABLE CURB & GUTTER/ PROP REVERSE/MOUNTABLE CURB GUTTER F-05-93 (A) SFD acreage includes Common Open Areas (COA Lots). (E) Proposed density tabulations are shown for informational purposes only. Those tabulations will be reconciled against the maximum density tabulations with the last plat or phase. PROPOSED PRIVATE ROAD/DRIVE CENTERLINE 1.84 (F) Resubdivided by F06-25 to create 1.0 ac of credited Open Space EX. BUILDING Max. Allowed Land Use Acreages. (G) This is a reubdivision of SFD LandUserecorded with F 0313 (C) Max. density for any individual SFD area is 5.0 units/acre PROPOSED HOUSE (D) Max. density for an individual OR area is 20.0 units/acre. Note: This chart reflects the current information for this project at the time of recordation each individual plat. For current information, refer to the most recently recorded plat. PROPOSED SPOT ELEVATION & FLOW ARROW 373.80 STH ELECTION DISTRICT \* EMERSON, SECTION 2, PHASE SA IS A RESUBDIVISION OF F-03-13. FOREST CONSERVATION TRACKING CHART PROVIDED BY DAFT-MCCUNE-WALKER, INC EXISTING TREES ON GROSS AREA GROSS AREA INCLUDES 2 57 ACRES FOR THE SHOWN 92507 APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS G. APPROXIMATELY 0.42 ACRES OF FUTURE CLEARING/FUTURE REFORESTATION IS BEING CLEARED AND IS NOT BEING REFORESTED. APPROXIMATELY 1.58 ACRES OF FUTURE CLEARING/FUTURE REFORESTATION IS BEING RETAINED. APPROXIMATELY 0.19 ACRES OF FUTURE REFORESTATION IS BEING REFORESTED. Professional Certification. NO. DESCRIPTION OF CHANGES I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional AS-BUILT CERTIFICATION CO. FILE# F-07-128 engineer under the laws of the State of Marvland, License HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES H. Gross area excludes 0.13 ac for sewer shown on F-02-178. Gross area also excludes 2.37 ac for wetland mitigation area counted under F-04-127. Floodplain excludes 1.20 ac for mitigation area floodplain counted under F-04-127. SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOW TAX ACC.# ON THIS PLAN MEET THE CURRENT APPROVED PLANS . . . . EXISTING TREELINE TAX MAP: 47 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND AND SPECIFICATIONS. . . . . EXISTING SHRUB/BRUSH LINE AS-BUILT Int Thankey Tell handing ZONE/USE: PECMXD3 PROFESSIONAL L.S. #10849 SURVEY DATES: 10/23-11/12/2012, proposed water line & hydrani SHANABERGER & LANE DWG. SCALE:1"=100' LICENSE EXPIRATION PATE: 4/2/2014

