

SHEET INDEX	
1	ROAD CONSTRUCTION PLAN
2	GRADING & SEDIMENT AND EROSION CONTROL PLAN
3	SEDIMENT AND EROSION CONTROL DETAILS BIORETENTION SOIL SPECIFICATION
4	LANDSCAPING, FOREST CONSERVATION, AND SUPPLEMENTAL INFORMATION SHEET
5	FINAL DRAINAGE AREA MAP

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	60.57'	150.00'	23°8'3"	30.70'	S89°24'22"W	60.15'

# THORNTON WOODS OVERLOOK

## LOTS 1-10 AND OPEN SPACE LOT 11 & 12

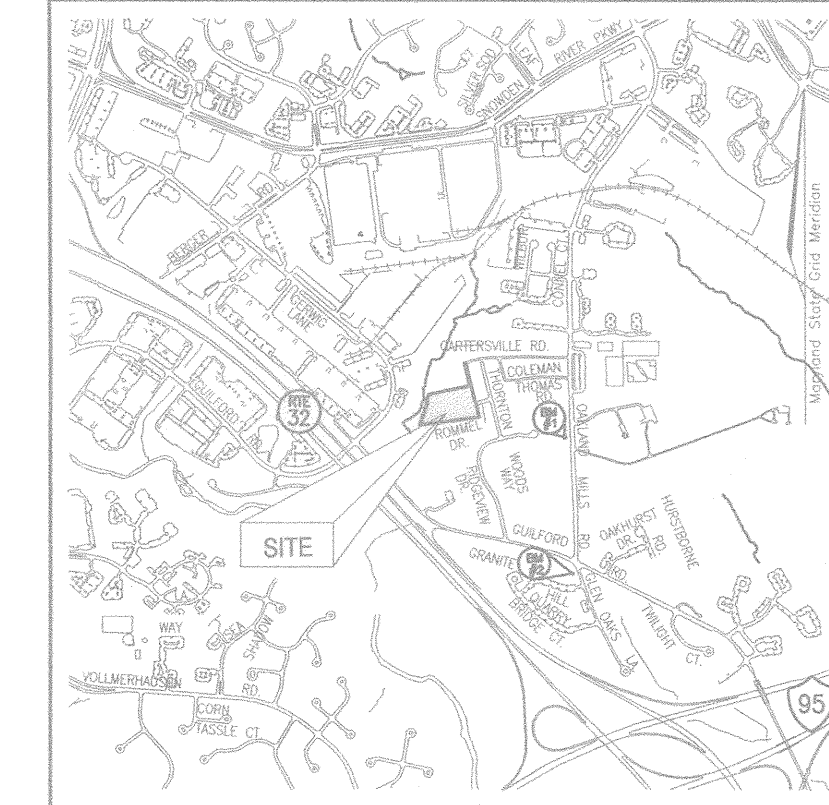
### FINAL ROAD CONSTRUCTION PLAN

#### HOWARD COUNTY, MARYLAND

#### BENCHMARKS

BENCHMARK NO. 1: COUNTY CONTROL #42R5  
N. 548,777.0609, E. 1,360,3609768  
ELEV. = 391.54

BENCHMARK NO. 2: COUNTY CONTROL #42R6  
N. 546,822.0895, E. 1,360,340.6529  
ELEV. = 389.12



#### VICINITY MAP

SCALE: 1"=2000'

#### GENERAL NOTES

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- PROJECT BACKGROUND:  
LOCATION: TAX MAP 42 & 3 BLOCK 16 PARCEL '41'  
6TH ELECTION DISTRICT  
ZONING: R-12  
TOTAL TRACT AREA: 3.90 AC  
DEED REFERENCE: PARCEL 41: 6212/418, PARCEL 3: 6212/415  
NUMBER OF PROPOSED LOTS: 10 RESIDENTIAL LOTS, 2 OPEN SPACE LOTS  
APPLICABLE DPZ FILE NUMBERS: WP-01-85, S-01-07, P-01-26
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY VOGEL & ASSOCIATES DATED FEB. 10, 1999.
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD RUN TOPOGRAPHY AND ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOA.
- WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE ACCESSED THROUGH CONTRACT NO. 24-3241-D. SEWER WILL BE ACCESSED THROUGH CONTRACT NO. C-383A
- STORMWATER MANAGEMENT TO BE PROVIDED FOR THE DEVELOPMENT BY BIORETENTION.  
THE FACILITY WILL BE LOCATED ON OPEN SPACE LOT 11 AND WILL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE WATERSHED IS THE PATENTED RIVER AREA, 02-13-11 AND THE STREAM USE IS CLASS I-P.
- WETLANDS DELINEATED BY ECO-SCIENCES 09-27-00.
- THERE ARE NO FLOODPLAINS ON SITE.
- FOREST STAND DELINEATION PLAN PREPARED BY VOGEL & ASSOCIATES, INC. DATED OCTOBER 18, 2000.
- APFO TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED OCTOBER 2000.
- THERE ARE NO STEEP SLOPES ONSITE WITH A CONTIGUOUS AREA OF 20,000 SF OR GREATER.
- STREET LIGHTS ARE PROVIDED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE ZONING REGULATIONS WAVED AS PER WP-01-85 TO PERMIT THE MINIMUM PUBLIC ROAD FRONTAGE OF 20 FT FOR A NON-PIPESTEM RESIDENTIAL LOT THAT CANNOT BE FURTHER SUBDIVIDED TO BE REDUCED TO 10.4 FT FOR LOT 1 AND 14 FT FOR LOT 6. SECTION 16.121(e)(1) WAVED AS PER WP-01-85 TO PERMIT THE REQUIRED 40 FT OF PUBLIC ROAD FRONTAGE FOR OPEN SPACE 11 WHERE PEDESTRIAN AND MAINTENANCE VEHICLE ACCESS WILL OCCUR TO BE REDUCED TO ZERO FEET. WAIVER IS SUBJECT TO COMPLIANCE WITH THE FOLLOWING CONDITIONS:  
A. THE 24'-35' PRIVATE ACCESS PLACE SHALL PROVIDE VEHICULAR AND PEDESTRIAN ACCESS TO LOTS 1-10 AND HOA OWNED OPEN SPACE LOT 11.  
B. THE 24'-35' PRIVATE ACCESS PLACE EASEMENT AT THE T-TURNAROUND ON LOTS 5 & 10 SHALL BE WIDENED 2-5 FT EASTWARD IN ORDER TO PROVIDE AN ADEQUATE EASEMENT AREA FOR THE PURPOSE OF MAINTAINING THE T-TURN AROUND AREA ON THESE LOTS.  
WP-01-85 APPROVAL DATED MARCH 9, 2001.  
S-01-07 APPROVAL DATED APRIL 20, 2001.
- BASED ON THIS PLAN BEING SUBMITTED PRIOR TO 11/15/01, ON 06/28/01, IT (AND THE SUBDIVISION) IS "GRANDFATHERED" AND SUBJECT TO COMPLIANCE WITH THE FOURTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. IN ADDITION, BECAUSE THIS PLAN WAS NOT APPROVED PRIOR TO 11/01/01, IT (AND THE SUBDIVISION) IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001, WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS.
- FOREST CONSERVATION PLAN WAS PREPARED BY FREDERICK WARD ASSOCIATES, INC DATED JUNE, 2002. FOREST CONSERVATION OBLIGATIONS FOR THIS SITE, HAVE BEEN MET BY THE RETENTION OF 0.71AC., FEE-IN-LIEU-OF REFORESTATION FOR 0.30 AC AND 0.15 AC. OF REFORESTATION. SEE SHEET 4 FOR SURETY AND FEE AMOUNTS.
- ALL LANDSCAPING REQUIREMENTS, AS SET FORTH IN THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH PERIMETER LANDSCAPING REQUIREMENTS AND WILL BE POSTED AS PART OF THE D.P.W. DEVELOPER'S AGREEMENT. THE LANDSCAPE PLAN IS PROVIDED UNDER THIS PLAN.
- FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING IN THE AMOUNT OF \$3,900 FOR 13 SHADE TREES SHOWN ON LOTS 1-4, 6 & 10 MUST BE POSTED AS PART OF THE BUILDER'S GRADING PERMIT (WITH S.D.). FINANCIAL SURETY IN THE AMOUNT OF \$7,000.00 (\$8,600 FOR THE 22 PRIVATE ACCESS PLACE STREET TREES AND \$600.00 FOR THE TRASH PAD SHURHS) SHALL BE POSTED AS A LANDSCAPE SURETY WITH THE DEVELOPER'S AGREEMENT. (SEE NOTE 4 ON SHEET 4).
- DRIVEWAY ENTRANCES ARE TO BE PER HOWARD COUNTY DETAIL R6.06. CURB AND GUTTER AT END OF TURN AROUND TO BE PER HOWARD COUNTY DETAIL R3.03.
- COORDINATES: HORIZONTAL DATUMS BASED ON NAD 83  
HO. CO. GEODETIC CONTROL STATIONS 42R5 AND 42R6.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, OR PLACEMENT OF NEW STRUCTURES IS PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR TREE BUFFERS AND FOREST CONSERVATION EASEMENT AREAS, EXCEPT AS SHOWN ON THE APPROVED ROAD PLANS.



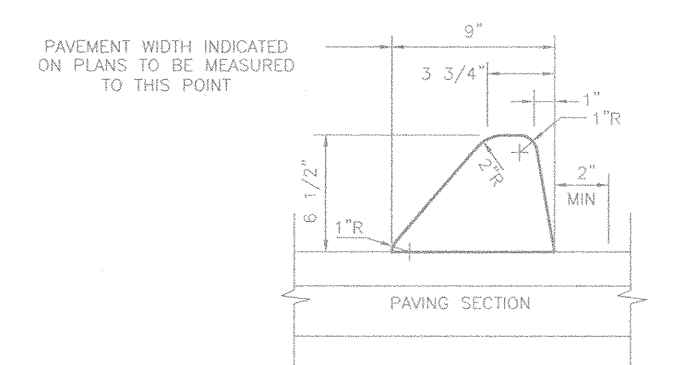
#### STORMWATER MANAGEMENT REQUIREMENTS

PRIOR TO CREDITS  
DRAINAGE AREA 1:(NO DEVELOPMENT)  
WQv Cpv Rev  
N/A N/A N/A  
DRAINAGE AREA 2:  
WQv Cpv Rev  
3.236 CF N/A\* 842 CF  
\*Cpv NOT REQUIRED SINCE THE 1YR. DEVELOPED DISCHARGE IS LESS THEN 2CFS.  
DRAINAGE AREA 3:(NO DEVELOPMENT)  
WQv Cpv Rev  
N/A N/A N/A

