# GENERAL NOTES

- Existing Zoning: RSC per April 2004 Comprehensive Zoning Plan effective 2/2/04 and per the Comp Lite Zoning Regulation Amendments effective on 7/28/06.
  Deed Reference: 5479/683
  Plat Reference: N/A
  Gross Area of Tract: 5.9892 ac.
  Area of 100 Year Floodplain: N/A
  Area of Steep Slopes: 0.00 ac.
  Net Area of Tract: 5.9892 ac.
  Net Area of Proposed Lots/Parcels: 15 (9 Buildable Lots, 1 Existing Dwelling, 3 Open space lots.

- 8. Number of Proposed Lots/Parcels: 15 (9 Buildable Lots, 1 Existing Dwelling, 3 Open space lots, 2 Bulk parcels)
  9. Area of Proposed Lots/Parcels: 5.016 ac.

- a) Area of Proposed Lots: 1.674ac.
  b) Area of Proposed Parcels: 1.627.ac.
  c) Area of Open Space Lots: 1.71 ac.
   Open Space Required: 25% / 1.50 ac
   Open Space Provided: 1.71 ac.
   Credited Open Space Provided: 1.65 Ac. (27.6%)
   Recreational Open Space Required: 3000sf
   Recreational Open Space Provided: N/A (WP-07-57)
  d) Area of Proposed Public Road Dedication: 0.98 ac
- 10. This project is in conformance with the latest Howard County Standards unless waivers have
- been approved.

  11. The existing topography shown hereon was provided by Daft, McCune and Walker Inc.

  12. The total forest conservation obligations for this site is 0.8934 acres. A total of .7092± acres of afforestation are proposed under this plan. As such, the required surety amount for the 0.3149 acres of afforestation is \$6,859.00 and the surety for the 0.3576 acres of supplemental planting is \$6,231.00 (\$0.40/s.f.). The forest conservation surety is \$13,090.00. The surety for the landscape material \$6,018.00 (\$0.75/s.f.) for 0.1842 acres of forestation will be paid
- separately.

  13. This plan has been prepared in accordance with the provisions of section 16.124 of HO.CO code financial surety for required landscaping in the amount of \$12,450.00 must be posted as part of the developer's agreement (35 shade trees, 13 evergreen trees).

  14. 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.

  15. This property is located in the Metropolitan District.

  16. Stormwater management for this development will be provided by the following means:
- Recharge (Rev) will be provided by grass channels. These channels address Rev for this site and Emerson 2-8a to the immediate south. Water Quality (WQv) for the northern drainage area (Design Point 2) will be provided in a bioretention facility, to be privately owned by an HOA. WQv for the portion of this site that drains to the south (to DPI) will be provided in the SWM pond on the Emerson site (accounted for in Emerson 2-8a SWM design). Channel Protection (Cpv) is not required at DP2 because the 1-year storm is under 2 cfs. Cpv for DP1 is provided and designed in the Emerson 2-8a SWM design. Neither the 10-year nor the 100-year storms are required to be managed at DP2. For treatment of these storms at DP1, see Emerson 2-8a SWM design.
- Existing utilities shown hereon are based on field surveys and record drawings.
  There is no floodplain onsite.
  There are no wetlands onsite.

- 20. Traffic study prepared by Wells & Associates, Inc. dated February, 2006.
  21. A noise study is not required for this project.
  22. The geotechnical study for this project was prepared by Robert A. Balter Company dated March, 2006.
  23. Project Background Information:
- a) Subdivision Name: The Grove at Emerson, Phase I b) Tax Map/Block/Parcel: 47/8/5
- c) Zoning: RSC d) Election District: 6th
- Total (Gross) Tract Area: 5.9892 f) Number of Proposed Lots: 15 (9 Buildable Lots, 1 Existing Dwelling, 3 Open space lots, 2 Bulk parcels)

  g) Applicable Department of Planning & Zoning File Nots: WP-07-57, SP-06-023 (Pessin Property), WP-08-45
- 24. The existing structure located on Lot 9 is to remain. All other structures on site are to be
- 25. The proposed access street shall be public.
  26. BRL denotes the Building Restriction Line.
  27. Sediment and erosion control measures are provided in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control.
  28. Street trees are provided on the access street in accordance with Section 16.124 of the Howard County Subdivision Regulations.
  29. Sidewalks are provided in accordance with Section 16.134 of the Howard County Subdivision Regulations.
  30. The approximate to be privately owned by the Emerson HOA.
- 30. The open space lots are to be privately owned by the Emerson HOA.
  31. Offsite grading is allowed since the adjacent property owners are the same as the subject
- property.
  32. There are no historic structures or cemeteries located on the subject property.
  33. 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
- easement.

  34. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.

  35. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410)-313-1880 at least (5) working days prior to the start of work.

  36. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.

  37. Traffic control devices, marked and signings shall be in accordance with
- latest edition of the Manual of Uniform Traffic Control Devic
- (MUTCD). All street and regulatory signs shall be in place prior to placement of any asphalt.

  38. 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 a 2-1/2" galvanized steel, perforated, square tube sleeve (12-gauge)-3'long. A galvanized steel pole cap shall be mounted an top of each post.

  39. Water is public. Contract # 24-4387-D

  40. Sewer is public. Contract # 24-4387-D

- 41. Public sewer service and public water service has been granted under the terms and provisions thereof effective, on which date Developer's Agreement No. 24-4387-D was executed.

  42. 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 streetlights and any tree.
- 43. This plan is subject to MP-07-57 to waive sections 16.121(a)(4) and 16.121(a)(2) of the Howard County subdivision and land development regulations. The Planning Director approved your request for a waiver from Section 16.121(a)(4), "Recreational Open Space" which requires that all residential subdivisions with more than 10 dwelling units shall provide on-site recreational open space based on 300 square feet per unit for a single family detached subdivision in the "RSC" zoning district. The petitioner is requesting alternative compliance to satisfy their minimum recreational open space requirement by annexing the site into the existing Emerson HOA.
- Approval is subject to the following conditions:
- 1. Compliance with the SRC agency comments for SP-06-23.
- 2. The proposed "Emerson HOA" annexation documents for the subject property must be provided with the final plan submission and referenced on the final plat as alternative compliance for satisfying the 300 square foot per unit recreational open space requirement for this project.
- The Planning Director denied your request for a waiver from Section 16.121(a)(2), "Minimum Open Space" which requires a minimum on-site open space percentage for an "RSC" zoned Open Space" which requires a minimum on-site open space percentage for an subdivision calculated as 25% of the gross area of the proposed subdivision.
- 44. This plat is subject to MP-08-45 which was granted on December 18, 2007 for the following
- Section 16.144(k)(1) and Section 16.144(k)(3)(1) to allow a Final Plan subdivision design to deviate from the approved Preliminary Equivalent Sketch Plan, SP-06-23 and for a 60 day time extension of the Final Plan milestone date of December 3, 2007 for Phase 1 as established by the DPZ housing unit allocation letter dated August 3, 2007, subject to the
- following conditions:
  1. Compliance with comments dated December 13, 2007 from the Development Engineering Division.
  2. The applicant shall proceed with the submission of the final plan application for
- 2. The applicant shall proceed with the submission of the final plan application for Phase 1 of this project within 60 days (on or before February 16, 2008) of the date of this waiver approval letter.