VICINITY MAP

63.37

79.22

**DEVELOPER:** 

FINAL ROAD CONSTRUCTION PLANS

EMERSON SECTION 2, PHASE BA

Lots 1 thru 4 & 6 thru 8 open space Lots 5 & 9

COVER SHEET

BLOCK/GRID: 🐚 8

PARCEL# P/O 1053

Fax: (410) 386-056-

eMail: ddc@demariodesign.u

GENERAL GROWTH PROPERTIES 10275 LITTLE PATUXENT PKWY

HOWARD COUNTY, MD

DES. BY: JCO/WRD

DRN. BY: JCO

CHK. BY: RBW

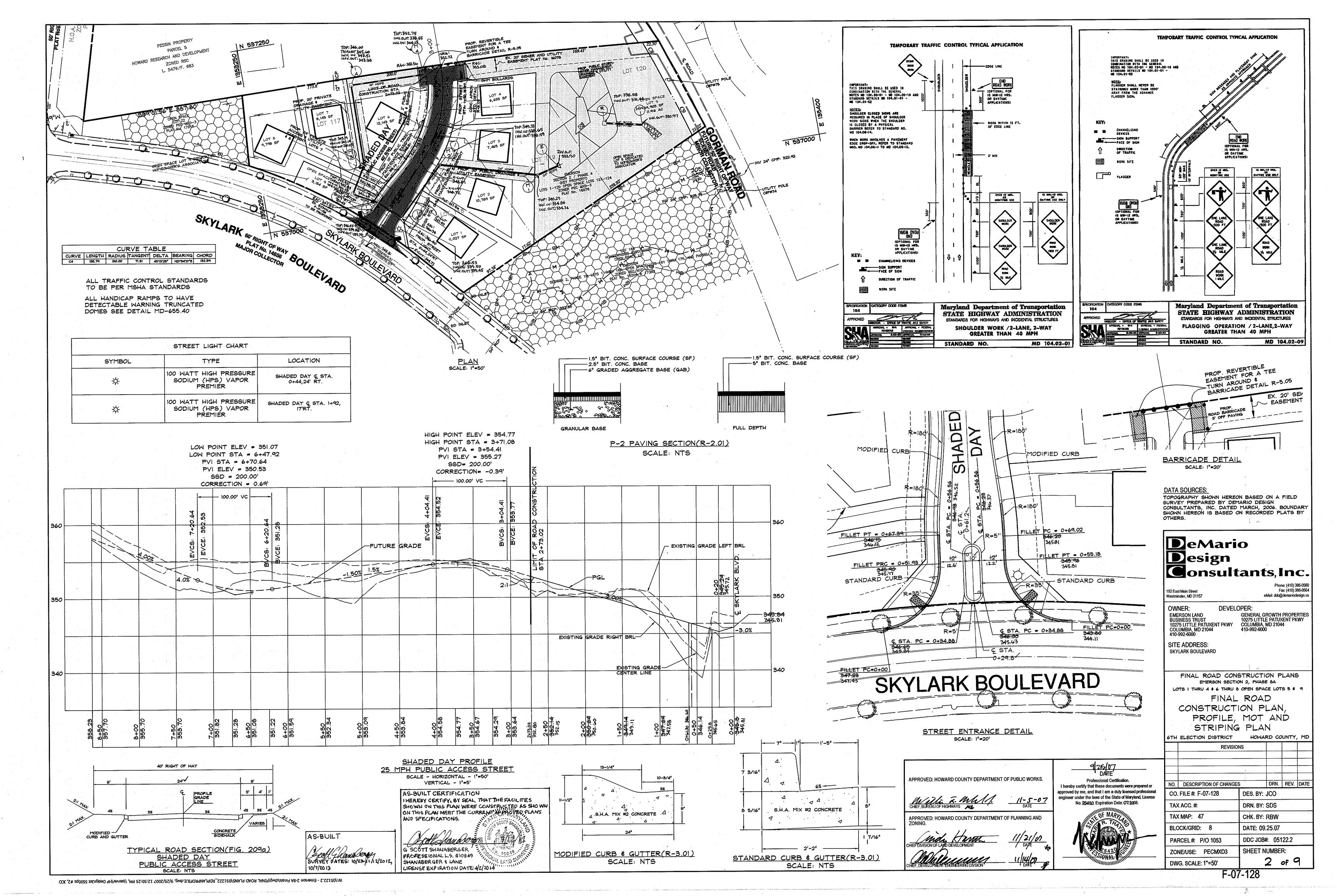
DATE: 09.25.07

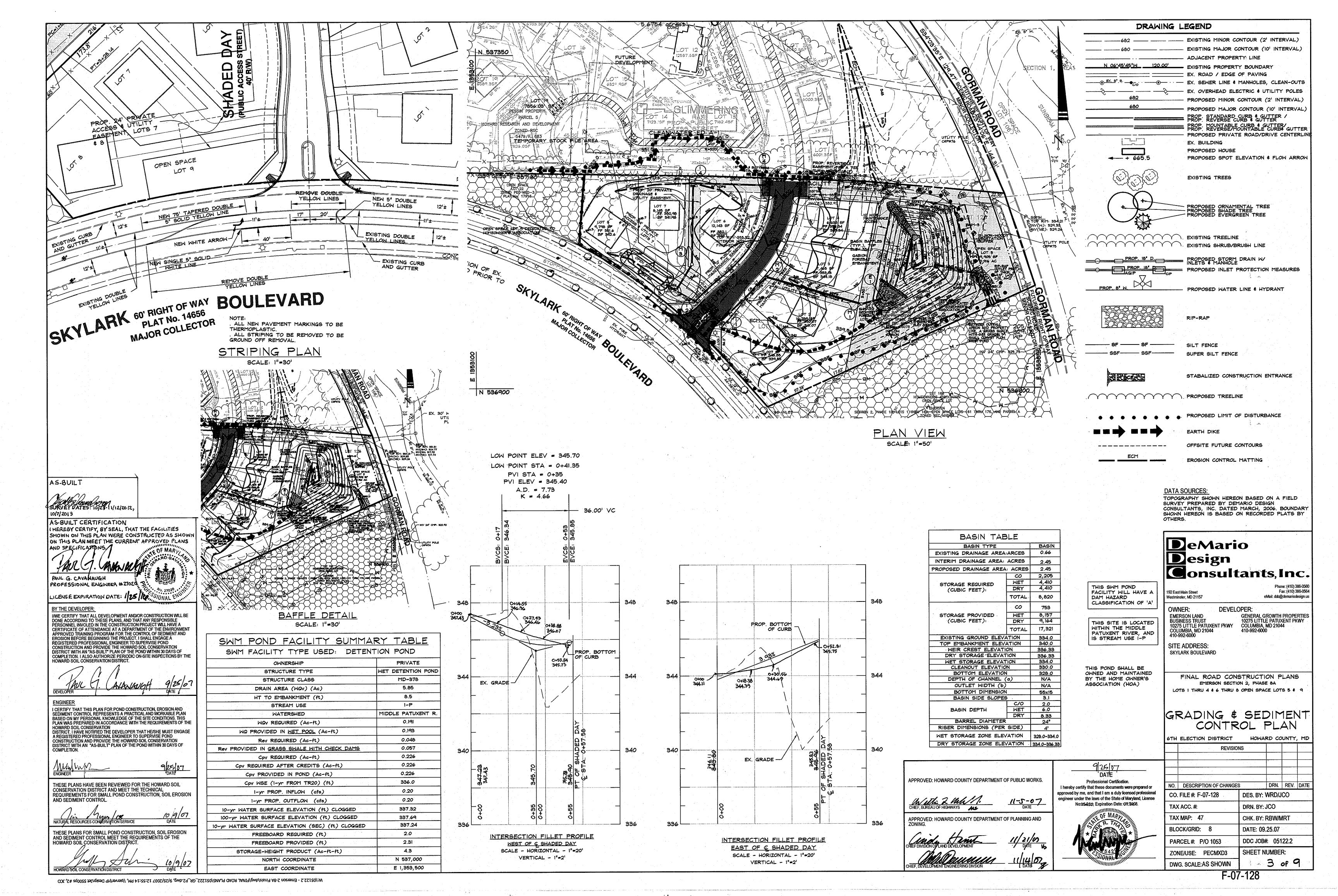
DDC JOB#: 05122.2

SHEET NUMBER:

| DRN. | REV. | DATE

DESCRIPTION





## CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the 2000 Standard for practice MD-378. All the most recent version.

### Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks Structure Backfill shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the

trees, brush, logs, fences, rubbish and other objectionable hand tampers or other manually directed compaction material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the under and adjacent to the pipe. At no time during the minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled Structure backfill may be flowable fill meeting the in a suitable location for use on the embankment and other requirements of Maryland Department of Transportation designated areas.

## Earth Fill

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be Soil Classification GC, SC, CH, or CL and must have at to assure flowability of the material. Adequate measures least 30% passing the #200 sieve. Consideration may be shall be taken (sand bags, etc.) to prevent floating the pipe. given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed must have construction supervised by a geotechnical in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed

Materials used in the outer shell of the embankment must compaction equipment. The material shall completely fill have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be circumstances shall equipment be driven over any part of a placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of greater over the structure or pipe. Backfill material outside the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The type and quality conforming to that specified for the core principal spillway must be installed concurrently with fill of the embankment or other embankment materials. placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire All pipes shall be circular in cross section surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +/-2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard

Cut Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The epth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

AS-BUILT CERTIFICATION

AND SPECIFICATIONS

PROFESSIONAL ENGINEER#27020

HOWARD SOIL CONSERVATION DISTRICT.

LICENSE EXPIRATION DATE: 1/25/10

Paul G. CAVANAUGH

BY THE DEVELOPER:

**ENGINEER** 

I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES

SHOWN ON THIS PLAN WERE CONSTRUCTED AS PHOWN ON THIS PLAN MEET THE CURRENT APPROPRIATED FRANCE.

IWE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE

CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A

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

REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND

CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION

DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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 SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE

A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND

CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL

REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION

AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE

HOWARD SOIL CONSERVATION DISTRICT

CONSERVATION DISTRICT AND MEET THE TECHNICAL

AND SEDIMENT CONTROL.