#### SITE DATA

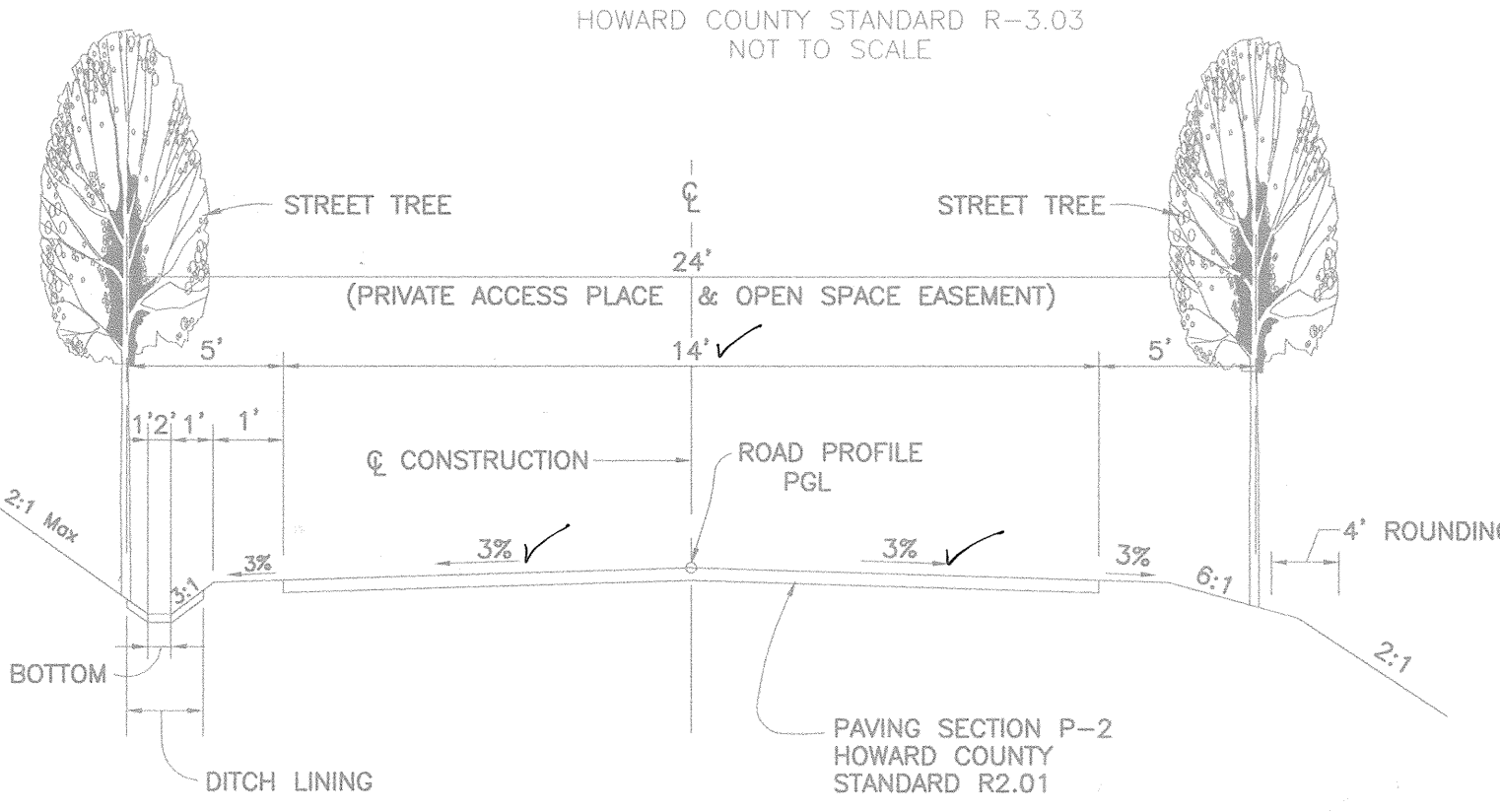
LOCATION: TAX MAP 42 , BLOCK 16, PARCELS 41 & 3  
6TH ELECTION DISTRICT  
EXISTING ZONING: R-12  
GROSS AREA OF PARCEL: 169938 SQ.FT. (3.9057 ACRES)  
AREA OF RIGHT OF WAY: 0.00  
AREA OF FLOODPLAIN: 0.00  
AREA OF STEEP SLOPES: 7939 SQ. FT. (0.1822 ACRES)  
NET AREA OF PROJECT: 161989 SQ. FT. (3.7235 ACRES)  
NUMBER OF PROPOSED RESIDENTIAL LOTS: 10  
AREA OF PROPOSED RESIDENTIAL LOTS: 113412 SQ. FT. (2.67 ACRES)  
AREA OF SMALLEST BUILDABLE LOT PROPOSED: 9972 SQ. FT. (LOT 2)  
NUMBER OF PROPOSED OPEN SPACE LOTS: 2  
CREDITED OPEN SPACE: 1.1506 ACRES(25%)  
NON-CREDITED OPEN SPACE: 0.0785 ACRES  
AREA OF OPEN SPACE REQUIRED: 20% OF GROSS AREA OF PARCEL (0.780 AC.)  
TOTAL AREA OF OPEN SPACE PROPOSED: 1.2293 ACRES

#### LEGEND



#### STANDARD BITUMINOUS CURB

HOWARD COUNTY STANDARD R-3.03  
NOT TO SCALE



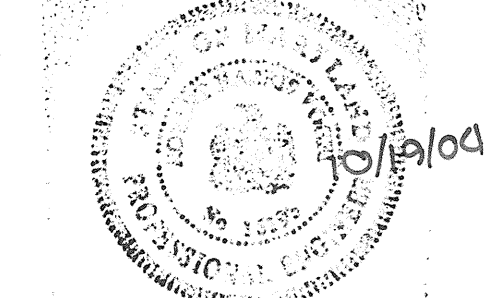
#### ROMMEL DRIVE

#### TYPICAL ROADWAY SECTION

#### CLASSIFICATION : PRIVATE ACCESS PLACE

#### DESIGN SPEED 15 MPH

STATION 0+00 TO STATION 3+85.34  
HOWARD COUNTY STANDARD FIGURE 2.09b  
NOT TO SCALE



AS-BUILT  
Robert H. Vogel

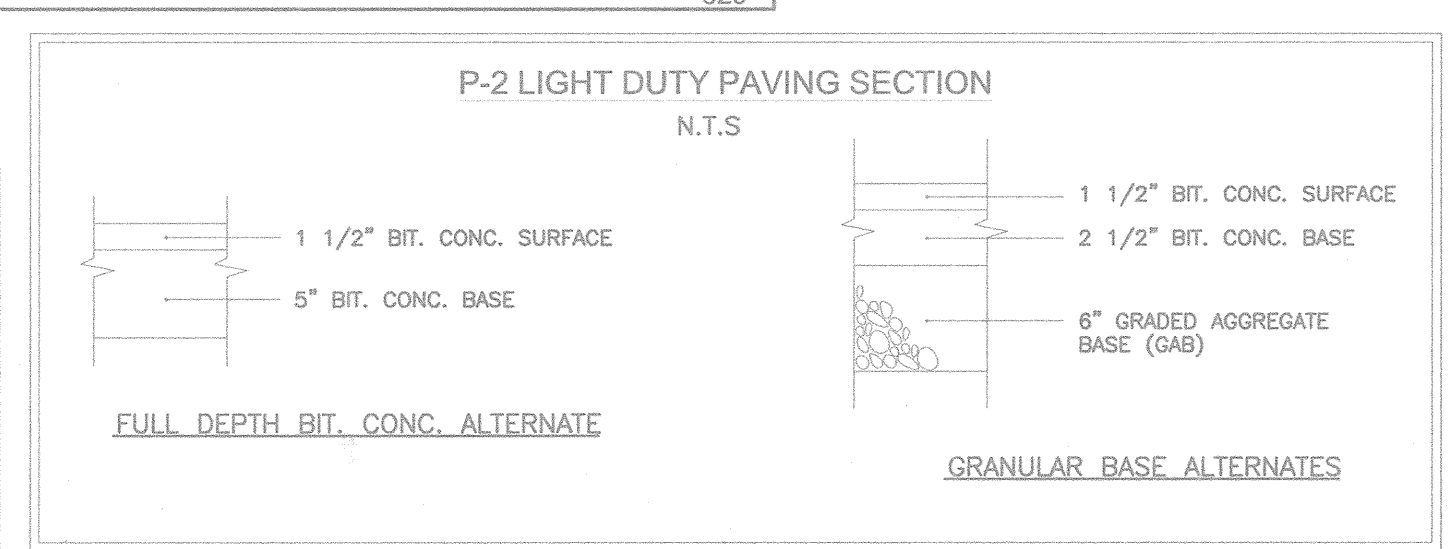
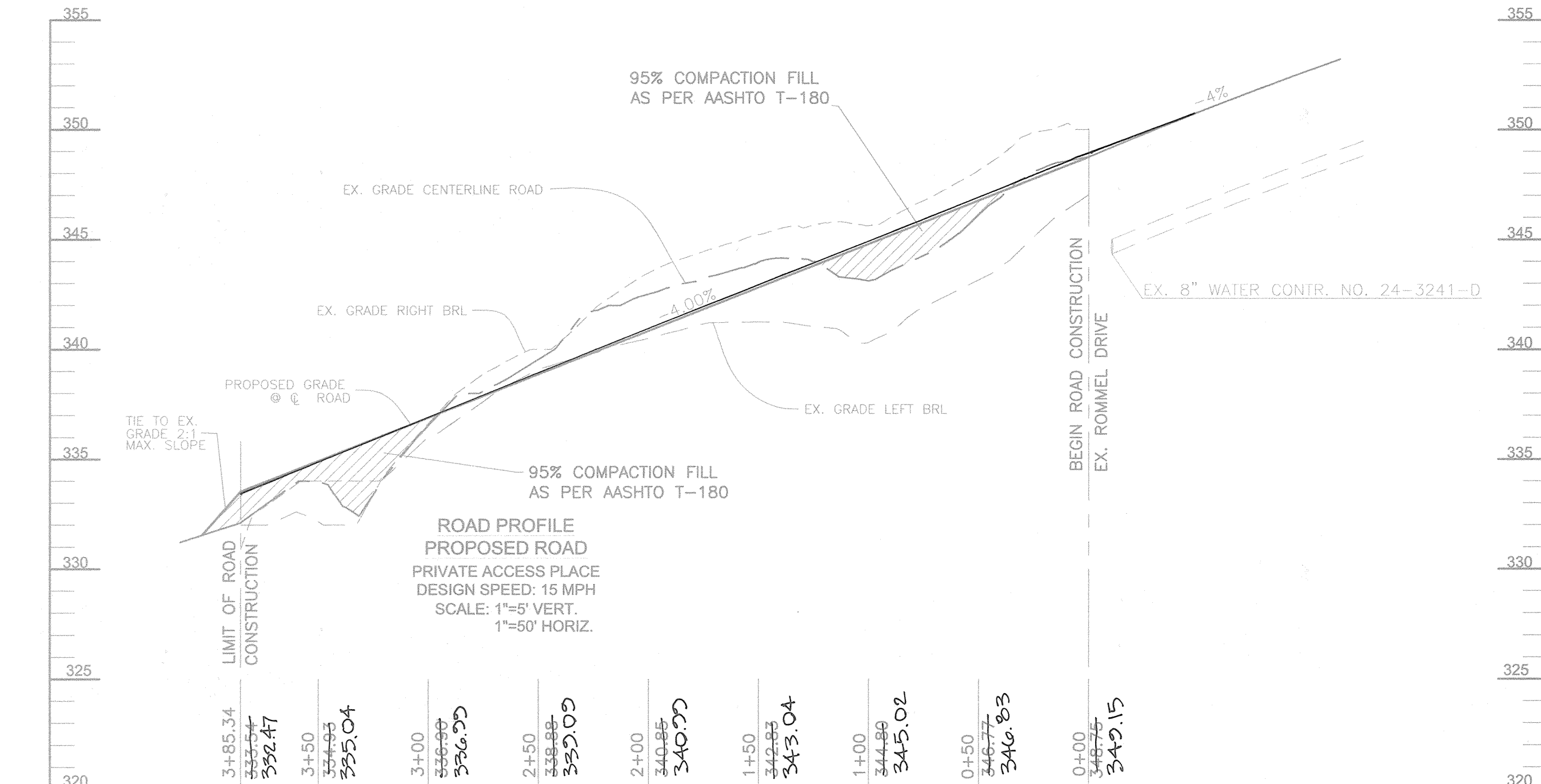
OWNER/DEVELOPER  
MICHAEL PFALZ  
3675 PARK AVENUE, SUITE 301  
ELLCOTT CITY, MD 21043  
(410) 480-0023

ROAD CONSTRUCTION PLAN  
THORNTON WOODS OVERLOOK  
LOTS 1- 10 AND OPEN SPACE LOT 11 & 12  
TAX MAP #42 GRID 16 PARCELS 41 & 3  
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FREDERICK WARD ASSOCIATES, INC.  
7125 Riverwood Drive Columbia, Maryland 21046-2354  
Phone: 410-290-9550 Fax: 410-720-6226  
Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: MHM	DATE: DECEMBER 3, 2002
DRAWN BY: MHM	SCALE: AS SHOWN
CHECKED BY: JCO	W.O. NO.: 2019034
1 SHEET OF 5	

AS-BUILT 10.19.04 F-02-126



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Cindy Hancock  
CHIEF, DIVISION OF LAND DEVELOPMENT  
12/20/02