  3. All proposed residential building lots shall be designed to accommodate the footprint of anticipated house types of the potential builder(s) without requiring setback variances. The standard house footprint that should be used to design the building lots is 35'x50'. As a result of the required "RSC" bulk regulations (lot width and setbacks), pipestern lot design and public road orientation, etc., it appears that some lots such as Lot 4, 11 and 13 may need to be enlarged to accommodate the anticipated house types. A further evaluation of the subdivision lot design and sizes will be made at the final plan submission for this project. The Recreational Open Space area requirement for this subdivision will be fulfilled by the annexation into the Emerson HOA and through the use of Emerson recreational facilities per WP-07-57.
- WP-07-57.

  46. All fill shall be 95% compaction per AASHTO T-180 in fill areas.

  47. The 20' of frontage for Open Space Lot 10 along proposed Shaded Day is considered an additional access point per Section 16.121(e) of the Subdivision and Land Development Regulations since the adjacent existing open space Lot 22 meets the required minimum 40' open space frontage on a public road(Skylark Boulevard).

  48. This plan is subject to a Design Manual Waiver which was approved on June 4, 2008 which granted a waiver of Appendix "A" and Detail R-1.02 of Design Manual Volume III and IV, to permit a 40' right-of-way, subject to the following conditions:

  1. The road pavement width shall meet the standard 24' requirement.

  2. A public 10' street easement shall be located adjacent to 40' right of way section.

  3. The proposed typical road section shall be an extension of the existing section.

  4. A note must be added identifying the approval of this waiver, its date and any contingencies.

# FINAL ROAD PLAN

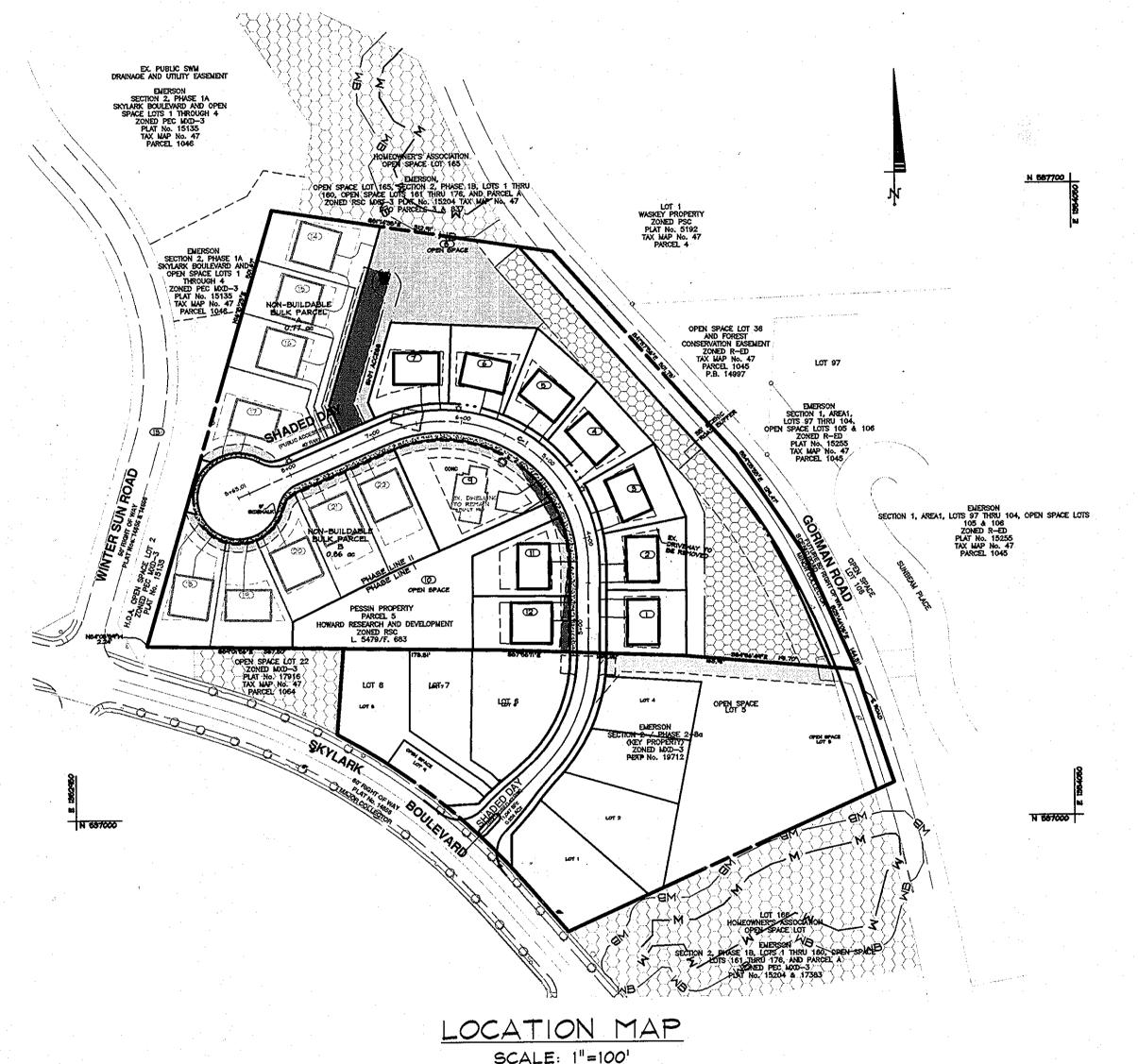
# THE GROVE AT EMERSON PHASE

LOTS 1-7, 9, 11-12, OPEN SPACE LOTS 8, 10, 13 # NON-BUILDABLE BULK PARCELS A # B

A SUBDIVISION OF TAX MAP 47, GRID 8, PARCEL 5

6TH ELECTION DISTRICT

HOWARD COUNTY, MD



#### COORDINATE TABLE NO NORTHING EASTING 243 537674.9057 1353169.7247 244 537627.2671 1353478.9836 245 537401.7119 1353679.4678 249 537186.3160 1353419.2046 250 537192.8660 1353031.4599 252 537183.6161 1353495.3865 326 537182.1987 1353535.3797 327 537279.2826 1353535.8777 328 537445.1192 1353283.7442 329 537279.4878 1353495.8782 331 537362.2292 1353194.0568 332 537345.0522 1353179.7406 333 537400.0233 1353155.6954 334 537398.8766 1353178.0266 338 537633.0098 1353441.7031 339 537534.1754 1353528.2777 340 537431.6059 1353620.6350 537354.9866 | 1353686.1798