COMPLETION, I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The references to ASTM and AASHTO specifications apply to height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure

maximum density and minimum permeability. In addition,

the core shall be placed concurrently with the outer shell of

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers Areas to be covered by the reservoir will be cleared of all not to exceed four inches in thickness and compacted by equipment. The material needs to fill completely all spaces ground surface. For dry stormwater management ponds, a backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

all voids adjacent to the flowable fill zone. At no time

allowed to operate closer than four feet, measured

horizontally, to any part of a structure. Under no

during the backfilling operation shall driven equipment be

structure or pipe unless there is a compacted fill of 24" or

Corrugated Metal Pipe - All of the following criteria shall

1. Materials - (Polymer Coated steel pipe) - Steel pipes

of the pipe. This pipe and its appurtenances shall

Specifications M-245 & M-246 with watertight

coating thickness of 0.01 inch (10 mil) on both sides

Materials - (Aluminum Coated Steel Pipe) - This pipe

requirements of AASHTO Specification M-274 with

watertight coupling bands or flanges. Aluminum

Coated Steel Pipe, when used with flowable fill or

when soil and/or water conditions warrant the need

coated per requirements of AASHTO Specification

M-190 Type A. Any aluminum coating damaged or

for increased durability, shall be fully bituminous

otherwise removed shall be replaced with cold

Materials - (Aluminum Pipe) - This pipe and its

appurtenances shall conform to the requirements of

AASHTO Specification M-196 or M-211 with

watertight coupling bands or flanges. Aluminum

Pipe, when used with flowable fill or when soil

durability, shall be fully bituminous coated per

concrete shall be painted with one coat of zinc

chromate primer or two coats of asphalt. Hot dip

galvanized bolts may be used for connections. The

pH of the surrounding soils shall be between 4 and 9.

requirements of AASHTO Specification M-190 Type

A. Aluminum surfaces that are to be in contact with

and/or water conditions warrant for increased

applied bituminous coating compound. Aluminum

surfaces that are to be in contact with concrete shall

be painted with one coat of zinc chromate primer or

with polymeric coatings shall have a minimum

conform to the requirements of AASHTO

and its appurtenances shall conform to the

apply for corrugated metal pipe:

coupling bands or flanges.

the structural backfill (flowable fill) zone shall be of the

pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with 0- ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inch long annular State Highway Administration Standard Specifications for corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 each pipe. Flanged joints with 3/8 inch closed cell ohm-cm. Material shall be placed such that a minimum of gaskets the full width of the flange is also acceptable. 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bed-ding), over and, on the Helically corrugated pipe shall have either

continuously welded seams or have lock seams with internal caulking or a neoprene bead.

2. Coupling bands, anti-seep collars, end sections, etc.,

must be composed of the same material and coatings

as the pipe. Metals must be insulated from dissimilar

materials with use of rubber or plastic insulating

3. Connections - All connections with pipes must be

completely watertight. The drain pipe or barrel

connection to the riser shall be welded all around

be completely watertight. Dimple bands are not

when the pipe and riser are metal. Anti-seep collars

shall be connected to the pipe in such a manner as to

All connections shall use a rubber or neoprene gasket

shall be re-rolled an adequate number of corrugations

to accommodate the bandwidth. The following type

inches in diameter: flanges on both ends of the pipe

with a circular 3/8 inch closed cell neoprene gasket

connections are acceptable for pipes less than 24

when joining pipe sections. The end of each pipe

materials at least 24 mils in thickness.

considered to be watertight.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, al such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill" 6. Other details (anti-seep collars, valves, etc.) shall be

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe:

as shown on the drawings

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361. 2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding / cradle for their entire length. This bedding / cradle shall consist of high slump concrete placed under the pipe and up the side

of the pipe at least 50% of its outside diameter with a

minimum thickness of 6 inches. Where a concrete

cradle is not needed for structural reasons, flowable

fill may be used as described in the "Structure

Backfill" section of this standard. Gravel bedding is 3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the

original line and grade of the pipe. The first joint

must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill" 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

## Plastic Pipe - The following criteria shall apply for

Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D- 1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4" - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight.

B. Bedding -The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

 Backfilling shall conform to "Structure Backfill". 5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

<u>Drainage Diaphragms</u> - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No.3.

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Fransportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

## Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water sumps from which the water shall be

<u>Stabilization</u> drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

## Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

### DETAIL 6 - GABION INFLOW PROTECTION 0 0 0 0 0 0 0 0 0 0 2000 2:1 SLOPE DI 000 SURFACE ELEV. 0000 STANDARD SYMBOL 0000 GH 0 0 0 0 000 CLEAN GRAVEL-0000 ( ) 0000 PERSPECTIVE VIEW 000 000 FILTER CLOT 0 0 0 0000 PROFILE ALONG CENTERLINE 0000 -VEIGHT AS NECESSAR ELEVATION Construction Specifications Construction Specifications

. Gabion inflow protection shall be constructed of 9' x 3' x 9' gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width. 2. Geotextile Class C shall be installed under all gabion baskets. 3. The stone used to fill the gabion baskets shall be 4' - 7'.

4. Gabions shall be installed in accordance with manufacturers recommendation 5. Gabion Inflow Protection shall be used where concentrated flow is present

U.S. DEPARTMENT OF AGRICULTURE
SDIL CONSERVATION SERVICE

PERATION AND MAINTENANCE SCHEDULE FOR

STORMWATER MANAGEMENT DETENTION FACILITY

STORMWATER MANAGEMENT FACILITY ROUTINE MAINTENANCE

MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN

EPTEMBER, OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD

BE MOWED AS NEEDED.

B. DEBRIS AND LITER NEXT TO THE OUTLET STRUCTURE SHALL BE

REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED. 4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP

OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM,

COUNTY DEPARTMENT OF PUBLIC WORKS.

SEDIMENT CONTROL GENERAL NOTES

THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE.
THE COMPONENTS SHALL BE INSPECTED DURING DURING ROUTINE MAINTENANCE

OPENATIONS.

2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD

A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMEN OF INSPECTIONS, AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF

ANY CONSTRUCTION (410-313-1955).

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

CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED MITHINI

SEVEN CALIENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPE AND ALL SLOPES STEEPER THAN SII.

B. FOURTEEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. I, CHAPTER 12, OF THE "HOWARD COUNTY DESIGN MANUAL", STORM DRAINAGE.

ALL DISTURBED AREA MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR PERMANENT SEEDINESS (SEC. 61), SODS (SEC. 64), TEMPORARY SEEDING (SEC. 60), AND MULCHING (SEC. 62). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOTTENDED SEEDING DATES DO NOT ALLON FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

ALL SEDIMENT CONTROL STRUCTURES ARE TO RETIAN 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.