K:\PROJECTS\2019034\ENGR\dwg\10191\_PDF\FILE.dwg Tue Dec 03 08:22:01 2002 E4



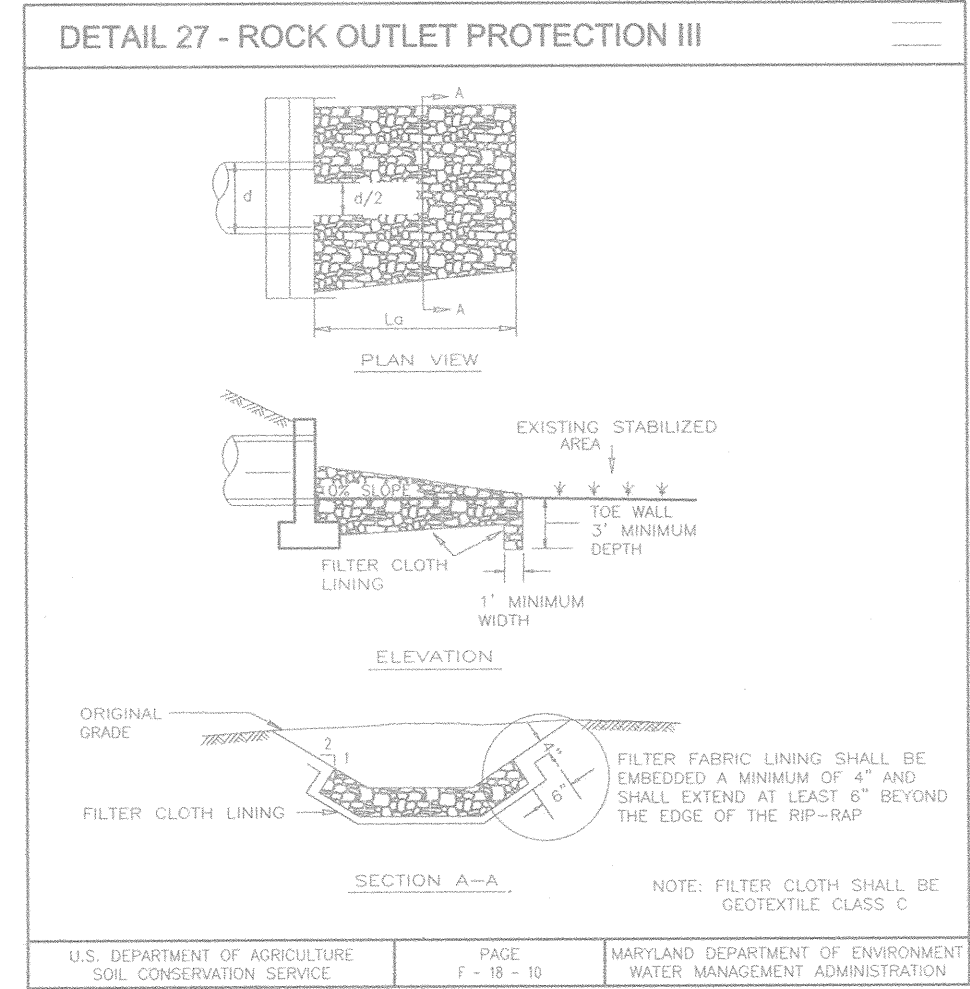
**LEGEND**

EXISTING CONTOUR	382	TREE PROTECTION FENCE	TPF
PROPOSED CONTOUR		STABILIZED CONSTRUCTION ENTRANCE	SCE
EXISTING TREELINE		SUPER SILT FENCE	SSF
EXISTING BRUSHLINE		SILT FENCE	SF
PROPOSED TREELINE		EARTH DIKE	ED A-1
SOIL BOUNDARY	GrB2	LIMIT OF DISTURBANCE	LOD
STREAM BUFFER		EROSION CONTROL MATING	ECM
WETLAND BUFFER			
WETLAND			
SLOPES 25% >			
SLOPES 15% TO 24.9%			
FOREST CONSERVATION EASEMENT			

**SOILS LEGEND**

SYMBOL	NAME/DESCRIPTION	TYPE
SID2	SASSAFRAS GRAVELLY SANDY LOAM, 10%-15% SLOPES, MODERATELY ERODED.	B
SIB2	SASSAFRAS GRAVELLY SANDY LOAM, 1%-5% SLOPES, MODERATELY ERODED.	B
BH	BRANDYWINE LOAM, 75%-60% SLOPES.	C
WQA	WATCHUNG SILT LOAM, 0%-3% SLOPES.	D

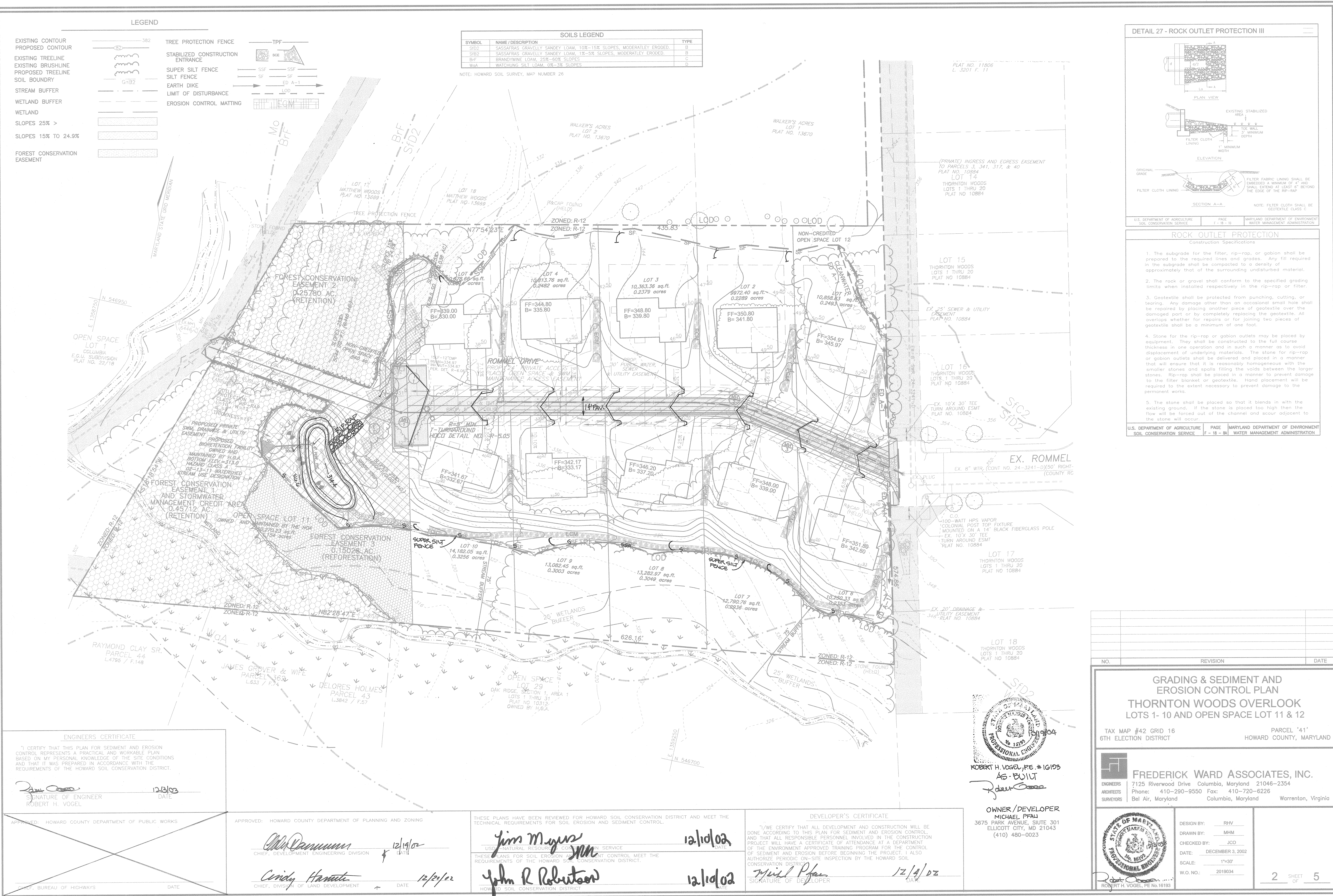
NOTE: HOWARD SOIL SURVEY, MAP NUMBER 26



**ROCK OUTLET PROTECTION**  
Construction Specifications

- 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.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- 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 foot.
- 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 voids between 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.
- 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 adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 18-24 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



**ENGINEERS CERTIFICATE**

I 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.

Signature of Engineer: Robert H. Vogel  
Date: 12/13/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Signature: Cindy Hamata  
Date: 12/20/02

CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature: Jim Myers  
Date: 12/19/02

Signature: John R. Robertson  
Date: 12/19/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