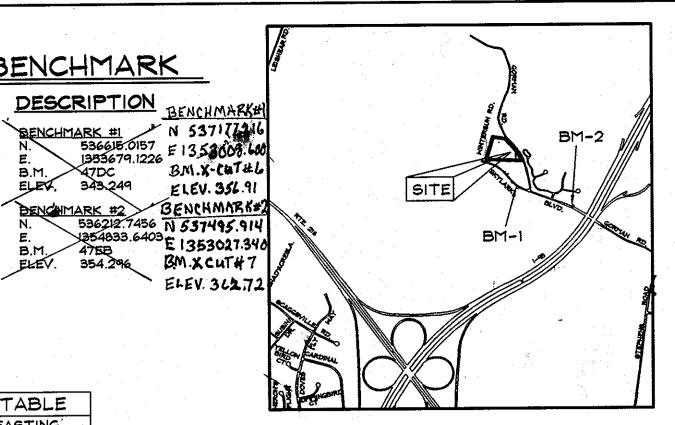
342 537297.2589 1353724.9881

 343
 537244.3527
 1353753.0087

 344
 537164.3120
 1353787.8510

BENCHMARK

B.M. 47DC ELEV. 343.249



VICINITY MAP SCALE: 1"=2000"

#### DRAWING INDEX

SHEET	DESCRIPTION
1	COVER SHEET
2	ROAD CONSTRUCTION PLAN & PROFILE
3	GRADING, SEDIMENT CONTROL AND SOILS PLAN
4	SEDIMENT & EROSION CONTROL NOTES
5	SEDIMENT & EROSION CONTROL DETAILS
6	STORMORAIN DRAINAGE AREA MAP
7	PROFILES MANAGEMENT NOTES, DETAILS &
8	LANDSCAPE & STREET TREE PLAN
9	FINAL FOREST CONSERVATION PLAN
10	FINAL FOREST CONSERVATION PLAN

# DATA SOURCES:

192 East Main Street

OWNER:

Westminster, MD 21157 http://www.demariddasign.u

SITE ADDRESS:

9881 GORMAN ROAD

ZONE JUSE RSC

DeMario

Design

HOWARD RESEARCH & DVP. 10275 LITTLE PATUXENT PKWY COLUMBIA, MD 21044 410-992-6000

TOPOGRAPHY SHOWN HEREON BASED ON A FIELD SURVEY PREPARED B DMW. BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY DEMARIO DESIGN CONSULTANTS, INC. DATED MARCH 2006.

Consultants, Inc.

FINAL ROAD PLAN THE GROVE AT EMERSON PHASE LOTS 1-7, 9, 11-12 & OPEN SPACE LOTS 8,10,13

COVER SHEET

Fax: (410) 386-056

eMail: ddc@demariodesign.u

GENERAL GROWTH PROPERTIES

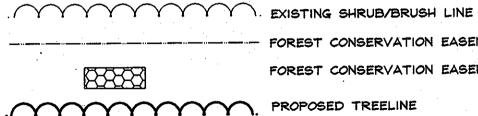
10275 LITTLE PATUXENT PKWY COLUMBIA, MD 21044

DEVELOPER:

400-992-6000

# DRAWING LEGEND

\_\_\_\_\_\_682 \_\_\_\_ EXISTING MINOR CONTOUR (2' INTERVAL) \_\_\_\_\_ 680 \_\_\_\_\_ EXISTING MAJOR CONTOUR (10' INTERVAL) EX. ROAD / EDGE OF PAVING EX. SEWER LINE & MANHOLES, CLEAN TOUTS ---- EX. OVERHEAD ELECTRIC & UTILITY POLES PROPOSED MINOR CONTOUR (2' INTERVAL) PROPOSED MAJOR CONTOUR (10' INTERVAL) EX. BUILDING EXISTING TREES EXISTING TREELINE



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING

AND ZONING.

\_\_\_\_\_ FOREST CONSERVATION EASEMENT LIMIT LINE

FOREST CONSERVATION EASEMENT

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that 11 bird lifely licensed professional engineer under the laws Of the State of Maryland, License No. 25429. Explation Dates 1,010. MARK THAYER

PROFESSIONAL ENGINEER NO. 25420 DWG SCALE 1 400

HOWARD COUNTY 4TH ELECTION DISTRICT REVISIONS DRN. REV. DATE DESCRIPTION OF CHANGES DES. BY: JCO/WRD TAX ACC. # 406300 DRN. BY: JCO TAX MAR: 47 CHK.BY: MART BLOCK / OFFIDER DATE: 8-29-2008 DDC JOB# 05123.2 PARGEL# 5 SHEET NUMBER:

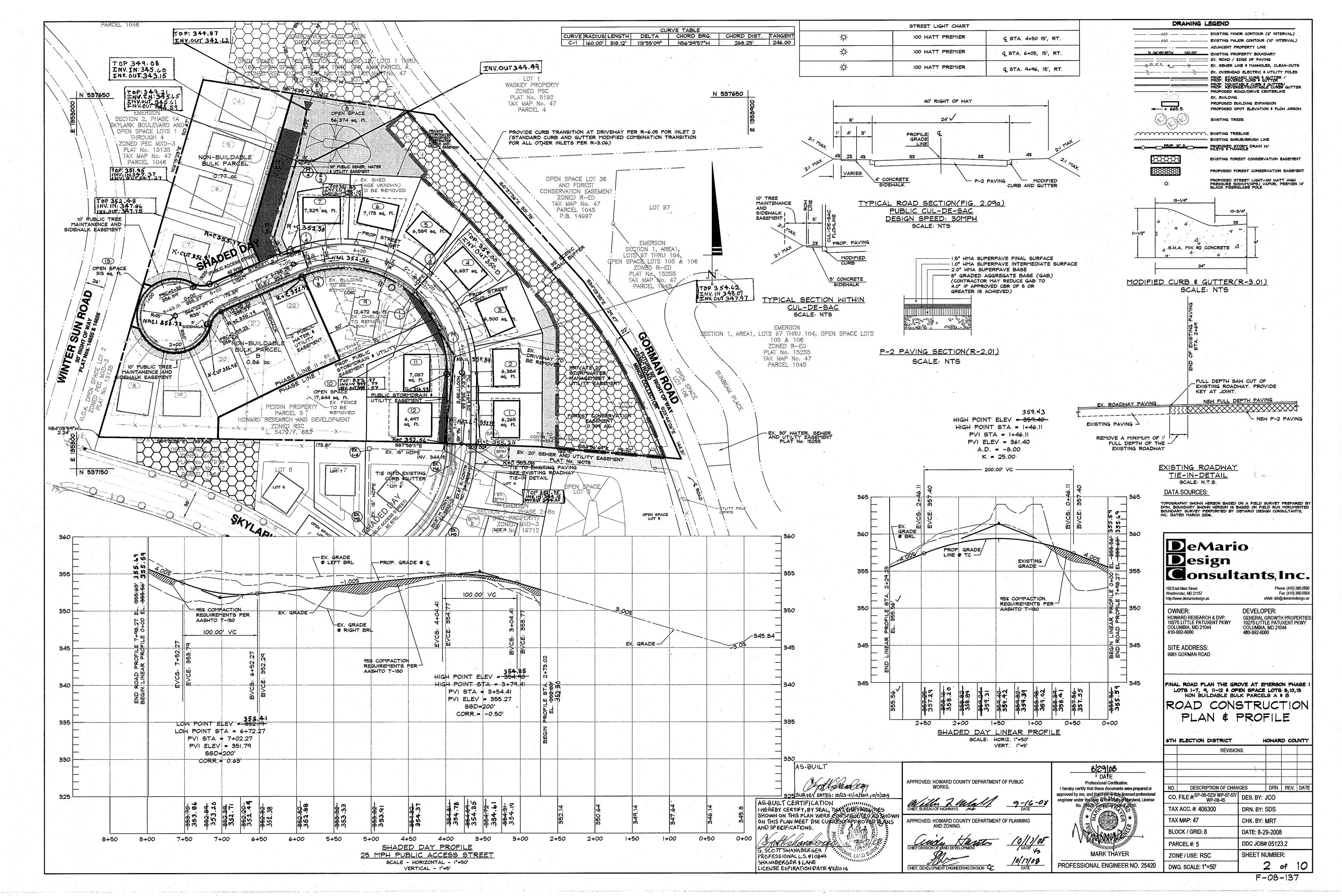
F-08-137

of O

sall handwar SURVEY DATES: 10/23-11/12/2012,10/1/2013

AS-BUILT

NOTE: THERE IS NO AS-**BUILT INFORMATION** PROVIDED ON THIS SHEET S. SCOTT SHANABERGER SHANABERGER & LANE PROFESSIONAL L.S#10849 LIC.EXP. DATE: 4/2/2014