STE ANALYSIS:

TOTAL AREA OF SITE

AREA DISTURBED

AREA TO BE ROOFED OR PAVED

AREA TO BE VEGETATIVELY STABILIZED = 1.72 cores

TOTAL CUT

TOTAL FILL

BACC U yd

COO CU yd

WASTE/BORROW AREA - 000 cu yd

(LOCATION TO BE DETERMINED BY CONTRACTOR.

LOCATION POINT MUST HAVE O'PEN GRADING PERMIT.)

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 CONTROLS 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 PERMITTER EROSION 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 INSPECTION AGENCY IS MADE.

APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS.

DETAIL 20A - REMOVABLE PUMPING STATION 1. The outer pipe should be 48° dia. or shall, in any case, be at least 4° preater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2° hardward cloth to prevent backfill material from entering the perforations.

2. After installing the outer pipe, backfill around outer pipe with 2' aggregate or clean gravel. 3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12° and 36° in diameter. The perforations shall be 1/2° X 6° slits or 1° diameter holes 6° on center. The center pipe shall be wrapped with 1/2° hardware cloth first, then wrapped again with Geotextile Class ( 4. The center pipe should extend 12' to 18' above the anticipated water surface elevation or riser crest elevation when dewatering a basin. NARYLAND DEPARTMENT OF ENVIRONMENT VATER MANAGEMENT ADMINISTRATION BASIN DRAWDOWN SCHEMATIC

internal orifice

\_\_TRASH RACK

LINITS OF DRY STORAGE

HORIZONTAL DRAW-DOWN DEVICE

PLAN VIEW

CONSTRUCTION SPECIFICATIONS

. The total area of the perforations must be greater than 3 times the area of

Penforations in the draw-down device may not extend into the wet storage

The perforated portion of the draw-down device shall be wrapped with 1/2' hardware cloth and geotextile fabric. The geotextile fabric shall neet the specifications for Geotextile Class E.

4. Provide support of draw-down to prevent sagging and flotation. An acceptable preventative neasure is to stake both sides of draw-down device with 1' steel angle, or 1' by 4' square or 2' round wooden posts set 3' minimum hato the ground then joining them to the device by wrapping with 12 gauge minimum wire.

PAGE C-10-30

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(8) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, NRCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND CHNER(9) AND ANY HEIRS, SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND CHNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE SUIDING OR SUIMINING.

PIPE SCHEDULE

CATEGORY

HDPE

TRISER CREST ELEVATION

DEPARTMENT OF AGRICULTURE

SIZE (IN.)

15

DETAIL 1 - EARTH DIKE EXISTING PAVEMENT-MR GEOTEXTILE CLASS 'C'-MINIMUM 6' DF 2'-3' AGGREGATE OVER LENGTH AND WIDTH OF STRUCTURE -EXISTING GROUND DIKE A DIKE B PROFILE a-DIKE HEIGHT 18" b-DIKE WIOTH A A A A A A A c-FLOW WIDTH PLAN VIEW STANDARD SYMBOL <del>--/--</del> 2. Seed and cover with Erosion Control Matting or line with sod. 3. 4" - 7" stone or recycled concrete equivolent pressed into PLAN VIEW STANDARD SYMBOL RESCE SE LENGTH - MINIMUM OF 50' (#30' FOR SINGLE RESIDENCE LDT). All temporary earth dikes shall have uninterrupted positive WIDTH - 10' HINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING grade to an outlet. Spot elevations may be necessary for grades less than 1%. Runoff diverted from a disturbed area shall be conveyed to a sediment

GEDTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIDR TO PLACING STONE. WITHE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY 3. Runoff diverted from an undisturbed area shall outlet directly into an RESIDENCES TO USE GEDTEXTILE. indisturbed, stabilized area at a non-erosive velocity. STONE - CRUSHED AGGREGATE (2" TO 3") DR RECLAINED DR RECYCLED CONCRETE QUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE 4. All trees, brush, stumps, obstructions, and other objectionable me thall be removed and disposed of so as not to interfere with the proper S. SURFACE VATER - ALL SURFACE WATER FLOVING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6' OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNDEF TO BE CONVEYED. A 6' MINIMUM WILL BE REQUIRED.

BURST STRENGTH PSI. MIN.

500

320

320

145

145

190

MARYLAND DEPARTMENT OF ENVIRONMENT VATER MANAGEMENT ADMINISTRATION

TO RIBER

DETAIL 30 - EROSION CONTROL MATTING

TYPICAL STAPLES NO. 11 GAUGE WIRE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND

NOTE: PEROPRATIONS SHALL BE

DRAWDOWN PIPE PERFORATIONS DETAIL

CROSS-SECTION

STAPLE DUTSIDE -EDGE OF MATTING ON 2' CENTERS

5. The dike shall be excavated or shaped to line, grade and cross section as equired to meet the criteria specified herein and be free of bank projections 6. Fill shall be compacted by earth moving equipment 7. All earth removed and not needed for construction shall be placed so that

GRAB TENSILE STRENGTH LB. MIN.

250

200

200

90

90

90

\*\* 0.5 nm Max for SSF

The properties shall be determined in accordance with the following procedures

-Grab tensile strength ASTN B 1682: 4x8' specinen, 1x2' clarps, 12' nin-strain rate in both principal directions of geotextile fabric.

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be not and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% weight of polyolephins, polyesters, or polyamides. The geotextile fabric shall resist deterioration from ultraviolet exposure.

In addition, Classes A through E shall have a Q.Di cm./sec. minimum permeability when tested in accordance with MSMT 507, and an apparent minimum elongation of 20 percent (20%) when tested in accordance with the grab tensile strength requirements listed above.

Silt Fence.
Class F geotextile fabrics for silt fence shall have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modules when tested in accordance with MSMT 509. The material shall also have a 0.3 gal./sq.ft./min.flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance with MSMT 322.

Geotextile fabrics used in the construction of silt fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

t will not interfere with the functioning of the dike. B. Inspection and maintenance must be provided periodically and after each rain event. U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SITUL CONSERVATION SERVICE A - 1 - 6 WATER MANAGEMENT ADMINISTRATION 24.0 MATERIALS SPECIFICATIONS

О. ЗОжи

0, 60

0, 30

0.60

0.30

0. 40-0. 80≖

D

F(SILT FENCE)

\* US Std Sieve CV-02215

-Burst strength

HS REPARTMENT OF AGRICULTURE

LINEAR (FT.)