Signature: Jim Myers  
Date: 12/19/02

Signature: John R. Robertson  
Date: 12/19/02

USDA NATURAL RESOURCES CONSERVATION SERVICE

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

Signature: Michael Pfau  
Date: 12/19/02

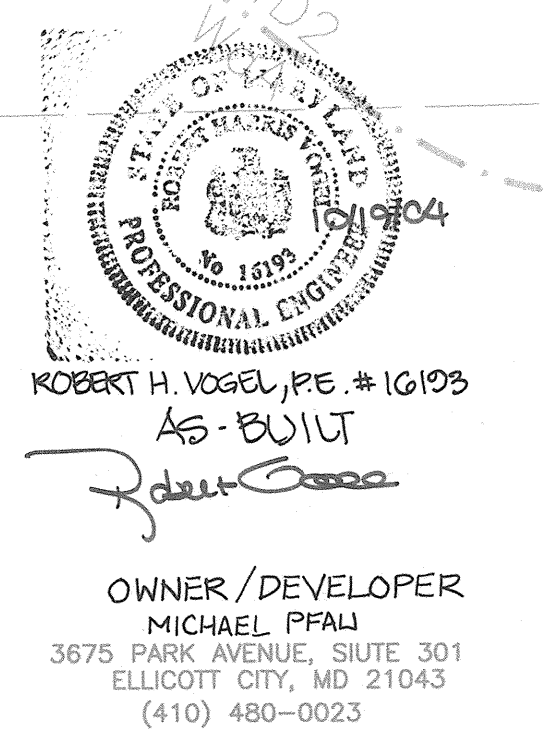
SIGNATURE OF DEVELOPER

**DEVELOPER'S CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Michael Pfau  
Date: 12/19/02

Signature of Developer



**OWNER/DEVELOPER**  
MICHAEL PFAU  
3675 PARK AVENUE, SUITE 301  
ELLCOTT CITY, MD 21043  
(410) 480-0023

NO.	REVISION	DATE

**GRADING & SEDIMENT AND EROSION CONTROL PLAN**  
**THORNTON WOODS OVERLOOK**  
LOTS 1- 10 AND OPEN SPACE LOT 11 & 12

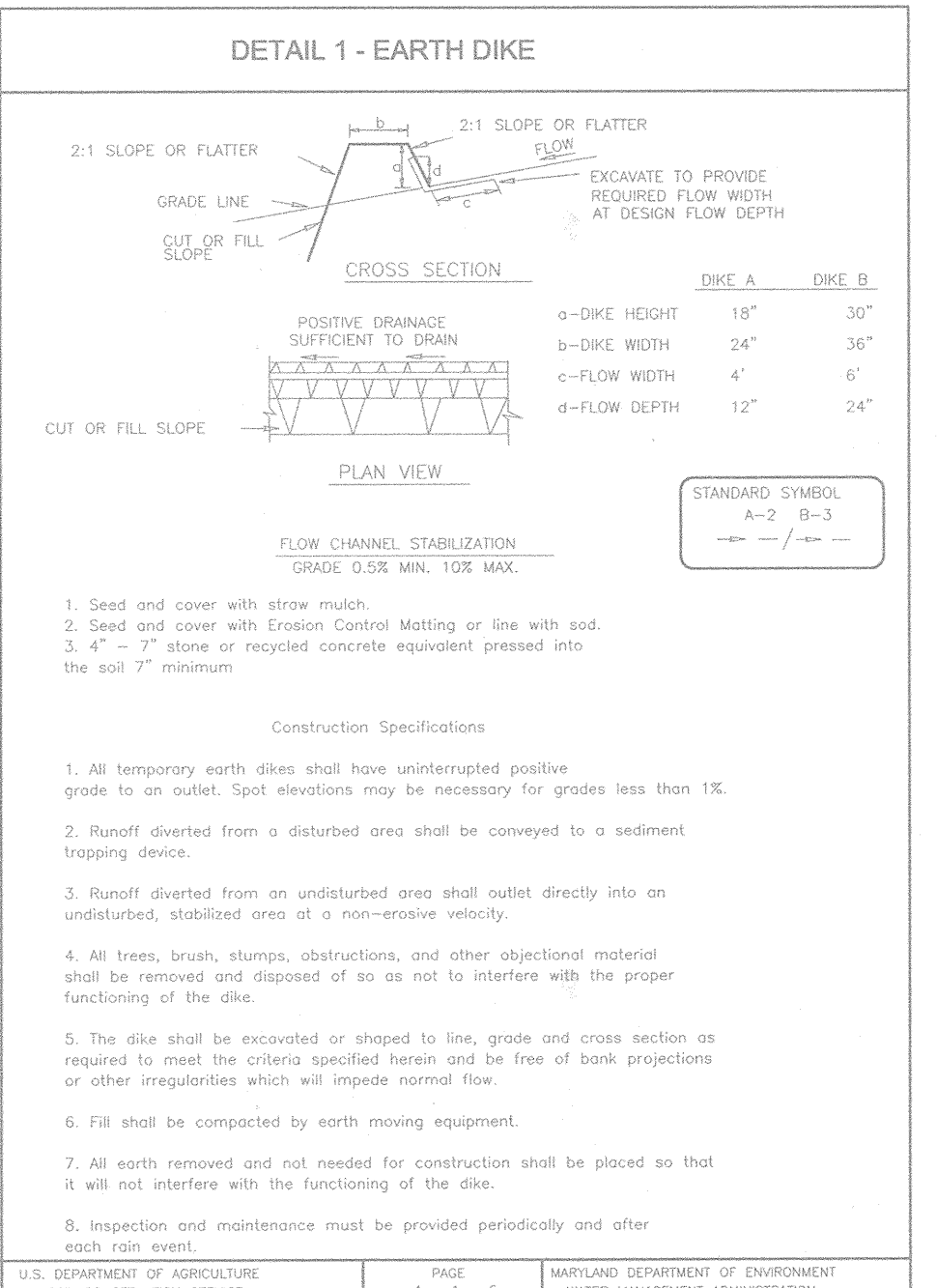
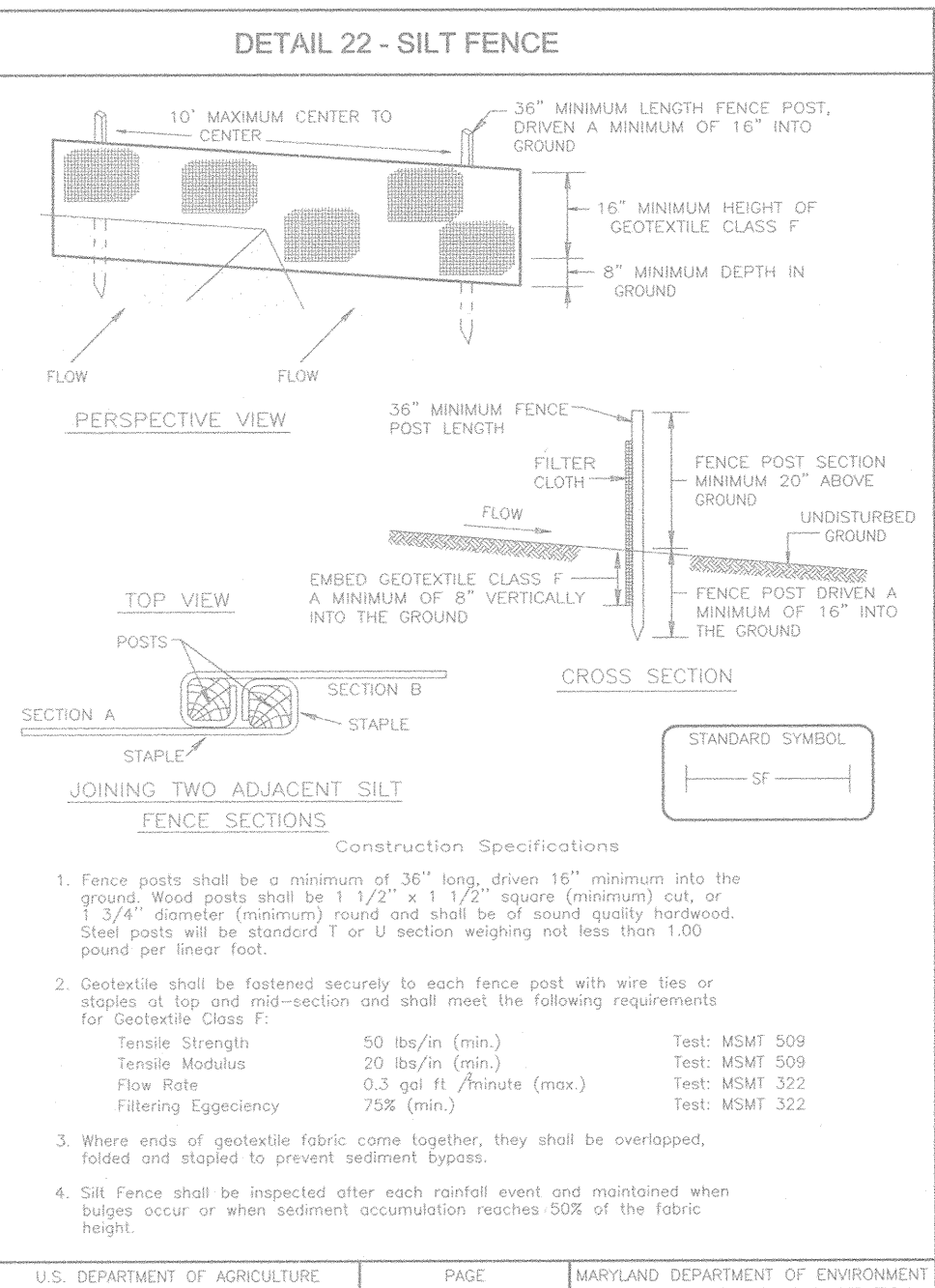
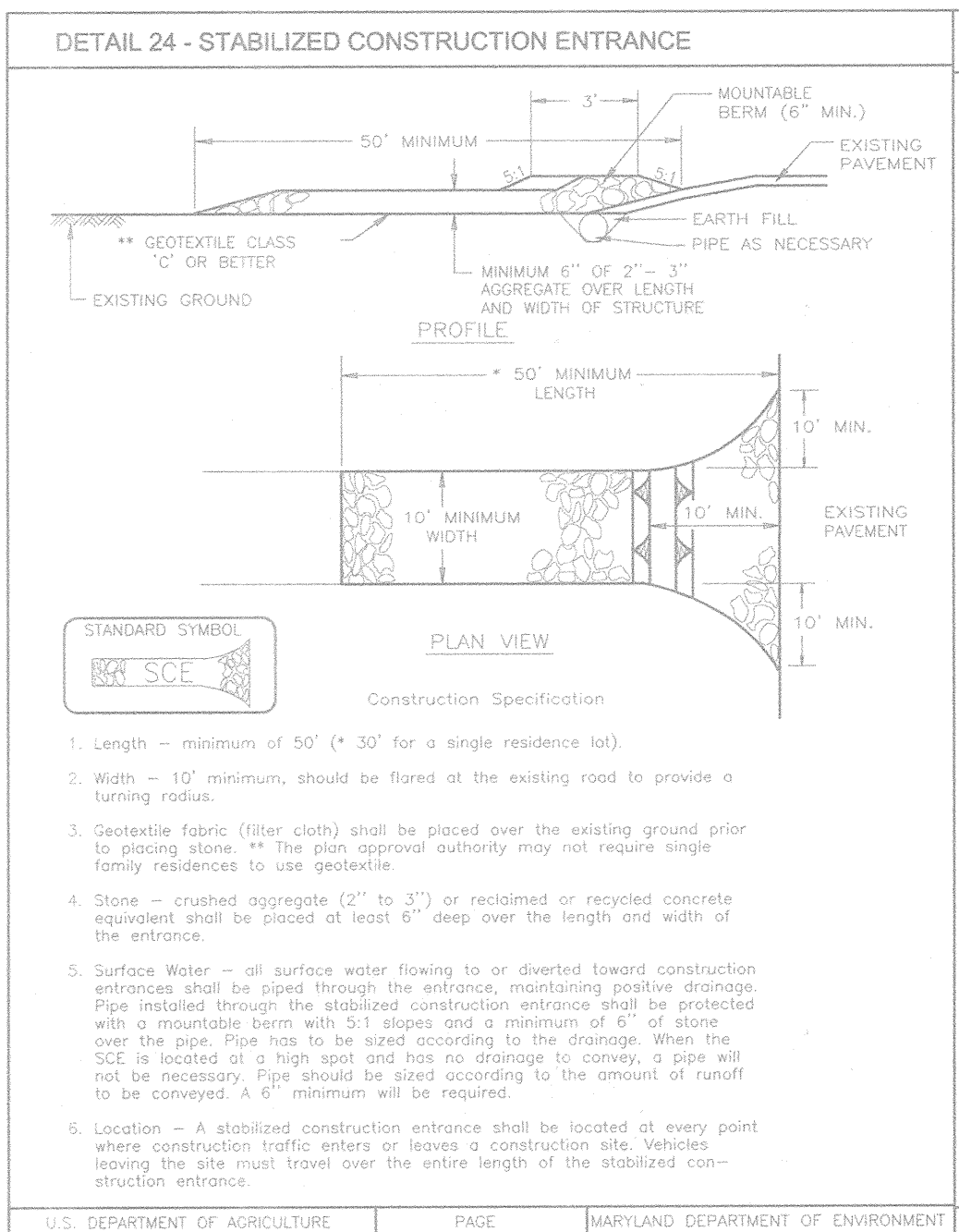
TAX MAP #42 GRID 16 PARCEL '41'  
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**FREDERICK WARD ASSOCIATES, INC.**  
ENGINEERS 7125 Riverwood Drive Columbia, Maryland 21046-2354  
ARCHITECTS Phone: 410-290-9550 Fax: 410-720-6226  
SURVEYORS Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: RHW  
DRAWN BY: MHM  
CHECKED BY: JCO  
DATE: DECEMBER 3, 2002  
SCALE: 1"=30'  
W.O. NO.: 2019034

2 SHEET OF 5





### 21.0 STANDARDS AND 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 VEGETABLE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TEND TO PLANT, AND/OR UNDESIRABLE SOIL ORGANOLOG.

**CONDITIONS WHERE PRACTICE APPLIES:**

- THE PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
  - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETABLE GROWTH.
  - THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTAINING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
  - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
  - THE SOIL IS SO AODIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

**FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRING STABILIZATION 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:**

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL IS SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN A REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
  - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND, OR SILT LOAM. IT IS RECOMMENDED BY AN AGRONOMIST OR A 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 CONGLOMERATES, SLATS, CORNERS, FRAGMENTS, STICKS, ROADS, TRASH, OR OTHER MATERIALS LARGER THAN 1" AND 1/2" IN DIAMETER.
  - TOPSOIL SHALL BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERBERIS, GROUND SWEETWOOD, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

### SEDIMENT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (1315-1850).
- ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RESTORATION, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN (6) 7 CALENDAR DAYS FOR ALL PERMETER SLOPES AND CONSTRUCTION AREAS EXCEPT PERMETER SLOPES AND ALL SLOPES GREATER THAN 3:1. (6) 14 DAYS AS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS 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 STABILIZATION, TEMPORARY SEEDING, AND MULCHING (SEC. 6). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:**

TOTAL AREA	3.91 ACRES
AREA DISTURBED	2.36 ACRES
AREA TO BE GRADED OR PAVED	0.63 ACRES
AREA TO BE VEGETATIVELY STABILIZED	2200 SQ FT
TOTAL FILL	5000 CY
- OFFSITE WASTE/BORROW AREA LOCATION: \_\_\_\_\_
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR WHICH PERMITS ARE REQUIRED 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 PERMETER EROSION CONTROL STRUCTURES, 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.
- GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALIBET 4" - 8" HIGHER ELEVATION.
- 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 SOILING PROCEDURES WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM STONES, STUMPS, ROOTS, SMALL OBJECTS, CORNERS, TRASH, OR OTHER MATERIALS LARGER THAN 1" AND 1/2" IN DIAMETER.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS FROZEN OR WET AND MUDDY CONDITION. WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETERMINED TO PROPER GRADING AND SEEDING PREPARATION.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS FROZEN OR WET AND MUDDY CONDITION. WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETERMINED TO PROPER GRADING AND SEEDING PREPARATION.

### PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SEED AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

- PREFERRED-APPLY 2 TONS PER ACRE DOLOMITE LIMESTONE (92 LBS./100 SOFT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS./100 SOFT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL AT THE TIME OF SEEDING. APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1000 SOFT).
- ACCEPTABLE-APPLY 2 TONS PER ACRE DOLOMITE LIMESTONE (92 LBS./100 SOFT) AND APPLY 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SOFT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (14 LBS./1000 SOFT) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (0.5 GAL/1000 SOFT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE WELLS ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE 500. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELLS ANCHORED STRAW.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SOFT) OF UNROOTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER SEEDING USING MULCH ANCHORS (2 TO 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.5 GAL/1000 SOFT) OF EMULSIFIED ASPHALT ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SOFT) FOR ANCHORS.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

### TEMPORARY SEEDING NOTES

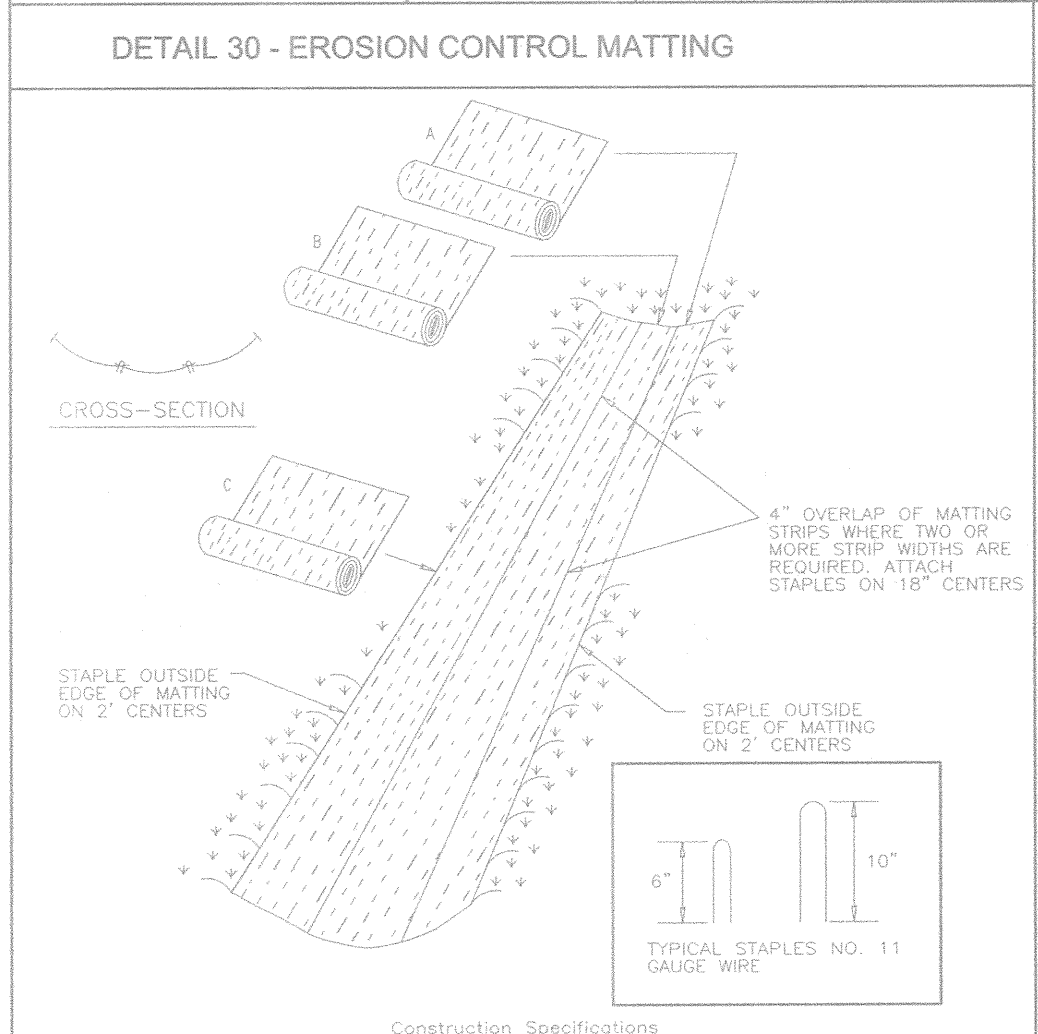
SEEDING PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SEED AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SOFT).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 TONS PER ACRE OF ANNUAL RYE (3 LBS./1000 SOFT) FOR THE PERIOD MAY 1 THRU AUGUST 14. SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.5 GAL/1000 SOFT). FOR THE PERIOD NOVEMBER 1 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELLS ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SOFT) OF UNROOTED SMALL GRASS STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER SEEDING USING MULCH ANCHORS (2 TO 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.5 GAL/1000 SOFT) OF EMULSIFIED ASPHALT ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SOFT) FOR ANCHORS.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.



### MARYLAND 378 STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to 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 berms shall be sloped to no steeper than 1:1. All trees shall be cleared and disposed within 15 feet of the line of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise specified on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the high 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 in a suitable location for use in the embankment and other designated areas.

**Earth Fill**

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, mulch, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut or trench shall conform to Unified Soil Classification of: SC, CH, or CL and must have at least 30% passing the #20 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. 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.

**Placement** - Areas in which fill to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which will be to the continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portion of the embankment. The principal spillway must be installed concurrently with fill placement and not encroached into the embankment.

**Compaction** - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be broken up by not less than one track back of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber foot or vibratory roller. Fill materials 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 it 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 be not 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 it to be certified by the Engineer at the time of construction. All compaction is to be determined by ASTM Method 159 (Standard Proctor).

**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 trench 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 10 feet above existing grade 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.

**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 at space 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 the structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless it is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. Flowable fill shall have a 100-200 psf, 28 day unconfined compressive strength. The flowable fill shall have a minimum pit of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that minimum of 6" thickness perpendicular to the outside of the pipe of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (hand tamps, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be biluminous coated. Any nonmetallic pipe 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 shall completely fill all voids adjacent to the flowable fill. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of the structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless it is a compacted fill of 24" or greater over the structure or pipe. Backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

1. Key-in the matting by piling the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench one foot firmly to conform to the channel cross-section. Secure with a row of staples spaced 4" down slope from the trench. Spacing between staples is 6".

2. Staple the 4" overlap in the channel center using on 16" spacing between staples.

3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

4. Staples shall be placed 2" apart with 4 rows for each strip, 2' outer rows, and 2' inner rows.

5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shlap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.

6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area affected by the flow must be keyed-in.

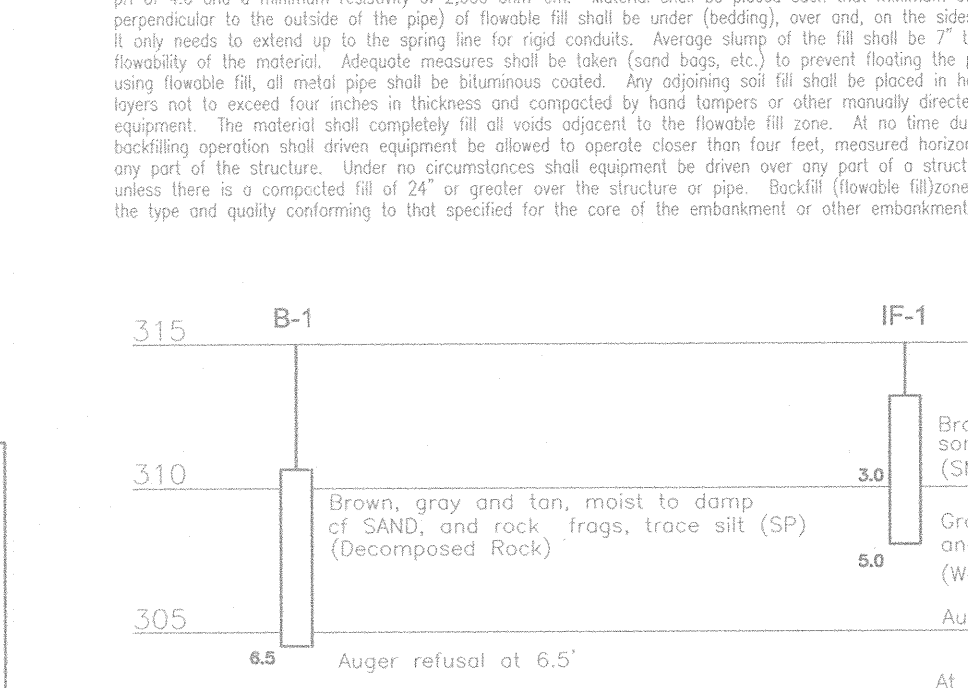
U.S. DEPARTMENT OF AGRICULTURE PAGE 6-22-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

OWNER / DEVELOPER  
MICHAEL FFALL  
3675 PARK AVENUE, SUITE 301  
ELLCOTT CITY, MD 21043  
(410) 480-0023

ENGINEER'S CERTIFICATE  
I 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.

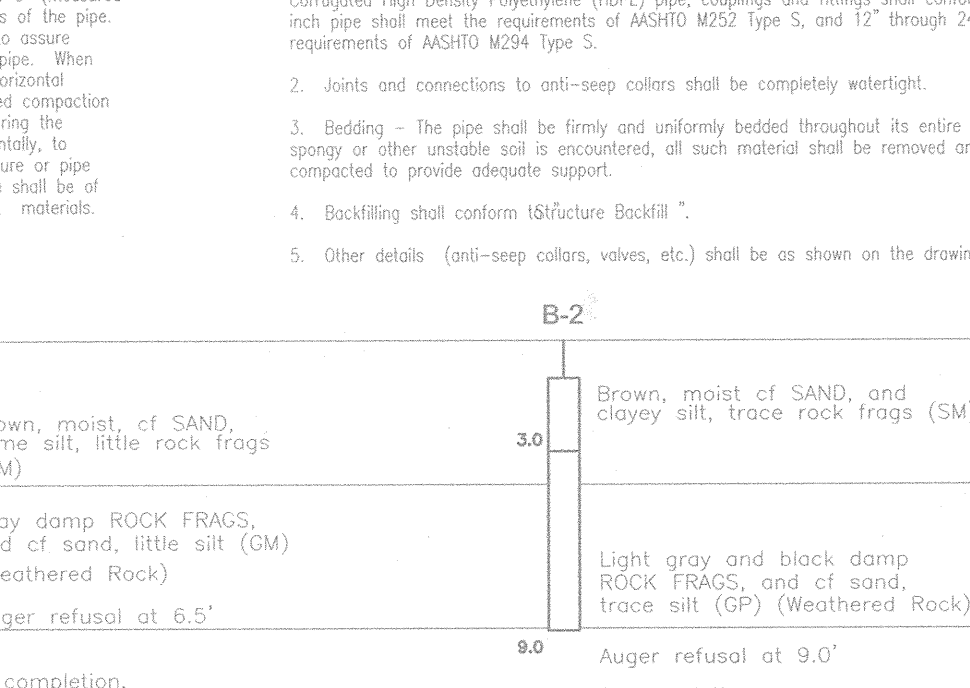
ROBERT H. VOGEL  
12/3/03  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING



At completion, hole dry and covered at 4.2'

At completion, hole dry and covered at 4.9'