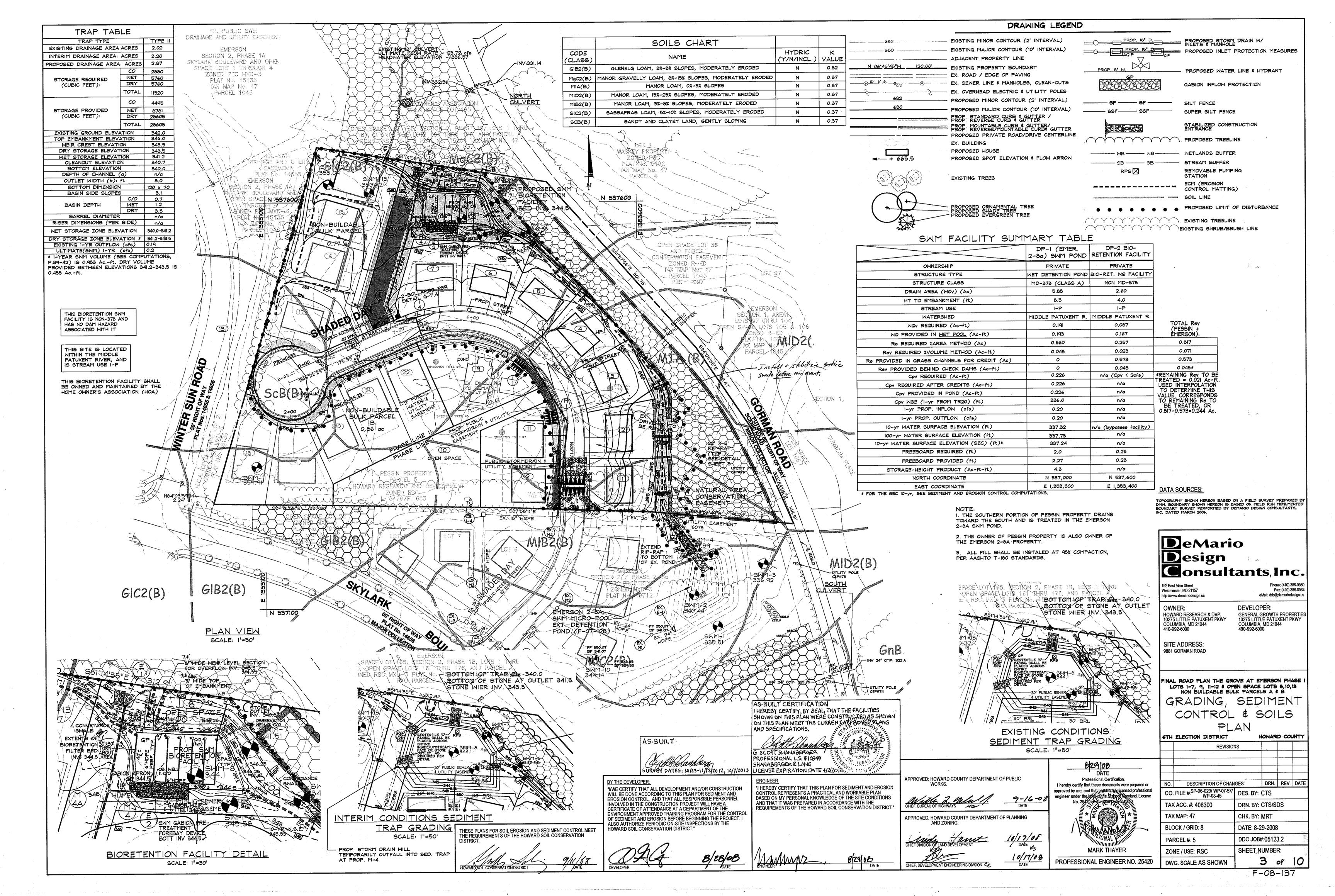


TABLE 25: PERMANENT SEEDING FOR LOW MAINTENANCE AREAS HARDINESS ZONE 6b SEED MIX PLANTING USE CERTIFIED MATERIAL SITE 1- 3/15 5/16- 6/2- 8/1- 8/15 8/15-LBS/AC. LBS/ NESS /15 -5/15 8/14 7/31 10/1 10/15 11/15 CONDITIONS -IF AVAILABLE MOIST TO 150 3.4 TALL FESCUE (75%) DRY CANADA BLUEGRASS (10%) KENTUCKY BLUEGRASS (10%) REDTOP (5%) MOIST TO KENTUCKY BLUEGRASS (50% CREEPING RED FESCUE OR A MODERATEL' HARD FESCUE (40%) DRY TO DRY | REDTOP (10%) 2.9 | MOIST TO TALL FESCUE (85%) 15 .34 PERENNIAL RYEGRASS (10% KENTUCKY BLUEGRASS (5%) 10 .23 RED FESCUE OR .92 | MOIST TO DRY 60 .92 CHEWING FESCUE (80%) 15 .34 |PERENNIAL RYEGRASS (20%) 2.5 110 TALL FESCUE (85%) OR, MOIST TO 20 .46 PERENNIAL RYEGRASS (50%) 20 20 .46 PLUS CROWNVETCH OR .46 FLATPEA .09 DRY T WEEPING LOVEGRASS (17%) VERY DR' SERECIA LESPEDEZA (83%) 20 .46 DRY TO 2.5 110 TALL FESCUE (83%) VERY DRY .07 3 WEEPING LOVEGRASS (2%) SERECIA LESPEDEZA(15%) 20 .92 REEDY CANARYGRASS (75%) MODERATEL .07 REDTOP (6%) PLUS DRY BIRDSFOOT TREEFOIL (19%) 10 .23 125 | 2.9 TALL FESCUE (86%) MODERATEL' 10 .23 POA TRIVIALIZE (7%) DRY 10 .23 BIRDSFOOT TREEFOIL (7%) WET TO 120 | 3.4 TALL FESCUE (80%) 10 HARD FESCUE (20%) DRY 30 .69 MOIST TO .75 3.4 11 | HARD FESCUE (100%) DRY A/ USED BY SHA ON SLOPED AREAS. ADD A LEGUME FOR SLOPES > THAN 3:1 B/ USED IN MEDIAN AREAS BY SHA. SHADE TOLERANT 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 FT.

I/ USE IN AREAS OF MOIST SHADE. POA TRIMALIZE 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.

TARIF 26 TEMPORARY SEEDING RATES, DEPTHS, AND DATES (HARDINESS ZONE 6b)

TABLE 26 TEMPURARY SEEDING RATES, DEPTHS, AND DATE								
SPECIES	MINIMUM SEEDING RATES		PLANTING DEPTH	6b				
	PER ACRE	LBS/1000 SQ.FT.	INCHES	3/1- 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 X	- -	BY 10/15 - X		
BARLEY OR RYE PLUS FOXTAIL MILLET	150 lbs	3.45	1	×	X	10/15 X		
WEEPING LOVEGRASS	4. lbs	.09	1/4-1/2	_	Х	_		
ANNUAL RYEGRASS	50 lbs	1.15	1/4-1/2	X	_	11/1		
MILLET	50 lbs	1.15	1/2	-	Χ	-		

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

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

829/08

BY THE DEVELOPER

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL. AND THAT ALL 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 EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE

18/08

HOWARD SOIL CONSERVATION DISTRICT.

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION Section I - Vegetative Stabilization Methods and Materials

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 the 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 time and fertilizer into the top 3 - 5" of soil by disking or other suitable means.

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 3:1) 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 suitable

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 saits 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 soils 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 3:1) 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.

D. Seed Specifications

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 job. Note: Seed taas 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 inoculant less effective.

E. Methods of Seeding

. <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. Dry Seeding: 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. ii. Wood Cellulose Fiber Mulch (WCFM)

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous 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. MCFM, 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 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.

ii. 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 tons/acre. 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 100 gallons of 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.

1. Incremental Stabilization -- Cut Slopes -- See G-20-6 J. Incremental Stabilization -- Fill Slopes -- See G-20-7 21.0 STANDARDS & SPECIFICATIONS FOR TOPSOIL

Definition - Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation. Purpose - To provide a suitable 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

1. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

d. The soil is so acidic that treatment with limestone is not feasible.

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 growth.

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 USDA-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 11/2" in diameter.

ii. Topsoil 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 in the following procedures. III. For sites having disturbed areas over 5 acres:

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

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 time has elapsed (14 days min.) to permit dissipation of phyto-toxic. materials. 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.

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 topsoiled, 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:

Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments 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 person of 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.

ii. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate. References: Guideline Specifications, Soil Preparation and Sodding. MD-V A, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

<u> SECTION IV - SOD</u>

V. Topsoil Application

To provide quick cover on disturbed areas (2:1 grade or flatter).

A. General Specifications

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and

ii. 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.

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.

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. 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.

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

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.

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. After the first week, sod watering is required as necessary to maintain 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 proper seedbed. Stones and debris over 1 1/2 inches in diameter shall be removed. The resedbed should be in such condition that future mowing of grasses will pose no difficulty.

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 mixture by weight.

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 be blended.

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"

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 soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2" - 1" every 3 to 4 days depending on soil 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 or

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.

ii. 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.

SEQUENCE OF CONSTRUCTION

i. Obtain a grading permit. This project cannot begin until basin is constructed

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

3. INSTALL STABILIZED CONSTRUCTION ENTRANCE. (1 DAY,

INSTALL PERIMETER SILT FENCE AND SUPER SILT FENCE AND CONSTRUCT TRAP. REFURBISH EXISTING BASIN UNDER F-07-128 FOR EROSION CONTROL FOR THIS PLAN.

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

5. FINE GRADE AREA FOR THE NEW ROAD AND INSTALL WATER, SEWER 4 STORMDRAINS WITH EXCEPTION OF S.D. PIPE RUNS M4 TO EI AND M4 TO E2. (4 WEEKS) -NOTE- THAT THE S.D. WILL TEMPORARILY DRAIN TO SEDIMENT TRAP AT M.H. M-4.

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

AS-BUILT

SURVEY DATES: 10/23 -11/12/2012, 10/1/2013

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC

PPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING

CHIEF, BUREAU OF HIGHWAYS

AND ZONING.

CHIEF DIVISION OF AN

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

9. FINE GRADE SITE AND STABILIZE ALL DISTURBED AREAS. (2 WEEKS) 10. INSTALL SITE LANDSCAPING & STREET TREES AND INSTALL STORM DRAIN RUNS M4 TO EI

II. WITH ALL DISTURBED AREAS STABILIZED AND WITH THE INSPECTORS APPROVAL REMOVE SEDIMENT CONTROL DEVICES. ONCE SITE IS COMPLETELY STABILIZED, INSTALL BIORETENTION FACILITY. THERE MUST BE A CLEAR FORECAST PREDICTED, BY THE NATIONAL WEATHER SERVICE, FOR THE DURATION OF THE CONSTRUCTION OF THE BIORETENTION FACILITY(2 WEEKS)

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

DATA SOURCES:

TOPOGRAPHY SHOWN HEREON BASED ON A FIELD, SURVEY PREPARED B DMM. BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY DEMARIO DESIGN CONSULTANTS,



Phone: (410) 386-056

eMail: ddc@demariodesign.u

HOWARD COUNTY

GENERAL GROWTH PROPERTIE

10275 LITTLE PATUXENT PKWY

DEVELOPER:

400-992-6000

COLUMBIA, MD 21044

Fax: (410) 386-056

http://www.demariodesign.us OWNER: **HOWARD RESEARCH & DVP.** 

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

SITE ADDRESS 9881 GORMAN ROAD

Westminster, MD 21157

final road plan the grove at emerson phase LOTS 1-7, 9, 11-12 & OPEN SPACE LOTS 8,10,13 NON BUILDABLE BULK PARCELS A & B

REVISIONS

BUILT INFORMATION OF MAR PROVIDED ON THIS SHEET & S. SCOTT SHANABERGER 3 CONTROL NOTES

6TH ELECTION DISTRICT

PROFESSIONAL L. T. TILLY ON THE ALE LAND SI DATE Professional Certification. I hereby certify that these documents were prepared or approved by me, and that which laid by jicensed professiona engineer under the this Offith state (Maryland, License No. 2012) Explain Date (1) 200. 

# 23/65/18

NOTE: THERE IS NO AS-

SHANABERGER & LANE 3

9-16-08 DATE

PROFESSIONAL L.S. #10849 = 00

MARK THAYER

NO. | DESCRIPTION OF CHANGES DRN. REV. DATE CO. FILE #SP-06-023/ WP-07-5/ DES. BY: JCO/MRT WP-08-45 DRN. BY: SDS TAX ACC. #. 406300 TAX MAP: 47 CHK. BY: MRT DATE: 8-29-2008 **BLOCK / GRID: 8** DDC JOB# 05123.2 PARCEL# 5 SHEET NUMBER: ZONE / USE: RSC PROFESSIONAL ENGINEER NO. 25420 4 of DWG. SCALE: AS SHOWN

F-08-137

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the State Highway Administration Standard Specifications for scope of the 2000 Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to mixture shall have a 100-200 psi; 28 day unconfined the most recent version.

Site Preparation Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of flowable fill shall be under (bed-ding), over and, on the topsoil. All trees, vegetation, roots and other objectionable sides of the pipe. It only needs to extend up to the spring material shall be removed. Channel banks and sharp breaks line for rigid conduits. Average slump of the fill shall be 7 shall be sloped to no steeper than 1:1. All trees shall be to assure flowability of the material. Adequate measures cleared and grubbed within 15 feet of the toe of the shall be taken (sand bags, etc.) to prevent floating the pipe.

Areas to be covered by the reservoir will be cleared of all in horizontal layers not to exceed four inches in thickness trees, brush, logs, fences, rubbish and other objectionable and compacted by hand tampers or other manually directed material unless otherwise designated on the plans. Trees, compaction equipment. The material shall completely fill brush, and stumps shall be cut approximately level with the all voids adjacent to the flowable fill zone. At no time ground surface. For dry stormwater management ponds, a during the backfilling operation shall driven equipment be minimum of a 25-foot radius around the inlet structure allowed to operate closer than four feet, measured shall be cleared.

All cleared and grubbed material shall be disposed of structure or pipe unless there is a compacted fill of 24" or outside and below the limits of the dam and reservoir as greater over the structure or pipe. Backfill material outside directed by the owner or his representative. When the structural backfill (flowable fill) zone shall be of the specified, a sufficient quantity of topsoil will be stockpiled type and quality conforming to that specified for the core in a suitable location for use on the embankment and other of the embankment or other embankment materials. designated areas.

Material - The fill material shall be taken from approved All pipes shall be circular in cross section. 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 Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if lesigned by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

engineer.

requirements of AASHTO Specification M-274 with Placement - Areas on which fill is to be placed shall be watertight coupling bands or flanges. Aluminum scarified prior to placement of fill. Fill materials shall be Coated Steel Pipe, when used with flowable fill or placed in maximum 8 inch thick (before compaction) when soil and/or water conditions warrant the need layers which are to be continuous over the entire length of for increased durability, shall be fully bituminous the fill. The most permeable borrow material shall be coated per requirements of AASHTO Specification placed in the downstream portions of the embankment. The M-190 Type A. Any aluminum coating damaged or principal spillway must be installed concurrently with fill otherwise removed shall be replaced with cold placement and not excavated into the embankment. applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall

<u>Compaction</u> - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire 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 equipmen 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 depth 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.

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 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 the embankment.

Structure Backfill
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 not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the 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.

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

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL. AND THAT ALL 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 EROSION BEFORE BEGINNING THE PROJECT. ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Structure backfill may be flowable fill meeting the 1. Bedding - The pipe shall be firmly and uniformly equirements of Maryland Department of Transportation, Construction and Materials, Section 313 as modified. The compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured pernendicular to the outside of the pipe) of

When using flowable fill, all metal pipe shall be

horizontally, to any part of a structure. Under no

ituminous coated. Any adjoining soil fill shall be placed

circumstances shall equipment be driven over any part of a

Corrugated Metal Pipe - All of the following criteria shall

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

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

Materials - (Aluminum Coated Steel Pipe) - This pipe

of the pipe. This pipe and its appurtenances shall

Specifications M-245 & M-246 with watertight

Materials - (Aluminum Pipe) - This pipe and its

AASHTO Specification M-196 or M-211 with

Pipe, when used with flowable fill or when soil

and/or water conditions warrant for increased

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

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

when joining pipe sections. The end of each pipe

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

pre-punched to the flange bolt circle, sandwiched

cell circular neoprene gasket; and a 12-inch wide

corrugation depth. Pipes 24 inches in diameter and

larger shall be connected by a 24 inch long annular

corrugated band using a minimum of 4 (four) rods

and lugs, 2 on each connecting pipe end. A 24-inch

wide by 3/8-inch thick closed cell circular neoprene

gasket will be installed with 12 inches on the end of

each pipe. Flanged joints with 3/8 inch closed cell

continuously welded seams or have lock seams with

Helically corrugated pipe shall have either

internal caulking or a neoprene bead.

hugger type band with 0- ring gaskets having a

minimum diameter of 1/2 inch greater than the

etween adjacent flanges; a 12-inch wide standard lap

connections are acceptable for pipes less than 24

shall be re-rolled an adequate number of corrugations

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

materials at least 24 mils in thickness.

considered to be watertight.

galvanized bolts may be used for connections. The

requirements of AASHTO Specification M-190 Type

A. Aluminum surfaces that are to be in contact with

watertight coupling bands or flanges. Aluminum

appurtenances shall conform to the requirements of

with polymeric coatings shall have a minimum

conform to the requirements of AASHTO

and its appurtenances shall conform to the

pply for corrugated metal pipe:

coupling bands or flanges.

two coats of asphalt.

soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support. 2. Backfilling shall conform to "Structure Backfill" 3. Other details (anti-seep collars, valves, etc.) shall be

bedded throughout its entire length. Where rock or

Reinforced Concrete Pipe - All of the following criteria shall apply for reinforced concrete pipe: 1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal

as shown on the drawings.

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 sides 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" 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.

be painted with one coat of zinc chromate primer or 2. Joints and connections to anti-seep collars shall be completely watertight

> 3. 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.