39'

U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT
SDIL CONSERVATION SERVICE F - 17 - 3 VATER MANAGEMENT ADMINISTRATION DETAIL 27 - ROCK OUTLET PROTECTION III SEDIMENT BASIN OUTFALL q/2 PLAN VIEW EXISTING STABILIZED FILTER CLOTH ELEVATION FILTER FABRIC LINING SHALL BE EMBEDDED A MINIMUM OF 4" AND SHALL EXTEND AT LEAST 6" BEYON FILTER CLOTH LINING -SECTION A-A NOTE: FILTER CLOTH SHALL B GEOTEXTILE CLASS C

LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT

THE SITE HUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANC

HERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE.

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

PAGE MARYLAND DEPARTMENT OF ENVIRONME.
F - 18 - 10 VATER MANAGEMENT ADMINISTRATION ROCK OUTLET PROTECTION III . The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter. 3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for Joining two pieces

geotextile shall be a nininum of one foot 4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a namer as to avoid displacement of underlying naterials. The stone for rip-rap or gabion outlets shall be delivered and placed in a namer that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the void between the larger stones. Rip-rap shall be placed in a namer to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the proposers.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adacent to the stone will occur. MARYLAND DEPARTMENT OF ENVIRONMENT

34" HINIMUM LENGTH FENCE POST PERSPECTIVE VIEW JOINING TWO ADJACENT SILTERS Construction Specifications 1. Fence posts shall be a minimum of 36° long driven 16° minimum into the ground. Vood posts shall be  $11/2^{\circ} \times 11/2^{\circ}$  square (minimum) cut, or  $13/4^{\circ}$  diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be tandard T or U section weighting not less than 1.00 pond per linear foot, Geotextile shall be fastened securely to each fence post with wire ties r staples at top and mid-section and shall neet the following requirements

For Geotextile Class Fi

50 lbs/in (min.) Tensile Modulus 20 lbs/in (min.) 0.3 gal ft\*/ minute (max.) Testi MSHT 32 Filtering Efficiency 75% (min.) 3. Where ends of geotextile fabric cone together, they shall be overlapped folded and stapled to prevent sediment bypass

DETAIL 33 - SUPER SILT FENCE

FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE

FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42' FABRIC AND 6' LENGTH

4. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8° INTO THE GROUND.

DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT

ATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION

2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS ROOS, DRIVE ANCHORS AND POST CAPS ARE NOT

3. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED

5. WHEN TWO SECTIONS OF FILTER CLOTH ABJOIN EACH OTHER. THEY SHALL BE OVERLAPPED

7. FILTER CLOTH SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR

STAPLES AT TOP AND HID SECTION AND SHALL NEET THE FOLLOWING REQUIREMENTS FOR

50 LBS/IN (MIN.)

DETAIL 22 - SILT FENCE

. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES"

20 LBS/IN (MIN.) 0.3 GAL/FT\*/MINUTE (MAX.)

STANDARD SYMBOL

TEST: MSMT 328

HARYLAND DEPARTMENT OF ENVIRONMENT VATER HANAGEMENT ADMINISTRATION

FENCE POST DRIVEN
MINIMUM OF 16' INT

STANDARD SYMBOL

CHAIN LINK FENCING-

FILTER CLOTH-

EQUIRED EXCEPT ON THE ENDS OF THE FENCE.

TENSILE STRENGTH

SUIL CONSERVATION SERVICE

FILTERING EFFICIENCY 75% (MIN.)

1. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height. MARYLAND DEPARTMENT OF ENVIRONME WATER MANAGEMENT ADMINISTRATION U.S. DEPARTMENT OF AGRICULTURE

DATA SOURCES: TOPOGRAPHY SHOWN HEREON BASED ON A FIELD SURVEY PREPARED BY DEMARIO DESIGN CONSULTANTS, INC. DATED MARCH, 2006. BOUNDARY SHOWN HEREON IS BASED ON RECORDED PLATS BY

# DeMario Design Consultants, Inc.

Fax: (410) 386-0564 92 East Main Street eMail: ddc@demariodesign.u Westminster, MD 21157 DEVELOPER: OWNER: GENERAL GROWTH PROPERTIES 10275 LITTLE PATUXENT PKWY EMERSON LAND BUSINESS TRUST 10275 LITTLE PATUXENT PKWY COLUMBIA, MD 21044 410-992-6000 COLUMBIA, MD 21044 410-992-6000 SITE ADDRESS: SKYLARK BOULEVARD

FINAL ROAD CONSTRUCTION PLANS EMERSON SECTION 2, PHASE 8A LOTS 1 THRU 4 \$ 6 THRU 8 OPEN SPACE LOTS 5 \$ 9

HOWARD COUNTY, MD 6TH ELECTION DISTRICT REVISIONS NO. DESCRIPTION OF CHANGES

DWG. SCALE: 1\*=50'

Professional Certification.

I hereby certify that these documents were prepared or engineer under the laws of the State of Maryland, License No. 25420 Expiration Date: 07.2008.

approved by me, and that I am a duly licensed professional

WATER MANAGEMENT ADMINISTRATION

D = DISTANCE BETVEEN - 18 - NIGLOV AND DUTFLOW

A - AREA OF NORMAL POOL

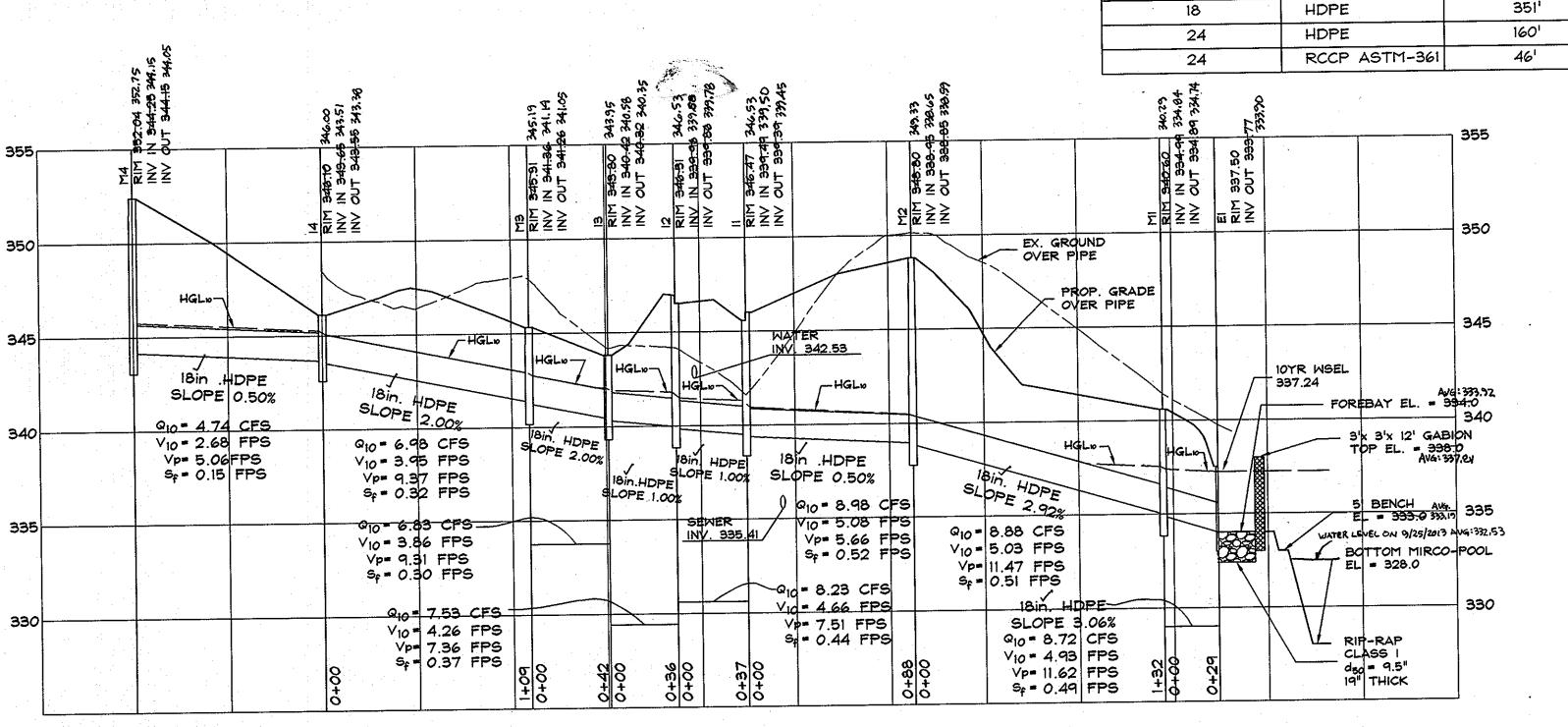
W- EFFECTIVE WIDTH - A/I

DETAIL 18 - SEDIMENT BASIN BAFFLES

PLAN VIEWS

DRN. REV. DATE CO. FILE # F-07-128 DES. BY: WRD/JCO DRN. BY: JCO TAX ACC.# CHK, BY: RBW TAX MAP: 47 DATE: 09.25.07 BLOCK/GRID: 8 DDC JOB#: 05122.2 PARCEL#. P/O 1053 SHEET NUMBER: ZONE/USE: PECMXD3

4 of 9



STORM DRAIN PROFILES M-4 to E-1 SCALE - HORIZONTAL - 1"=50"

VERTICAL - 1"=5"

W:/02122.2 - Emerson 2-8A Finals/dwg/FINAL ROAD PLANS/051222\_SC1.dwg, 9/25/2007 1:02:14 PM, //server/HP DesignDet 5500ps #2, JCO

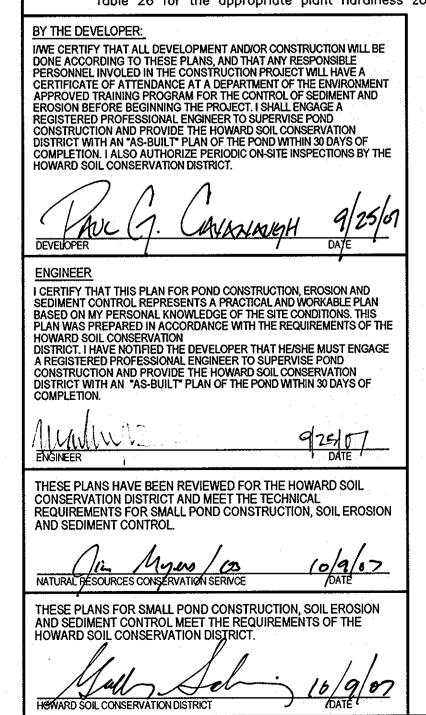
10/9/07

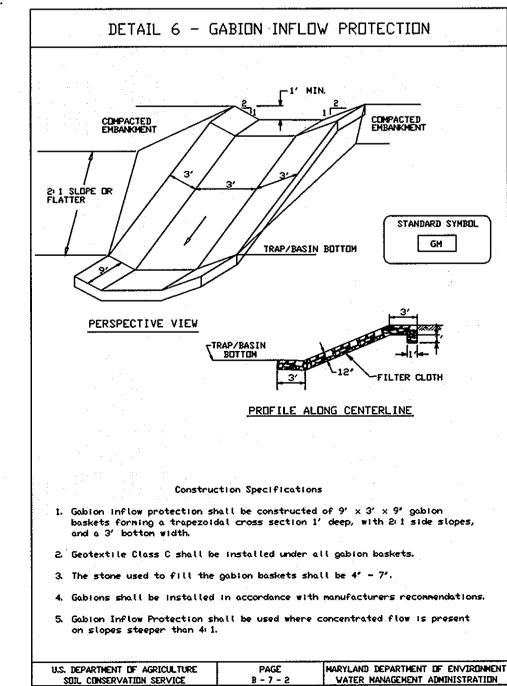
- C/ POPULAR MIX PRODUCES PERMANENT GROUNDCOVER QUICKLY. BLUEGRASS QUICKENS STAND.
- D/ BEST USE ON SHADY SLOPES NOT ON POORLY DRAINED CLAYS. E/ USE ON LOW MAINTENANCE, STEEP SLOPES. USE TALL FESCUE IN DRAUGHT CONDITIONS. CROWN
- VETCH BEST FOR 5b, 6a, 6b. F/ SUITABLE FOR SEEDING IN MIDSUMMER.
- G/ WEEPING LOVEGRASS MAY BE SEEDED WITH TALL FESCUE IN MID-SUMMER. SERECIA LESPEDEZA IS BEST SUITED FOR ZONES 7a & 7b.
- H/ USE ON POORLY DRAINED SOILS DITCHES OR WATERWAYS. BIRDSFOOT TREEFOIL IS BEST FOR ZONES
- 5a. 6a ABOVE 2.000 FI. / USE IN AREAS OF MOIST SHADE. POA TRIVIALIZE THRIVES IN WET SHADY AREAS.
- J/ TALL FESCUE MAY BE SEEDED ALONE. THE HARD FESCUE PROVIDES BETTER SHADE TOLERANCE AND PRODUCES A BETTER STAND. K/ LOW FERTILITY GRASS. REQUIRES INFREQUENT MOWING. GOOD COMPANION FOR WILDFLOWERS
- TABLE 26 TEMPORARY SEEDING RATES, DEPTHS, AND DATES (HARDINESS ZONE 6b)

,,,	ULL 20 1 LIVII	OLANIA OFFICIAL	<del>~ 11 CO, OC. 1</del>	110) 1110 0/1100	(	
					· .	
		ANNUALISA OFFICE	NG PLANTING	· ·		
		I MINIMUM SEEDII	NG IPLANTING	t l		
			I DECTIL			

SPECIES	MINIMUM SEEDING RATES		PLANTING DEPTH	6b		
3, 20,23	PER ACRE	LBS/1000 \$Q.FT.	INCHES	3/1 <del>-</del> 4/30		8/15- 11/15
CHOOSE ONE: BARLEY OATS RYE	122 lbs 96 lbs 140 lbs	2.80 2.21 3.22	1-2 1-2 1-2	X	1 1	BY 10/15 - X
BARLEY OR RYE PLUS FOXTAIL MILLET	150 lbs	3.45	1	××	×	10/15 X
WEEPING LOVEGRASS	4 lbs	.09	1/4-1/2	1	×	-
ANNUAL RYEGRASS	50 lbs	1.15	1/4-1/2	X	1	11/1
MILLET	50 lbs	1.15	1/2		Х	-

Note: Select one or more of the species or mixtures listed on Table 26 for the appropriate plant hardiness zone.





STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION Section 1 - Vegetative Stabilization Methods and Materials A. Site Preparation

i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins. ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding. iii. Schedule required soil test to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications) I. Soil test must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

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

iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98 - 100% will pass through a #20 mesh sieve. iv. Incorporate line and fertilizer into the top 3 - 5" of soil by disking or other suitable

C. Seedbed Preparation

i. Temporary Seeding a. Seedbed preparation shall consist of loosening soil to a depth of 3' to 5' by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 31) should be tracked leaving the surface in an irregular condition with ridges running parallel to the counter of the slope.

b. Apply fertilizer and lime as prescribed on the plans. c. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other

ii. Permanent Seeding a. Minimum soil conditions required for permanent vegetative establishment

1. Soil pH shall be between 6.0 and 7.0 2. Soluble salts shall be less than 500 parts per million (ppm).

3. The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedeza is to be planted, then a sandy soil ( < 30% silt plus clay) would be acceptable.

4. Soil shall contain 1.5% minimum organic matter by weight

5. Soil must contain sufficient pore space to permit adequate root penetration. 6. If these conditions cannot be met by the solls on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.

b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 - 5° to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.

c. Apply soil amendments as per soil test or as included on the plans. d. Mix soil amendments into the top 3 - 5' of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 31) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3' of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this

Note: Seed tags shall be made available to the inspector to verify type and rate of seed used. ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75-80 F. can weaken bacteria and make the innoculant less effective.

E. Methods of Seeding

D. Seed Specifications

i. <u>Hydroseeding:</u> Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder. a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac.; K20 (potassium): 200 lbs/ac. b. Lime – use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding. c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

II. <u>Dry Seeding</u>: This includes use of conventional drop or broadcast spreaders. a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed soil contact. b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting. b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each directions

F. Mulch Specifications (In order of preference) i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state. b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry. c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedings. e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.

f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum. Note: Only sterile straw much should be used in areas where one species of grass is desired. G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding. . If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.

li. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5

iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water. H, Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard: i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.

ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per

III. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys or on crest of banks. The remainder of area should appear uniform after binder application. Synthetic binders — such as Acrylic DLR (Agro-Tack), DCA-70,, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch. iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

Incremental Stabilization -- Cut Slopes -- See G-20-6

21.0 STANDARDS & SPECIFICATIONS FOR TOPSOII

Definition - Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose – To provide a sultable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation. Conditions Where Practice Applies

I. This practice is limited to areas having 21 or flatter slopes where: a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans. Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USBA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications – Soil to be used as topsoil must meet the following: i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2° in diameter.

Topsoll must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square fed) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described

i. In soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

III. For sites having disturbed areas over 5 acres

a, pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient the has elapsed (14 days min.) to permit dissipation of phyto-toxic.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials. V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins. ii. Grades on the areas to be topsolled, which have been previously established, shall be maintained, albeit 4"-8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while 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 detrimental to proper grading and seedbed preparation. VI. Alternative for Permanent Seeding – Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soll conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendment and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge: shall be supplied by, or originate from, a persor or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06. b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

References: Guideline Specifications, Soil Preparation and Sodding. MD-V A, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SECTION IV - SOD

To provide quick cover on disturbed areas (21 grade or flatter). A. General Specifications

li. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.

iii. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section. iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival. v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

B. Sod Installation I. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.

iii. Wherever possible, sod shall be laid with the long edges parallel to contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surf

iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations laying, tamping and irrigating for any piece of sod shall be completed within eight hours. Sod Maintenance

ii. After the first week, sod watering is required as necessary to maintal adequate moisture content. iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified. SECTION V - TURFGRASS ESTABLISHMENT

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1 1/2 inches in diameter shall be removed. The resulting seedbed should be in such condition that future mowing of grasses will pose no

Note: Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

A Turfgrass Mixtures i. Kentucky Bluegrass – Full sun mixture – For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the

ii. Kentucky Bluegrass/Perennial Rye - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; certified Tall Fescue Cultivars 95 - 100%, certified Kentucky Bluegrass Cultivars 0 - 5%. Seeding rate: 5 to 8 lb/1000 sf. One or more cultivars may

iv. Kentucky Bluegrass/Fine Fescue - Shade Mixture - For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes, certified Kentucky Bluegrass Cultivars 30-40% and certified Fine Fescue and 60-70%. Seeding rate: 1 1/2 - 3 lbs/1000 square feet. A minimum of 3 Kentucky Bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

Note: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland" B. Ideal times of seeding:

Western MD: March 15 - June 1, August 1 - October 1 (Hardiness Zones - 5b, 6a) Central MD: March 1 - May 15, August 15 - October 15 (Hardiness Zone - 6b) Southern MD, Eastern Shore: March 1 - May 15, August 15 - October 15 (Hardiness Zones - 7a, 7b)

C. Irrigation If soll moisture is deficient, supply new seedlings with adequate water for plant growth (1/2" i" every 3 to 4 days depending on soll texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

D. Repairs and Maintenance Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.

i. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.

If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.

iii. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.

iv. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No. 171.

		STORMORA	AIN STRUCTUR	E SCHEDUL	E	
NO.	TYPE	DETAIL	INV. IN	INV. OUT	TOP	LOCATION
I-1	PRECAST A-10 INLET	HC-SD 4.41	339.49,50	339.39.45	346.47.53	€ SHADED DAY 0+57.88, 17.238
1-2	PRECAST A-10 INLET	HC-SD 4.41	339.96,	339.86.78	346,51,53	€ SHADED DAY 0+57.88, 17't
1-3	TYPE K INLET	HC-SD 4.12	340.42.56	340.32.35	343.80.95	N <del>537031.74</del> E <del>1353348.49</del> 537032.39 1353348.53
1-4	TYPE K INLET	HC-SD 4.12	343.05 .51	343.55.38	346,16.00	N <del>597176.77</del> E <del>1959392:00-</del> 537176-73 135339):71
M-1	4' PRECAST MANHOLE	HC-S-5.11	334.99 ,84	334.89 :74	340.66.29	N <del>537013.00</del> - E <del>1353617.60</del> 537013.19 1353619.75
M-2	4' PRECAST MANHOLE	HC-8-5.11	338.95.65	338.95.57	348.80	N 5 <del>37049.92-</del> E <del>1353490.47</del> 537050-16 1363492.56
M-3	5'MANHOLE	HC-G-5.13	341.36 : 14	341.26.05	345,31.19	N 537067.46 E 1353590.75 537067.49 (363389.36
M-4	5' MANHOLE	HC-G-5.13	344.25 (STUB)	344.95.05	352.94.75	N <del>537175:60</del> E <del>1353491:89</del> 537 <i>1</i> 75:67 1353491:9 <i>e</i>
E-1	24" CONC. END SECTION	HC-SD-5.51		<del>334.00</del> 333.90	337.50	N 537020-24 E 1353645.75 537019-60 1353645.61
HM-1	24" CONC. END STATION	HC-SD 5.51		331:00 330:57	333.00	N 537054:76 E 1353707:92 537055:17 1353766:64
R-1	CONC. RISER	SEE DETAIL	;	331.50,44	338.83.89	N 537065:76- E 1858710:47 537065:63 1363718:60

\* TOP ELEVATIONS FOR A-10 INLETS ARE TOP OF CURB FOR TYPE K INLETS TOP OF STRUCTURE.

SEQUENCE OF CONSTRUCTION

1. DBTAIN A GRADING PERMIT.

2. NOTIFY 'MISS UTILITY' AT LEAST 48 HOURS BEFORE BEGINNING AN WORK AT 1-800-257-7777, NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION DIVISION AT 410-313-1870 AT LEAST 24

3. INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 DAY)

4. INSTALL PERIMETER CLEANWATER DIKES AND SUPER SILT FENCE AND CONSTRUCT BASIN.

5. WITH SEDIMENT CONTROL DEVICES INSTALLED AND WITH INSPECTORS APPROVAL, CLEAR & GRADE SITE (1 WEEK)

6. FINE GRADE AREA FOR THE NEW ROAD AND INSTALL WATER, SEWER & STORMDRAINS. (4 WEEKS)

7. BEGIN INSTALLATION OF CURB & GUTTER AND CONSTRUCT SWMF. (3 WEEKS)

8, WITH CURB & GUTTER IN PLACE PAVE ROAD AND INSTALL SIDEWALKS. (2 WEEKS)

9. FINE GRADE SITE AND STABILIZE ALL DISTURBED AREAS. (2 WEEKS)

10. INSTALL SITE LANDSCAPING & STREET TREES. (2 VEEKS) 11. WITH ALL DISTURBED AREAS STABILIZED AND WITH THE INSPECTORS APPROVAL REMOVE SEDIMENT CONTROL DEVICES. (1 WEEK)

12. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED SITE. (2 DAYS)

DeMario Design Consultants, Inc.

Fax: (410) 386-056

eMail: ddc@demariodesign.u

HOWARD COUNTY, ME

COLUMBIA, MD 21044

TOPOGRAPHY SHOWN HEREON BASED ON A FIELD

CONSULTANTS, INC. DATED MARCH, 2006. BOUNDARY

SHOWN HEREON IS BASED ON RECORDED PLATS BY

SURVEY PREPARED BY DEMARIO DESIGN

192 East Main Street Westminster, MD 21157

OWNER: **DEVELOPER:** EMERSON LAND GENERAL GROWTH PROPERTIES **BUSINESS TRUST** 10275 LITTLE PATUXENT PKWY

6TH ELECTION DISTRICT

10275 LITTLE PATUXENT PKWY COLUMBIA, MD 21044 410-992-6000

SITE ADDRESS: SKYLARK BOULEVARD

> FINAL ROAD CONSTRUCTION PLANS EMERSON SECTION 2, PHASE 8A LOTS 1 THRU 4 & 6 THRU 8 OPEN SPACE LOTS 5 & 9 SEDIMENT EROSION CONTROL NOTES

INTE OF MARY AND SPECIFICATIONS. PAUL G. CAVANAUGH Professional Engineer # 27020 LICENSE EXPIRATION DATE: 1/25/160010

HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES

Shown on this plan were constructed as shown

on this plan meet the current approved plans

Professional Certification

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional ngineer under the laws of the State of Maryland, License No 25420 Expiration Date: 07.20.08.

OF MARK WINE R. THOS 

DRN. REV. DATE NO. | DESCRIPTION OF CHANGES CO. FILE # F-07-128 DES. BY: TAX ACC.# DRN. BY: TAX MAP: 47 CHK. BY: BLOCK/GRID: 8 DATE: 09.25.07 PARCEL# P/O 1053 DDC JOB#: 05122.2 SHEET NUMBER: ZONE/USE: PECMXD3 5 of 9 DWG. SCALE:

W:\05122.2 - Emerson 2-8A Finals/dwg/FINAL ROAD PLANS\051222\_SC2.dwg, 9\25/2007 1:08:05 PM, \/server\HP Design3et 5500ps #2, JCO

J. Incremental Stabilization -- Fill Slopes -- See G-20-7

II. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.

AS-BUILT SUPPLEY DATES: 10/23-1 /12/20/2, 10/7/2013

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

AS-BUILT CERTIFICATION

Math T. Muld J.
CHIEF, BUREAU OF HIGHWAYS APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND