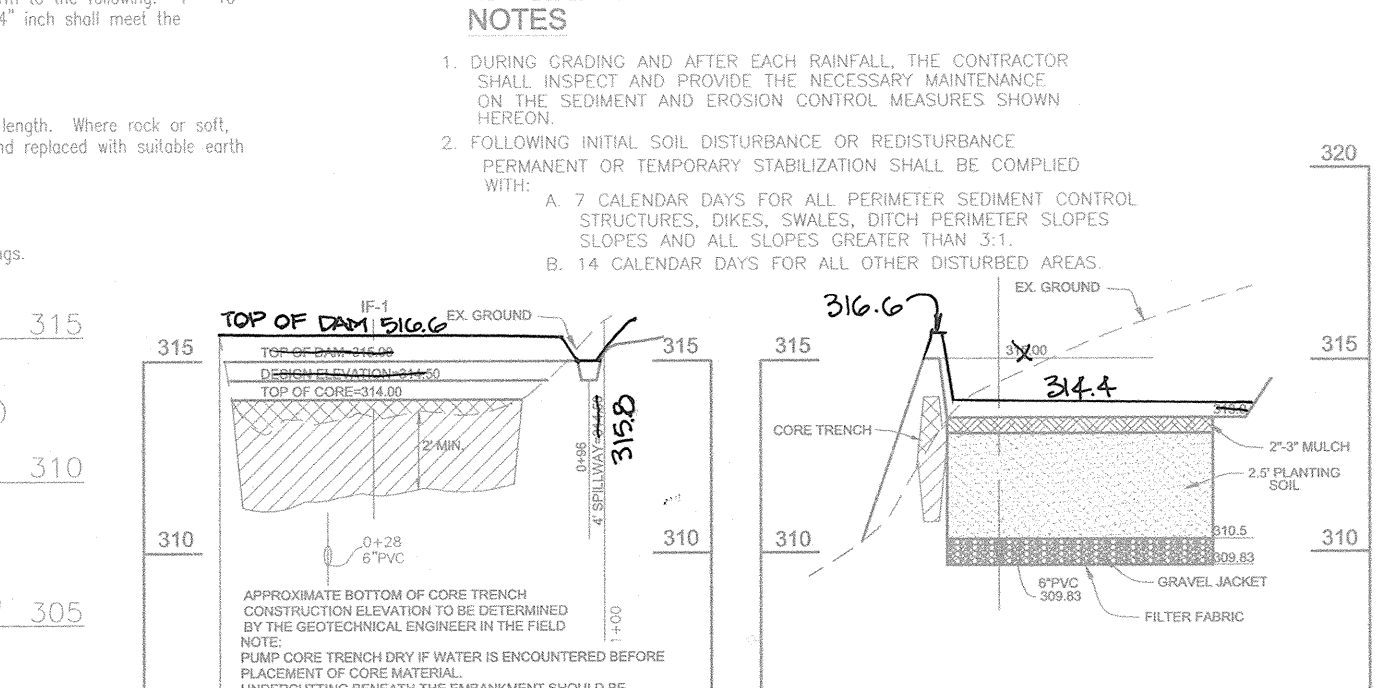
At completion, hole dry and covered at 3.9'

At completion, hole dry and covered at 4.2'

BORING PROFILES BORETENTION FACILITY NOT TO SCALE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

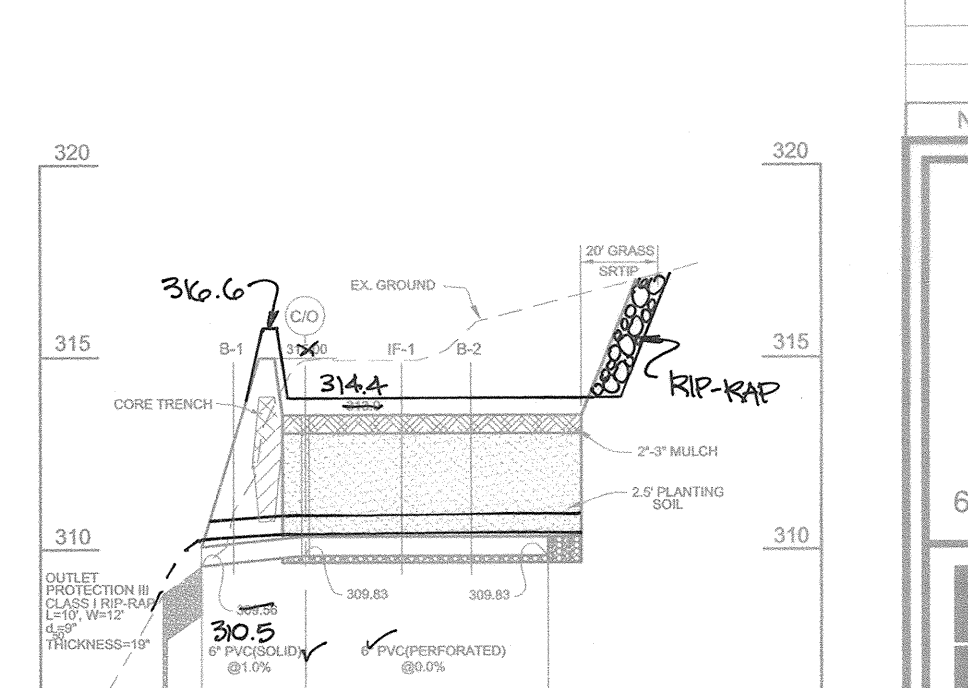


BIORETENTION AREA PROFILE

SCALE: HORIZ. 1"=30'

BIORETENTION AREA CROSS-SECTION

SCALE: HORIZ. 1"=30'



BIORETENTION AREA PROFILE

SCALE: HORIZ. 1"=30'

DEVELOPER'S CERTIFICATE  
I/WE CERTIFY THAT ALL DEVELOPMENT AND 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 INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

ROBERT H. VOGEL, P.E. #161003  
12/04/03  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DESIGN BY: MMH  
DRAWN BY: MMH  
CHECKED BY: JCO  
DATE: DECEMBER 3, 2002  
SCALE: AS SHOWN  
W.O. NO.: 2019034

FREDERICK WARD ASSOCIATES, INC.  
7125 Riverdrive Drive, Columbia, Maryland 21046-2354  
Phone: 410-290-9550 Fax: 410-720-6226  
Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

NO. REVISION DATE

SEDIMENT AND EROSION CONTROL DETAILS  
THORNTON WOODS OVERLOOK  
LOTS 1- 10 AND OPEN SPACE LOT 11 & 12

TAX MAP #42 GRID 16  
6TH ELECTION DISTRICT

PARCEL '41'  
HOWARD COUNTY, MARYLAND

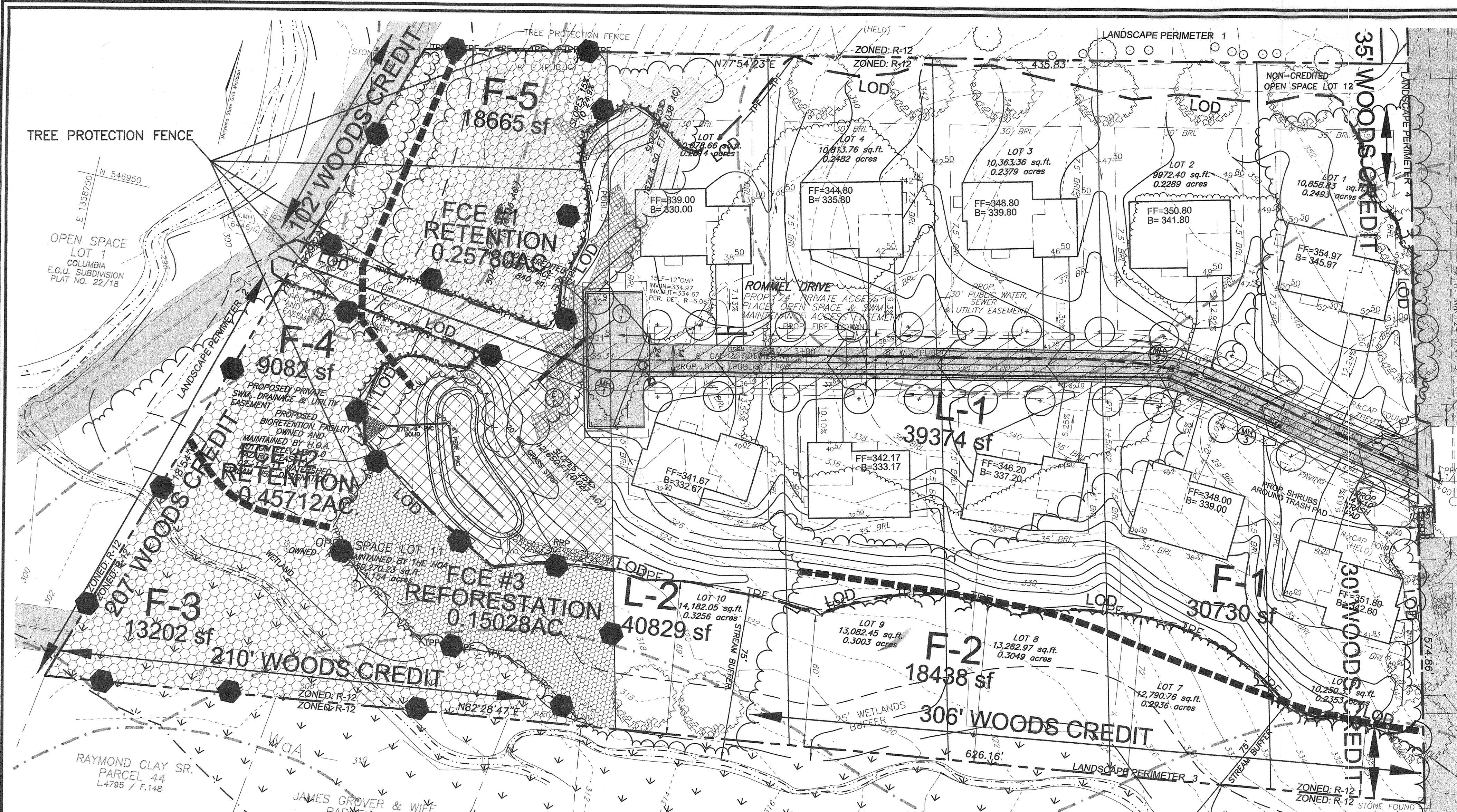
FREDERICK WARD ASSOCIATES, INC.  
7125 Riverdrive Drive, Columbia, Maryland 21046-2354  
Phone: 410-290-9550 Fax: 410-720-6226  
Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

DESIGN BY: MMH  
DRAWN BY: MMH  
CHECKED BY: JCO  
DATE: DECEMBER 3, 2002  
SCALE: AS SHOWN  
W.O. NO.: 2019034

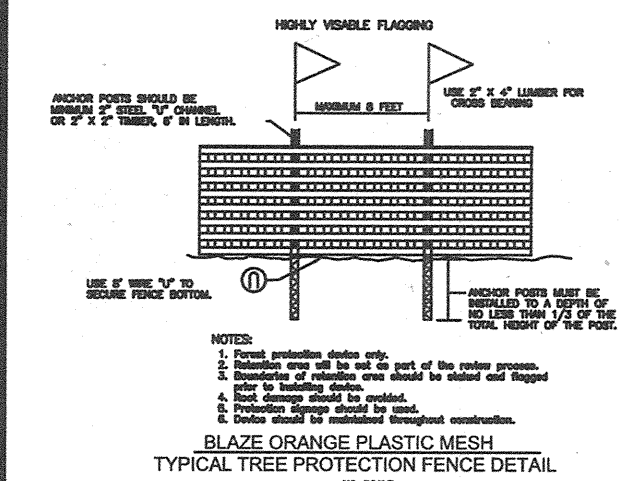
3 SHEET OF 5

AS-BUILT 10.19.04 F-02-126





PLAN VIEW  
SCALE: 1"=30'



- Note:
- Bottom of signs to be higher than top of tree protection fence.
  - Signs to be placed at a maximum spacing of 50' - 100' feet apart.
  - Attachment of signs to trees is prohibited.
  - Signs to be posted to 2'x2' wood posts.

SYMBOL	NAME / DESCRIPTION	TYPE
S102	SASSAFRAS GRAVELLY SANDLEY LOAM, 10%-15% SLOPES, MODERATELY ERODED.	B
S102	SASSAFRAS GRAVELLY SANDLEY LOAM, 1%-5% SLOPES, MODERATELY ERODED.	B
Bf	BRANDYWINE LOAM, 25%-60% SLOPES	C
Woa	WATCHUNG SILT LOAM, 0%-3% SLOPES	D

NOTE: HOWARD SOIL SURVEY, MAP NUMBER 26

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES			
		1	2	3	4
PERIMETER FRONTAGE DESIGNATION	NONE				
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER		436	329	626	344
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)		*YES 83	*YES 309	*YES 516	*YES 65
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)		NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED (LF REMAINING)		353	20	110	279
SHADE TREES		1:60	6	1:60	2
EVERGREEN TREES		-	-	-	-
SHRUBS		-	-	-	-
NUMBER OF PLANTS PROVIDED		6	0	2	5
SHADE TREES		-	-	-	-
EVERGREEN TREES		-	-	-	-
OTHER TREES (2:1 SUBSTITUTION)		-	-	-	-
SHRUBS (10:1 SUBSTITUTION)		-	-	-	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED		-	-	-	-

\* CREDIT IS TAKEN FOR THIS FACILITY BASED ON THE PROPOSED BIORETENTION PLANTING. \* EXISTING WOODS TO REMAIN

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
ROMMEL DRIVE	880/40	22	23

- NOTES:
- THE PROPERTY IS BASED ON A BOUNDARY SURVEY PERFORMED BY VOGEL & ASSOCIATES, INC. IN FEBRUARY, 1999.
  - THE EXISTING FEATURES AND CONTOURS SHOWN HEREON ARE BASED ON FIELD RUN TOPOGRAPHY PERFORMED BY VOGEL & ASSOCIATES, INC. IN FEBRUARY, 1999.
  - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
  - THE TYPE 'A' PERIMETER LANDSCAPE INFORMATION INDICATED ON THIS PLAN FOR LOTS 1-5 AND 7-10 IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. IT SHALL BE SHOWN ON THE REQUIRED FUTURE SITE DEVELOPMENT PLAN, FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPE MUST BE POSTED AS PART PART OF THE BUILDER'S GRADING PERMIT IN THE AMOUNT OF \$3,900.00 FOR THE 13 SHADE TREES SHOWN ON LOTS 1-4, 6 & 10.  
 LOT 1: 3 SHADE TREES = \$900.00  
 LOT 2: 2 SHADE TREES = \$600.00  
 LOT 3: 1 SHADE TREE = \$300.00  
 LOT 4: 2 SHADE TREES = \$600.00  
 LOT 6: 3 SHADE TREES = \$900.00  
 LOT 10: 2 SHADE TREES = \$600.00

- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE; FOREST CONSERVATION ACT, FOR THIS SUBDIVISION HAVE BEEN FULFILLED THROUGH:
  - THE FOREST RETENTION OF 0.71 ACRE LOCATED ON FCE-1 AND FCE-2.
  - REFORESTATION FOR 0.15 ACRE ON FCE-3.
  - FEE-IN-LIEU OF REFORESTATION FOR 0.30 ACRE.
- LANDSCAPE SURETY IN THE AMOUNT OF \$7,200.00 (\$6,600.00 FOR THE 22 PRIVATE ACCESS PLACE STREET TREES AND \$600.00 FOR THE TRASH PAD SHRUBS) SHALL BE POSTED AS A LANDSCAPE SURETY WITH THE DEVELOPER'S AGREEMENT.
- THE MAINTENANCE OF THE TRASH PAD AND TRASH PAD LANDSCAPE PLANTING IS THE RESPONSIBILITY OF THE HOA.

DEVELOPER'S/BUILDER'S CERTIFICATE  
I CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND HOWARD COUNTY LANDSCAPE MANUAL.

*Michael Pflaum* 12/04/02  
DEVELOPER/BUILDER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Michael Pflaum* 12/19/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamata* 12/20/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

- FOREST PROTECTION NOTES  
PRE-CONSTRUCTION ACTIVITIES
- Install blaze orange fence and retention signs before construction begins.
  - Fencing shall be maintained in good condition and promptly repaired or restored as the situation warrants.
- CONSTRUCTION PHASE
- No disturbance or dumping is allowed inside the tree retention area.
  - No equipment shall be operated inside the tree retention area including tree canopies.
  - In the event of drought, the protected trees shall be monitored for signs of stress and watered as needed.
- POST-CONSTRUCTION ACTIVITIES
- At the direction of a qualified tree care expert, damages to retained trees shall be repaired by the contractor.
  - Fence removal and stabilization shall be as per the sediment and erosion control plan, except for the selection of grasses for stabilization.
  - Do not remove signs.

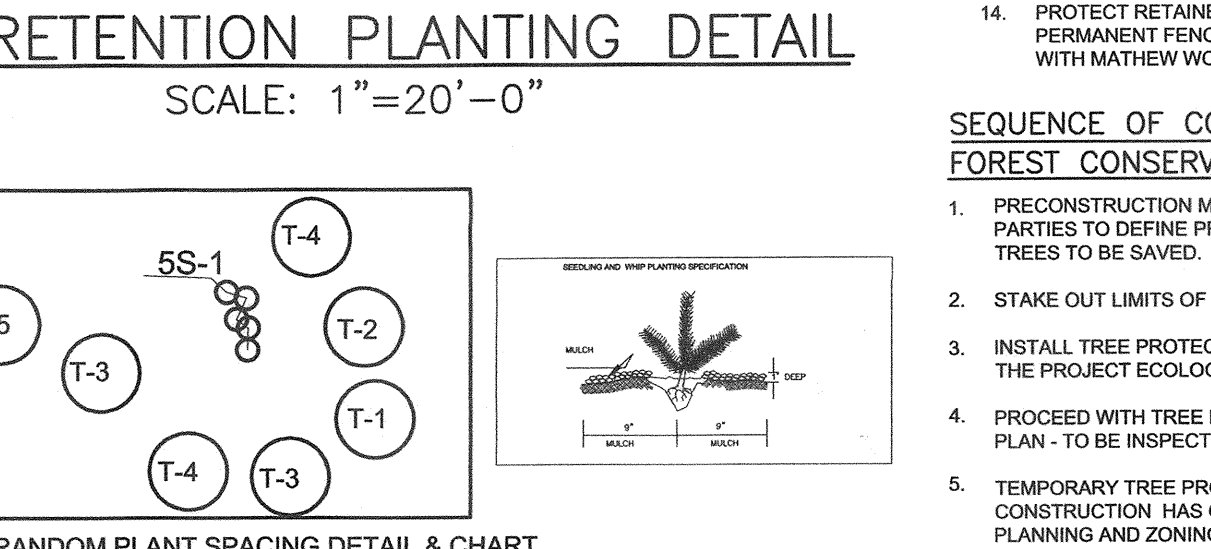
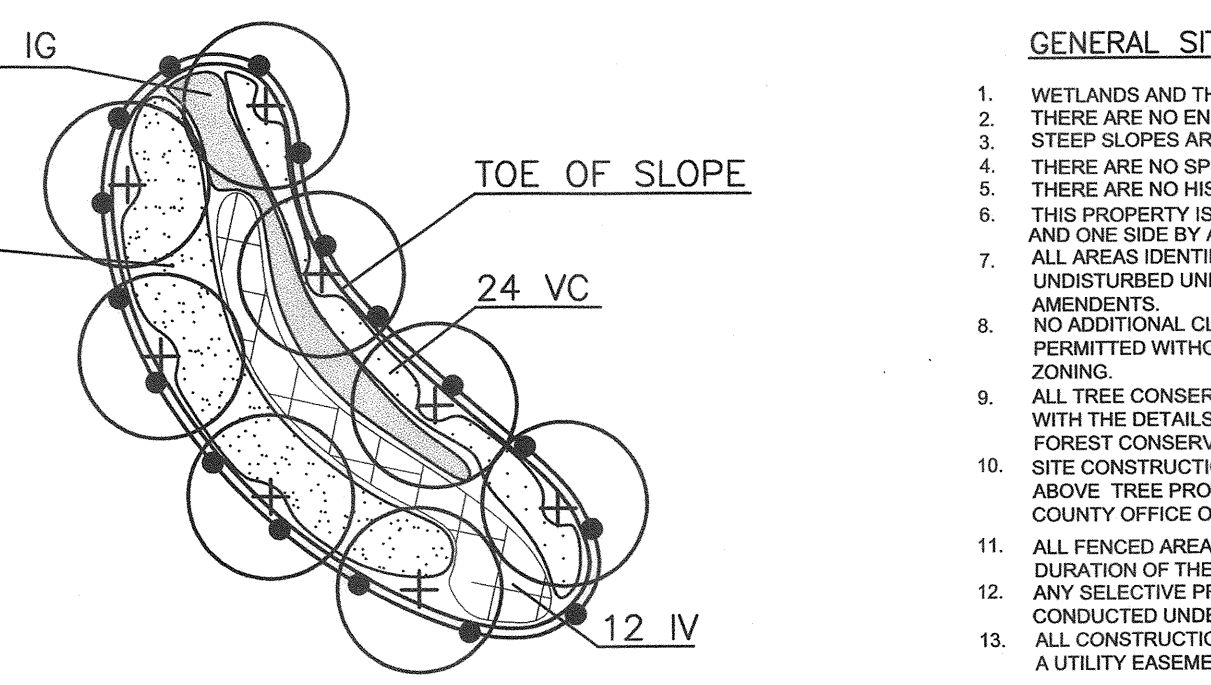
- AFFORESTATION NOTES
- AT COMPLETION OF HOUSE CONSTRUCTION, THE DISTURBED AREAS WITHIN THE CONSERVATION EASEMENT WILL BE VEGETATIVELY STABILIZED WITH ANNUAL RYE AND BIRDFOOT TROFOL.
  - EXISTING TALL GRASSES WITHIN THE CONSERVATION EASEMENT SHALL BE MOWED TO A HEIGHT OF 3 INCHES.
  - RANDOMLY SPACE 1" CAL. TREES 50 THAT NO MORE THAN 5 OF ANY PARTICULAR SPECIES ARE PLANTED IN SUCCESSION.
  - ALL PROPOSED PLANT MATERIAL TO BE NATIVE PLANT SPECIES. NO ORNAMENTAL CULTIVARS TO BE USED.
- USE LOCAL GENETIC STOCK UP TO A 100 MILE RADIUS.  
REFORESTATION MANAGEMENT RECORDS SHOULD BE KEPT FOR HOWARD COUNTY REVIEW.  
YEAR 1: INSPECT TREES FOR HEALTH AND VIGOR AT A. BEGINNING OF GROWING SEASON, B. MIDSUMMER AND C. FALL. ADJUST WATERING, PEST CONTROL, WEEDING AND FEEDING AS NEEDED. AFTER ONE-YEAR REPLACE ANY 1" CAL. OR 6" HT. TREES THAT DID NOT SURVIVE DURING THE NEXT PLANTING SEASON.  
YEAR 2: INSPECT TREES FOR HEALTH AND VIGOR IN APRIL & OCTOBER.  
ADJUST WATERING, PEST CONTROL, WEEDING AND FEEDING AS NEEDED. REPLACE ANY 1" CAL./6" HT. TREES THAT DID NOT SURVIVE YEAR 2 DURING THE NEXT PLANTING SEASON.  
SEEDLINGS SHALL BE REPLACED UP TO 50 PERCENT DURING THE NEXT PLANTING SEASON.  
CONTRACTOR TO FOLLOW ALL STATE AND COUNTY GUIDELINES FOR AFFORESTATION & REFORESTATION.

IN ORDER TO INSURE SURVIVABILITY, THE PERSON RESPONSIBLE FOR INSTALLATION SHALL INSPECT AND AMEND THE SOILS PRIOR TO PLANTING, PROVIDE WATER DURING DROUGHT PERIODS, AND REMOVE ANY PESTS OR WEEDS DURING THE 2-YEAR MAINTENANCE PERIOD.

*Larry S. Thompson* 11/23/02  
LARRY S. THOMPSON  
DNR QUALIFIED PROFESSIONAL

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
13		Acer Rubrum 'October Glory' / October Glory Red Maple	2 1/2"-3" Cal.	B & B
20		Toxus Cuspidata 'Nand/Dwarf' Japanese Yew	18" - 24" sp.	-

KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	ROOT
+	8	ACER RUBRUM/RED MAPLE	1 1/2"-2" CAL	B & B
VC	24	VACCINIUM CORYMBOSUM Highbush Blueberry	12"-15" HEIGHT	CONT
IV	12	ILEX VERTICILLATA Winterberry	2'-3' HEIGHT	B & B OR CONT
VD	13	VIBURNUM DENTATUM Arrow Wood	3'-4' HEIGHT	B & B OR CONT
IG	17	ILEX GLABRA Inkberry	18"-24" HEIGHT	B & B OR CONT
●	300	LIRIOPE SPICATA Creeping Lily Turf	2" POT	18" O/C



QUAN.	BOTANICAL NAME	SIZE
5	Acer Rubrum Red Maple	1" CAL
8	Platanus occidentalis Sycamore	1" CAL
4	Liquidambar styraciflua Sweetgum	1" CAL
4	Quercus palustris Pin Oak	1" CAL

NET TRACT AREA:	SIZE
A. TOTAL TRACT AREA	3.91 AC
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.00 AC
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0.00 AC
D. NET TRACT AREA	3.91 AC

EXISTING FOREST COVER:	SIZE
G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	2.07 AC
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	1.48 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	1.29 AC

BREAK EVEN POINT:	SIZE
J. FOREST RETENTION WITH NO MITIGATION	1.04 AC
K. CLEARING PERMITTED WITHOUT MITIGATION	1.03 AC

PROPOSED FOREST CLEARING:	SIZE
L. TOTAL AREA OF FOREST TO BE CLEARED	1.35508 AC
M. TOTAL AREA OF FOREST TO BE RETAINED	0.71492 AC

PLANTING REQUIREMENTS:	SIZE
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (0.25 = 0.32 AC)	0.32 AC
P. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L-I)*2 = 0.13 AC	0.13 AC
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (L-I)*2 = 0.00 AC	0.00 AC
R. TOTAL REFORESTATION REQUIRED =	0.45 AC
S. TOTAL AFFORESTATION REQUIRED =	0.00 AC
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED =	0.45 AC

COST ESTIMATE: (For bonding purposes, only)  
SURETY NOTE  
FINANCIAL SURETY IN THE AMOUNT OF \$9,501.40 WILL BE POSTED WITH THE FC INSTALLATION AND MAINTENANCE AGREEMENT.  
RETENTION 31,142 SF X 0.20 = \$6,228.40  
REFORESTATION 6,546 SF X 0.50 = \$3,273.00  
FEE-IN-LIEU 13,056 SF X 0.50 = \$6,528.00

KEY	DESCRIPTION
—	EXISTING CONTOUR
—	PROPOSED CONTOUR
—	SPOT ELEVATION
—	DIRECTION OF FLOW
—	WALK OUT BASEMENT
—	EXISTING TREELINE
—	EXISTING BRUSHLINE
—	PROPOSED TREELINE
—	SOIL BOUNDARY
—	STREAM BUFFER
—	WETLAND BUFFER
—	WETLAND
—	SLOPES 25% >
—	SLOPES 15% TO 24.9%
—	FOREST CONSERVATION EASEMENT
—	LANDSCAPE PERIMETER
—	TREE PROTECTION FENCE
—	SHADE TREES
—	FOREST CONSERVATION AREA SIGN
—	STAND DELINEATION LINE

- GENERAL SITE NOTES
- WETLANDS AND THEIR BUFFERS ARE TO BE RETAINED.
  - THERE ARE NO ENDANGERED SPECIES ON THIS SITE.
  - STEEP SLOPES ARE SUBSTANTIALLY RETAINED IN EASEMENT.
  - THERE ARE NO SPECIMEN TREES 30" IN DIAMETER OR LARGER ON THIS SITE.
  - THERE ARE NO HISTORIC STRUCTURES ON THIS SITE.
  - THIS PROPERTY IS SURROUNDED ON THREE SIDES BY RESIDENTIAL DEVELOPMENT AND ONE SIDE BY AN OPEN SPACE LOT.
  - ALL AREAS IDENTIFIED ON THIS PLAN AS "RETENTION EASEMENTS" SHALL REMAIN UNDISTURBED UNLESS OTHERWISE STATED ON THIS PLAN OR ANY SUBSEQUENT APPROVED AMENDMENTS.
  - NO ADDITIONAL CLEARING OF ANY FORESTED AREA ON THE SUBJECT PROPERTY SHALL BE PERMITTED WITHOUT PRIOR APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.
  - ALL TREE CONSERVATION/PROTECTION MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS AND CONSTRUCTION SCHEDULE AS SHOWN ON THIS SHEET OF THE APPROVED FOREST CONSERVATION PLAN.
  - SITE CONSTRUCTION IN THE AREAS NEAR LIMIT OF DISTURBANCE SHALL NOT BEGIN UNTIL THE ABOVE TREE PROTECTION MEASURES HAVE BEEN INITIATED AND APPROVED BY THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.
  - ALL FENCED AREAS WILL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR FOR THE DURATION OF THE CONTRACT.
  - ANY SELECTIVE PRUNING AND UNDERGROWTH REMOVAL WITHIN FENCED AREAS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE PROJECT ECOLOGIST.
  - ALL CONSTRUCTION DUMPING WITHIN STAND P-5 (NOW FOREST RETENTION EASEMENTS AND A UTILITY EASEMENT) IS TO BE REMOVED. NATURAL DOWNED WOODY DEBRIS SHALL REMAIN.
  - PROTECT RETAINED WOODS FROM FURTHER DISTURBANCE BY INSTALLING 82 FEET OF PERMANENT FENCING AND FOREST RETENTION SIGNS AT PROPERTY LINE CONTIGUOUS WITH MATHEW WOODS LOTS 17 & 18 AS SHOWN.

QUAN.	BOTANICAL NAME	SIZE
200	TPA x 0.15028 AC = 30 TREES TOTAL	
30	TREES = 9 (CREDIT FOR EX.) = 21 TREES REQUIRED	

LAND USE CATEGORY (FROM TABLE 3.2.1, PAGE 40, MANUAL)	SIZE
INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY.	
ARA MDR IDA HDR MPD CIA	0 0 0 0 1 0 0

DESIGN BY: MHM  
DRAWN BY: MHM  
CHECKED BY: MHM  
DATE: DECEMBER 3, 2002  
SCALE: AS SHOWN  
DWG. NO.: 2019034  
4 SHEET OF 5

FREDERICK WARD ASSOCIATES, INC.  
7125 Riverwood Drive Columbia, Maryland 21046-2354  
Phone: 410-290-9550 Fax: 410-720-6226  
Bel Air, Maryland Columbia, Maryland Warrenton, Virginia

STATE OF MARYLAND  
LANDSCAPE ARCHITECT  
MARY H. MCKENNA, RLA No. 2039



Chief, Development Engineering Division DATE 12/19/02  
Chief, Division of Land Development DATE 12/20/02

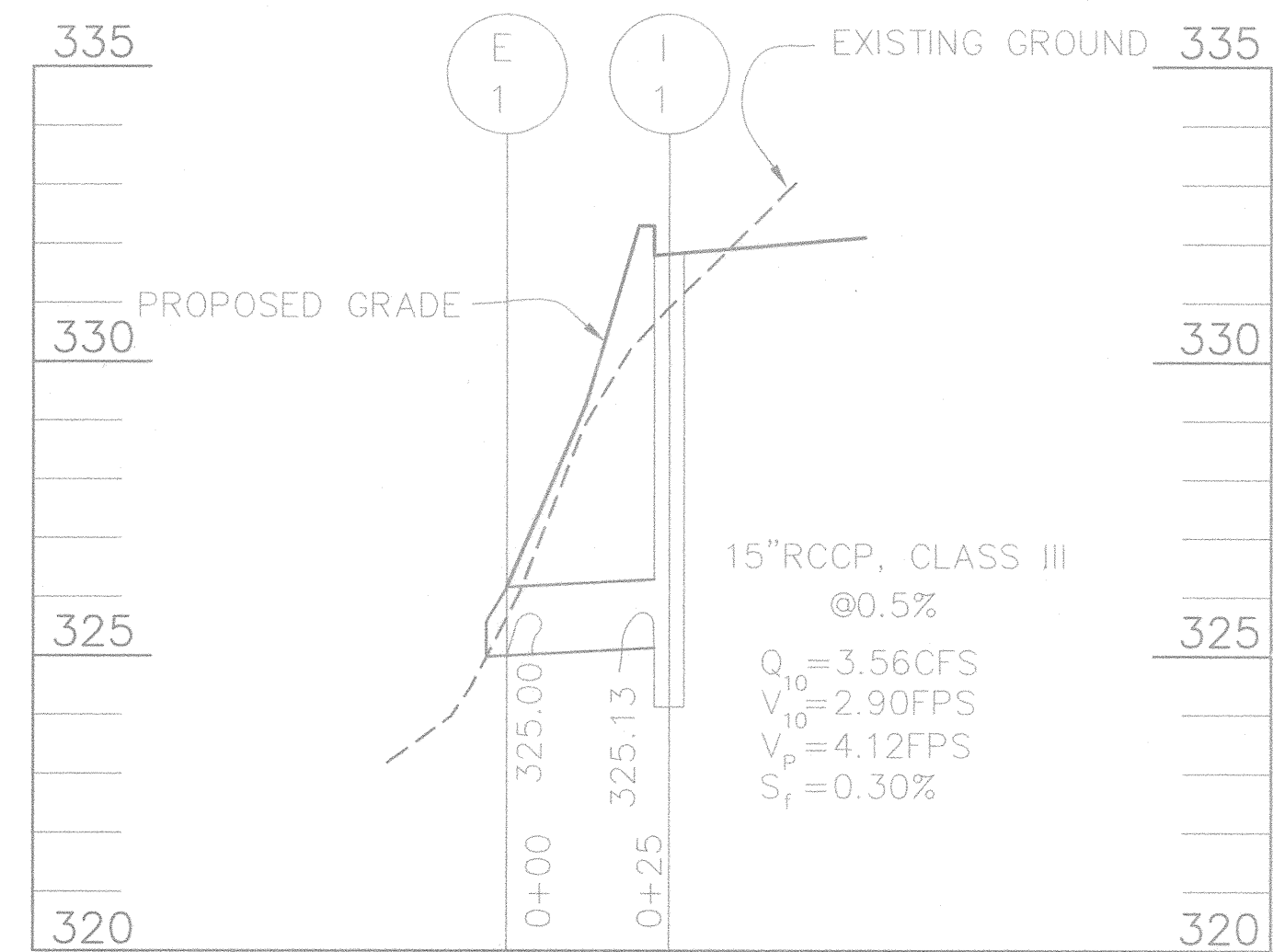
LEGEND

- EXISTING CONTOUR
EXISTING TREELINE
EXISTING BRUSHLINE
PROPOSED TREELINE
SOIL BOUNDARY
STREAM BUFFER
WETLAND BUFFER
WETLAND
SLOPES 25% >
SLOPES 15% TO 24.9%
FOREST CONSERVATION EASEMENT
LANDSCAPE PERIMETER
TREE PROTECTION FENCE

DRAINAGE AREA TABULATIONS table with columns: No., Area, 'C', % Imp., Soil Types, Zone

PIPE SCHEDULE table with columns: SIZE, TYPE, LENGTH

STRUCTURE SCHEDULE table with columns: NO., TYPE, LOCATION, TOP ELEV., INV. IN., INV. OUT., REMARKS



STORM DRAIN PROFILE

SCALE: 1" = 50' HORZ.
1" = 5' VERT.

TC PATH INFORMATION

DRAINAGE AREA '1'
Area : 1.0 Acres
CN : 0.29
TC : 0.11
Sheet Flow 50' @ 6.0%
B-C Shallow Concentrated 36' @ 5.0%
C-D Open Channel 276' @ 3.4 FPS

OWNER/DEVELOPER
MICHAEL PFALU
3615 PARK AVENUE, SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

Table with columns: NO., REVISION, DATE

DRAINAGE AREA MAP
THORNTON WOODS OVERLOOK
LOTS 1- 10 AND OPEN SPACE LOT 11 & 12

TAX MAP #42 GRID 16 PARCEL '41'
6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND



FREDERICK WARD ASSOCIATES, INC.
7125 Riverwood Drive Columbia, Maryland 21046-2354
Phone: 410-290-9550 Fax: 410-720-6226

DESIGN BY: JCO
DRAWN BY: JCO
CHECKED BY: RHV
DATE: DECEMBER 3, 2002
SCALE: 1" = 30'
W.O. NO.: 2019034