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

Transportation, State Highway Administration Standard

Specifications for Construction and Materials, Section

meet the requirements of Maryland Department of

Care of Water during Construction

All work on permanent structures shall be carried out in type band with 12-inch wide by 3/8-inch thick closed 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 gaskets the full width of the flange is also acceptable. 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

# Stabilization

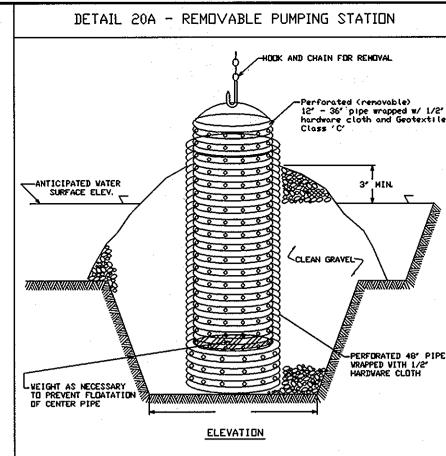
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service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

draining the water sumps from which the water shall be

# **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

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION



Construction Specifications

2. After installing the outer pipe, backfill around outer pipe with 2' aggregate or clean gravel.

6. LOCATION - A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL DVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE F - 17 - 3 VATER MANAGEMENT ADMINISTRATION U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE D - 12 - 5 VATER MANAGEMENT ADMINISTRATION SOIL CONSERVATION SERVICE DETAIL 22 - SILT FENCE

DETAIL 6 - GABION INFLOW PROTECTION STANDARD SYMBOL

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

PROFILE

PLAN VIEW

. WIDTH - 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING

. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. WE'THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.

. STONE - CRUSHED AGGREGATE (2" TO 3") DR RECLAIMED OR RECYCLED CONCRETE

EQUIVALENT SHALL BE PLACED AT LEAST 6' DEEP OVER THE LENGTH AND WIDTH OF THE

. SURFACE WATER - ALL SURFACE WATER FLOWING TO DR DIVERTED TOWARD CONSTRUCTION

INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH

HAS NO DRAINAGE TO CONVEY A PIPE VILL NOT BE NECESSARY. PIPE SHOULD BE SIZED

INTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE

MOUNTABLE BERN VITH 5:1 SLOPES AND A MINIMUM OF 6' OF STONE OVER THE PIPE. PIPE HA

TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND

ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6' MINIMUM WILL BE REQUIRED.

LENGTH - MINIMUM OF 50' (#30' FOR SINGLE RESIDENCE LOT).

MINIMUM 6' OF 2'-3' AGGREGATE OVER LENGTH AND VIDTH OF STRUCTURE

\*\* GEOTEXTILE CLASS 'C'-

**SERVICE SERVICE** 

EARTH FILL
PIPE AS NECESSARY

MBED GEDTEXTILE CLASS F — MINIMUM DF 8' VERTICALLY ¶ FENCE POST DRIVEN A
HINIMUM OF 16' INTO STANDARD SYMBOL —— 2F —

PERSPECTIVE VIEW

JDINING TWO ADJACENT SILT FENCE SECTIONS Construction Specifications . Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be  $11/2^{\prime} \times 11/2^{\prime}$  square (ninimum) cut, or  $13/4^{\prime}$  diameter (ninimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot 2. Gentextile shall be fastened securely to each fence post with wire ties

for Geotextile Class Fi Tensile Modulus 20 lbs/in (nin.) 0.3 gal ft\*/ minute (max.) Test: MSHT 322 75% (min.) Test: MSHT 322 Filtering Efficiency 75% (nin.)

PERSPECTIVE VIEW

folded and stapled to prevent sediment bypass 4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height

U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SUIL CONSERVATION SERVICE E - 15 - 3 VATER MANAGEMENT ADMINISTRATION

DETAIL 9 - STONE DUTLET SEDIMENT TRAP - ST II

— GEDTEXTILE CLASS C

Construction Specifications

3. All cut and fill slopes shall be 2:1 or flatter.

1. Area under embankment shall be cleared, arubbed and stripped of

2. The fill material for the embankment shall be free of roots and

other woody vegetation as well as over-sized stones, rocks, organic

material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being

4. The stone used in the outlet shall be small rip-rap 4' to 7' in

size with a 1' thick layer of 3/4' to 11/2' washed aggregate placed

on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C shall be substituted for the stone facing by placing it on the inside face

5. Sediment shall be removed and trap restored to its original

In a suitable area and in such a manner that it will not erode

dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited

U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMEN SQLL CONSERVATION SERVICE C-9-10 WATER MANAGEMENT ADMINISTRATION

STONE DUTLET SEDIMENT TRAP - ST II

The structure shall be inspected periodically, and after each rain, and repairs made as needed.

7. Construction of trops shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and nulch. Points of concentration inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and aulch upon trap completion and monitored and maintained erosion free during the life of the trap.

8. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized

11. The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embarkment.

12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6' into existing ground at the entrance of the outlet channel.

13. Dutlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

U.S. DEPARTMENT OF AGRICULTURE PAGE MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE C - 9 - 10A VATER NANAGEMENT ADMINISTRATION

9. Refer to Section D for specifications concerning trap devatering.

10. Hinimum trap depth shall be measured from the weir elevation.

any vegetation and root mat. The pool area shall be cleared

TOP OF EMBANKMENT

SECTION B-B

EXISTING

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 on slopes steeper than 411.

2. Geotextile Class C shall be installed under all gabion baskets.

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

PERSPECTIVE VIEW

SOIL CONSERVATION SERVICE

DETAIL 5 - RIP-RAP INFLOW PROTECTION DENYS GRADUAT RAP/BASIN BOTTON PERSPECTIVE VIEW CROSS SECTION

DETAIL 33 - SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

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

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

LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42' FABRIC AND 6' LENGTH

CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES.

THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT

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

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

6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN 'BULGES' DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT

0. 3 GAL/FT\*/MINUTE (MAX.)

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

STAPLES AT TOP AND MID SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR

50 LBS/IN (MIN.)

SO FBS/IN (HIM )

75% (HIN.)

\*IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN 42'

EVERY 24" AT THE TOP AND MID SECTION.

TENSILE STRENGTH

SDIL CONSERVATION SERVICE

linina criteria.

SOIL CONSERVATION SERVICE

FILTERING EFFICIENCY

GEOTEXTILE CLASS F

GM

MARYLAND DEPARTMENT OF ENVIRONMENT

FLOW

—— SSF —

TEST: NSMT 32

PAGE HARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE
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between staples.

cross section with 2:1 or flatter side slopes and 3' (nin.) botton width The channel shall be lined with 4" to 12" rip- rap to a depth of 18". 2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C. 3. Entrance and exit sections shall be installed as shown on the detail

Construction Specifications

4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater panagement 5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow

6. Rip-rap should blend into existing ground 7. Rip-rop Inflow Protection shall be used where the slope is between 4:1 and 10-1, for stopes flatter than 10-1 use Earth Dike or Temporary Swale

CROSS-SECTION STAPLE OUTSIDE — EDGE OF MATTING ON 2' CENTERS TYPICAL STAPLES NO. 11 GAUGE WIRE

EROSION CONTROL MATTING

Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a

narrow trench, 6' in depth. Backfill the trench and tamp firmly to

conform to the channel cross-section. Secure with a row of staples

about 4" down slope from the trench. Spacing between staples is 6"

2. Staple the 4' overlap in the channel center using an 18' spacing

3. Before stapling the outer edges of the matting, make sure the

4. Staples shall be placed 2' apart with 4 rows for each strip, 2

5. Where one roll of matting ends and another begins, the end of

6. The discharge end of the matting liner should be similarly

the top strip shall overlap the upper end of the lower strip by 4°,

shiplap fashion. Reinforce the overlap with a double row of staples

Note: If flow will enter from the edge of the matting then the area

matting is smooth and in firm contact with the soil.

outer rows, and 2 alternating rows down the center.

spaced 6' apart in a staggered pattern on either side.

secured with 2 double rows of staples.

effected by the flow must be keyed-in

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DETAIL 30 - EROSION CONTROL MATTING

ELEVATION SECTION A-A

U.S. DEPARTMENT OF AGRICULTURE

EXISTING STABILIZED

PAGE MARYLAND DEPARTMENT OF ENVIRONMEN
F - 18 - 10 WATER MANAGEMENT ADMINISTRATION

DETAIL 27 - ROCK DUTLET PROTECTION III

Construction Specifications 1. 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 material. 2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

ROCK OUTLET PROTECTION III

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 of geotextile shall be a minimum of one

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 manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the void betwe the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high them the flow will be forced out of the channel and scour adjacent

APRON AT

DOWNSTREAM

SIDE OF CHECK

DAM I' THICK

4" - 7" STONE

U.S. DEPARTMENT OF AGRICULTURE | PAGE | MARYLAND DEPARTMENT OF ENVIRONMENT SOIL CONSERVATION SERVICE | F - 18 - 10A | WATER MANAGEMENT ADMINISTRATION

DATA SOURCES:

192 East Main Street

OWNER:

110-992-6000

Westminster, MD 21157

http://www.demariodesign.us

COLUMBIA, MD 21044

SITE ADDRESS:

DeMario

Design

HOWARD RESEARCH & DVP. 10275 LITTLE PATUXENT PKWY

SEDIMENT CONTROL GENERAL NOTES A minimum of 48 hours notice must be given to the Howard

County Department of Inspections, and permits, sediment control division prior to the start of any construction (410-313-1855). 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 Bediment Control. Following initial soil disturbance or re-disturbance, permanent or

PROFILE ALONG CENTERLINE

temporary stabilization shall be completed within: Seven calendar days for all perimeter sediment control structures, dikes, perimeter slope and all slopes steeper than 3:1. 3. Fourteen days as to all other disturbed or graded areas on the project 4. All sediment traps/basins shown must be fenced and warning signs posted

around their perimeter in accordance with vol. 1, chapter 12. of the "Howard County Design Manual", storm drainage. 5. 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. 51), sods (sec. 54), temporary seeding (sec. 50), and mulching (sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates

do not allow for proper germination and establishment of grasses. 6. 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.

Total area of site Area disturbed Area to be roofed or paved Area to be vegetatively stabilized Total cut

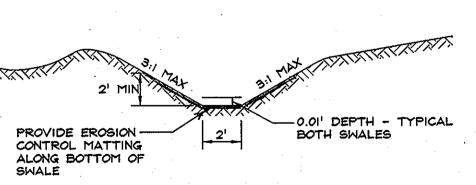
grading permit.)

= 3.43 acres 0.96 acres = 2.4 acres = 1,520 cu yd - 4,180 cu yd = 2,666 cu yd (Location to be determined by contractor, Location point must have open 8. 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. 10. 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 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.

Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized. The contractor shall inspect and provide necessary maintenance on the sediment and erosion control devices shown on the plan. The inspection shall be on a daily basis and after each rainfall.



TIMBER CHECK DAM LOCATION 1 N 537,356-4192-E 1,353,627-459 N 537350.18 E1353629.35 2 N 537,2<del>82.0764</del> E 1,353,633<del>:3508</del> N 5 37275.55 E 1353633.96 3" N 537,20<del>5:6362"</del>E 1,353,633<del>.204</del> N 537206,53 E1353631.21

SURVEY DATES: 10/23-11/12/2012, 10/7/2013

AND ZONING.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC Professional Certification I hereby certify that these documents were prepared or approved by me, and that what larguly licensed professions engineer under the this of the state Maryland, License No. 25420 Expiration Dates 1008. APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING

SEDIMENT & EROSION CONTROL DETAILS 6TH ELECTION DISTRICT HOWARD COUNTY REVISIONS

CO. FILE #.SP-06-023/ WP-07-57/ WP-08-45 TAX ACC. #. 406300 TAX MAP: 47 BLOCK / GRID: 8 PARCEL# 5 ZONE / USE: RSC

MARK THAYER PROFESSIONAL ENGINEER NO. 25420 DWG. SCALE: AS SHOWN

F-08-137

TYPICAL SECTION OF SWALES BEHIND LOT 14 AND LOTS 5 \$ 6 SCALE: NTS AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY SEAL, THAT THE FACILITIES shown on this plan were constructed as shown on this plan meet the current approved plans and specifications. Dart Dander g. scott shanaberger = PROFESSIONAL L.S #10849三名· SHANABERGER & LANE

INSPECTION OF THE BIORETENTION FACILITY 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 BIORETENTION FACILITY OWNER(S) AND ANY HEIRS, SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF IT AND ITS CONTINUED OPERATION. SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE FACILITY AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT

LICENSE EXPIRATION DATE 4/2/24/4L LAND S

OPERATION, MAINTENANCE AND INSPECTION

OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH

708 VIEW 4"x8" PRESSURE TREATED WOOD TIMBER (TYP)-PROVIDE EROSION CONTROL MATTING ALONG BOTTOM OF

G - 22 - 2A MARYLAND DEPARTMENT OF ENVIRONMENT

<u>CHECK DAM DETAIL LOCATED</u> IN SWALE BEHIND LOTS 1-5 SCALE: NTS

9881 GORMAN ROAD

final road plan the grove at emerson phase LOTS 1-7, 9, 11-12 4 OPEN SPACE LOTS 8,10,13 NON BUILDABLE BULK PARCELS A & B

TOPOGRAPHY SHOWN HEREON BASED ON A FIELD SURVEY PREPARED B DMW. BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY DEMARIO DESIGN CONSULTANTS, INC. DATED MARCH 2006.

Consultants, Inc.

Fax: (410) 386-0564

eMail: ddc@demariodesign.u

**GENERAL GROWTH PROPERTIES** 

10275 LITTLE PATUXENT PKWY

DEVELOPER:

COLUMBIA, MD 21044

DRN, REV. DAT DESCRIPTION OF CHANGES DES. BY: JCO/MRT DRN. BY: SDS CHK. BY: MRT DATE: 8-29-2008 DDC JOB#: 05123.2

> 5 of

Sheet Number:

