

SITE DATA

LOCATION: TAX MAP 47, GRID 6, PARCEL 942
 DEED REFERENCE: L 9832 / F 435
 EXISTING ZONING: R-12
 GROSS AREA OF PARCEL: 1.43 AC. (62,197 SF)
 AREA OF PROPOSED RIGHT-OF-WAY DEDICATION: 0.03 AC. (1,292 SF)
 AREA OF 100-YR FLOODPLAIN: FLOODPLAIN: N/A
 AREA OF STEEP SLOPES: N/A
 NET AREA OF PROJECT: 1.43 AC. (62,197 SF)
 NUMBER OF PROPOSED RESIDENTIAL LOTS: 5
 AREA OF PROPOSED RESIDENTIAL LOTS: 0.83 AC. (36,020 SF)
 AREA OF SMALLEST BUILDABLE LOT PROPOSED: 7,202 SF (LOT 1 AND 3-5)
 NUMBER OF PROPOSED OPEN SPACE LOTS: 1 (LOT 6)
 AREA OF OPEN SPACE REQUIRED: 0.57 AC. (1.43 x 40%)
 AREA OF CREDITED OPEN SPACE PROVIDED: 0.57 AC. OR 40% (24,885 SF)
 AREA OF NON-CREDITED OPEN SPACE: 0.00 AC.
 TOTAL AREA OF OPEN SPACE: 0.57 AC. (24,885 SF)
 TOTAL LIMIT OF DISTURBANCE: 1.57 AC. (68,493 SF)
 DPZ FILE REFERENCES: P-08-02, S-06-017, WP-06-114, WP-08-99

GENERAL NOTES

- THIS SUBMISSION COMPLIES WITH THE AMENDED 5TH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AS AMENDED BY COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS, AS AMENDED BY COUNCIL BILL 75-2003. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE SUBJECT PROPERTY IS ZONED R-12 PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN, AND THE "COMP LITE" ZONING REGULATIONS AMENDMENTS EFFECTIVE 7/28/06.
 - DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12' (16" SERVING MORE THAN ONE RESIDENCE);
 - SURFACE - 6" OF COMPACTED CRUSHER RUN BASE W/TAR AND CHIP COATING (1-1/2" MIN.);
 - GEOMETRY - MAX. 14% GRADE, MAX. 10% GRADE CHANGE, AND MIN. 45° TURNING RADIUS;
 - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (M25 LOADING);
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE;
 - MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- FOR FLAG OR PIPE STEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPE STEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPE STEM LOT DRIVEWAY.
- LAND DEDICATED TO HOWARD COUNTY, MARYLAND, FOR PURPOSES OF A PUBLIC ROAD (0.03 ACRES).
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
- PUBLIC WATER AND SEWAGE ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- RESERVATION OF PUBLIC UTILITY AND FOREST CONSERVATION EASEMENTS
 - DEVELOPER RESERVES TO ITSELF ITS SUCCESSORS AND ASSIGNEES ALL EASEMENTS SHOWN ON THIS PLAN FOR WATER, SEWER, STORM DRAINAGE, OTHER PUBLIC UTILITIES AND FOREST CONSERVATION (DESIGNATED AS "FOREST CONSERVATION AREA") LOCATED IN, ON, OVER AND THROUGH LOTS/PARCELS. ANY CONVEYANCES TO LOTS/PARCELS SHALL BE SUBJECT TO THE EASEMENTS HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOTS/PARCELS. DEVELOPER SHALL EXECUTE AND DELIVER DEEDS FOR THE EASEMENTS HEREIN RESERVED TO HOWARD COUNTY WITH A METES AND BOUNDS DESCRIPTION OF THE FOREST CONSERVATION AREA UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR ACCEPTANCE BY HOWARD COUNTY, AND IN THE CASE OF THE FOREST CONSERVATION EASEMENT(S), UPON COMPLETION OF THE DEVELOPER'S OBLIGATIONS UNDER THE FOREST CONSERVATION INSTALLATION AND MAINTENANCE AGREEMENT EXECUTED BY THE DEVELOPER AND THE COUNTY, AND THE RELEASE OF DEVELOPER'S SURETY POSTED WITH SAID AGREEMENT. THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.
- THE BOUNDARY AND TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, DATED MARCH 2006.
- WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC SERVICE, AND WILL BE PROVIDED BY CONTRACTS #09-A AND #24-312.
- STORMWATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT. WOV AND REV ARE TO BE PROVIDED BY A BIO-RETENTION FACILITY LOCATED ON OPEN SPACE LOT 6, AND A NON ROOFTOP DISCONNECT FOR LOT 1 DRIVEWAY. CPV IS NOT REQUIRED FOR THIS PROJECT SINCE THE 1-YEAR PEAK DISCHARGE IS LESS THAN 20 CFS. STORMWATER MANAGEMENT FACILITIES TO BE OWNED AND MAINTAINED BY HOME OWNERS ASSOCIATION.
- APFO TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, DATED MAY 2006, AND APPROVED NOVEMBER 3, 2006.
- A FOREST STAND DELINEATION WAS PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC., DATED MAY 2006.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT, BECAUSE:
 - IT IS NOT LOCATED WITHIN 1000 FEET OF AN EXISTING RIGHT OF WAY LINE OF ROUTE 1-95 OR THAT SEGMENT OF U.S. ROUTE 1 FROM MD. 100 TO MD. 32 OF ANY OTHER ROADWAY WHERE HEAVY TRUCK TRAFFIC IS EXPECTED TO EXCEED AN ADT OF 10,000 VEHICLE.
 - IT IS NOT LOCATED WITHIN 500' OF ANY OTHER EXISTING OR PROPOSED PRINCIPAL OR INTERMEDIATE ARTERIAL HIGHWAY RIGHT OF WAY LINE.
 - IT IS NOT LOCATED WITHIN 250' OF ANY EXISTING OR PROPOSED MINOR ARTERIAL RIGHT OF WAY LINE.
 - IT IS NOT LOCATED WITHIN 500' OF AN EXISTING OR PROPOSED RAIL LINE.
 - IT IS NOT LOCATED WITHIN THE APPROVED AIRPORT NOISE ZONE IS ESTABLISHED BY THE STATE AVIATION ADMINISTRATION.
- A GEOTECHNICAL STUDY WAS PREPARED OCTOBER 2007, BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC.
- THIS PROJECT IS NOT LOCATED ON A SCENIC ROAD.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT AND NO HISTORIC STRUCTURE LOCATED ON THIS SITE.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS ON SITE.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS 42A AND 0080 WERE USED FOR THIS PROJECT.
- STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. 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 STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993). A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- STREET LIGHTING WILL BE PROVIDED IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REQUIREMENTS. THE LIGHT INTENSITY AT THE PROPERTY LINE SHALL NOT EXCEED 0.1 FOOT CANDLES.
- TREE PROTECTION FENCINGS WILL BE PROVIDED AT THE LIMITS OF DISTURBANCE WHERE GRADING IS ADJACENT TO ENVIRONMENTAL AREAS.
- FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1202 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL FOR THIS SITE SHALL BE FULFILLED BY THE PLACEMENT OF .19 ACRES OF EXISTING FOREST INTO AN EASEMENT AREA AND THE PAYMENT OF A FEE-IN-LIEU FOR .49 ACRES OF REQUIRED REFORESTATION IN THE AMOUNT OF \$15,652.00 (20,000.00 SQ.FT. X .75) TO THE FOREST CONSERVATION FUND. SURETY IN THE AMOUNT OF \$1,658.00 FOR .19 ACRES OF RETENTION (8,276.40 SQ.FT. X .20) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS FINAL PLAN, F-08-167.
- STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124 (e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL.
- OPEN SPACE LOT 6 TO BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.
- THERE ARE NO STEEP SLOPES GREATER THAN 25% LOCATED WITHIN THE SUBJECT PROPERTY.
- THERE ARE NO WETLANDS, WETLAND BUFFERS, STREAMS, OR STREAM BUFFERS LOCATED ON SITE.
- THERE ARE NO FLOODPLAINS ON SITE.
- EXISTING UTILITIES ARE BASED ON RECORD DRAWINGS AND FIELD LOCATED EVIDENCE.
- THERE ARE NO EXISTING STRUCTURES LOCATED ON SITE.
- A DESIGN MANUAL WAIVER HAS BEEN APPROVED ON OCTOBER 30, 2006 TO ALLOW THE SIGHT DISTANCE ANALYSIS TO BE PREPARED AND APPROVED BASED ON THE POSTED SPEED LIMIT PLUS FIVE MILES PER HOUR.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.

APPROVED: DEPARTMENT OF PUBLIC WORKS

William J. ... 8-19-08
 Chief, Bureau of Highways

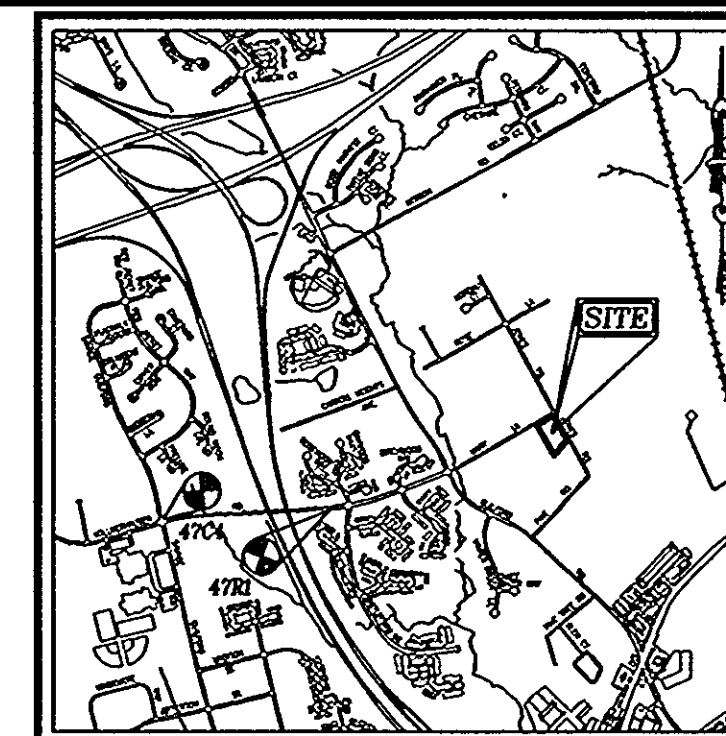
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Christina ... 8/21/08
 Chief, Division of Land Development

Robert H. Vogel 8/21/08
 Chief, Development Engineering Division

FINAL ROAD CONSTRUCTION PLAN

COLD SPRING LOTS 1-5 AND OPEN SPACE LOT 6 A RESUBDIVISION OF THE NORDAU SUBDIVISION LOT 5 HOWARD COUNTY, MARYLAND



VICINITY MAP

SCALE: 1"=2,000'

ADC MAP COORDINATE: PG. 20 / D-5

BENCHMARKS

NO.	NORTHING	EASTING	ELEVATION
47C4	539645.67	1361379.43	288.81
47R1	539734.77	1363098.87	282.26

47C4 - CONCRETE MONUMENT WITH BRASS DISC, LOCATED ON THE NORTH EAST CORNER OF THE INTERSECTION OF VOLLMERSDAUN DR. AND SAUGE-CALFORD DR.
 47R1 - 1.5" REBAR, LOCATED 2' BACK FROM THE FACE OF CURB ON THE SOUTH SIDE OF VOLLMERSDAUN DR.

COORDINATE LIST

POINT	NORTH	EAST
20	540315.48	1365447.65
21	540469.00	1365589.01
22	540716.05	1365452.05
23	540689.81	1365466.59
25	540699.69	1365432.53
26	540617.81	1365282.56
218	540622.20	1365280.16

LEGEND

- PROPOSED RIGHT-OF-WAY
- - - EXISTING RIGHT-OF-WAY
- BOUNDARY LINE
- ADJACENT BOUNDARY LINE
- [Pattern] PROPOSED FOREST CONSERVATION EASEMENT
- [Pattern] PROPOSED PUBLIC STORMWATER AND UTILITY EASEMENT
- [Pattern] PROPOSED 10' PUBLIC TREE MAINTENANCE EASEMENT
- [Pattern] EX. 24' PRIVATE USE-IN-COMMON EASEMENT FOR LOTS 1-5

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1
ROAD CONSTRUCTION PLAN	2
GRADING, SEDIMENT, AND EROSION CONTROL PLAN	3
GRADING, SEDIMENT, AND EROSION CONTROL NOTES AND DETAILS	4
STORMWATER DRAINAGE AREA MAP AND UTILITY PROFILES	5
STORMWATER MANAGEMENT NOTES AND DETAILS	6
FOREST CONSERVATION AND LANDSCAPE PLAN	7

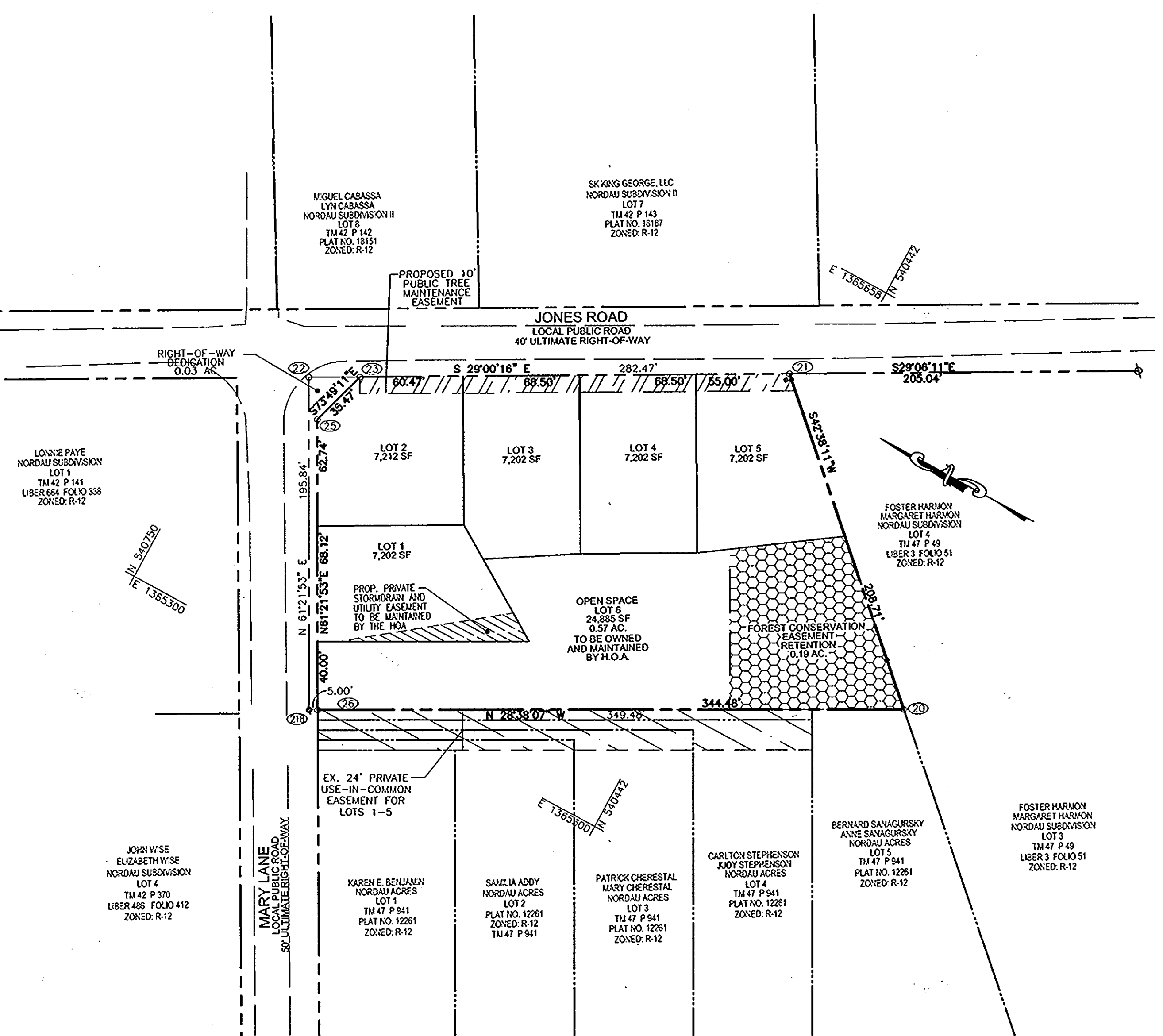
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

NO.	REVISION	DATE

LOCATION PLAN

SCALE: 1"=50'

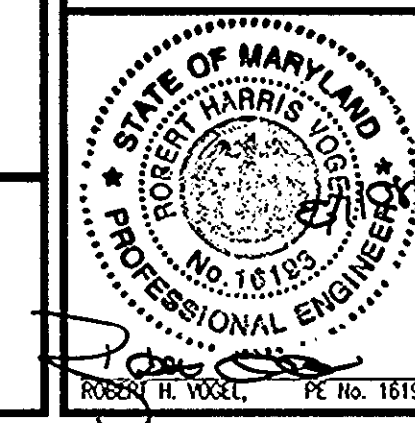


- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN 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 ON TOP OF EACH POST.
- PRIVATE STORM DRAINAGE AND STORMWATER MANAGEMENT FACILITY LOCATED ON LOT 6 TO BE OWNED AND MAINTAINED BY THE HOME OWNERS ASSOCIATION.
- PERIMETER LANDSCAPING IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL SHALL BE PROVIDED AS SHOWN ON THE LANDSCAPE PLAN SHEET OF THE ROAD CONSTRUCTION DRAWINGS FOR THIS FINAL PLAN. SURETY IN THE AMOUNT OF \$3,150.00 FOR 9 SHADE AND 3 EVERGREEN TREES SHALL BE PROVIDED WITH THE DEVELOPERS AGREEMENT FOR THIS FINAL PLAN, F-08-167.

OWNER/DEVELOPER

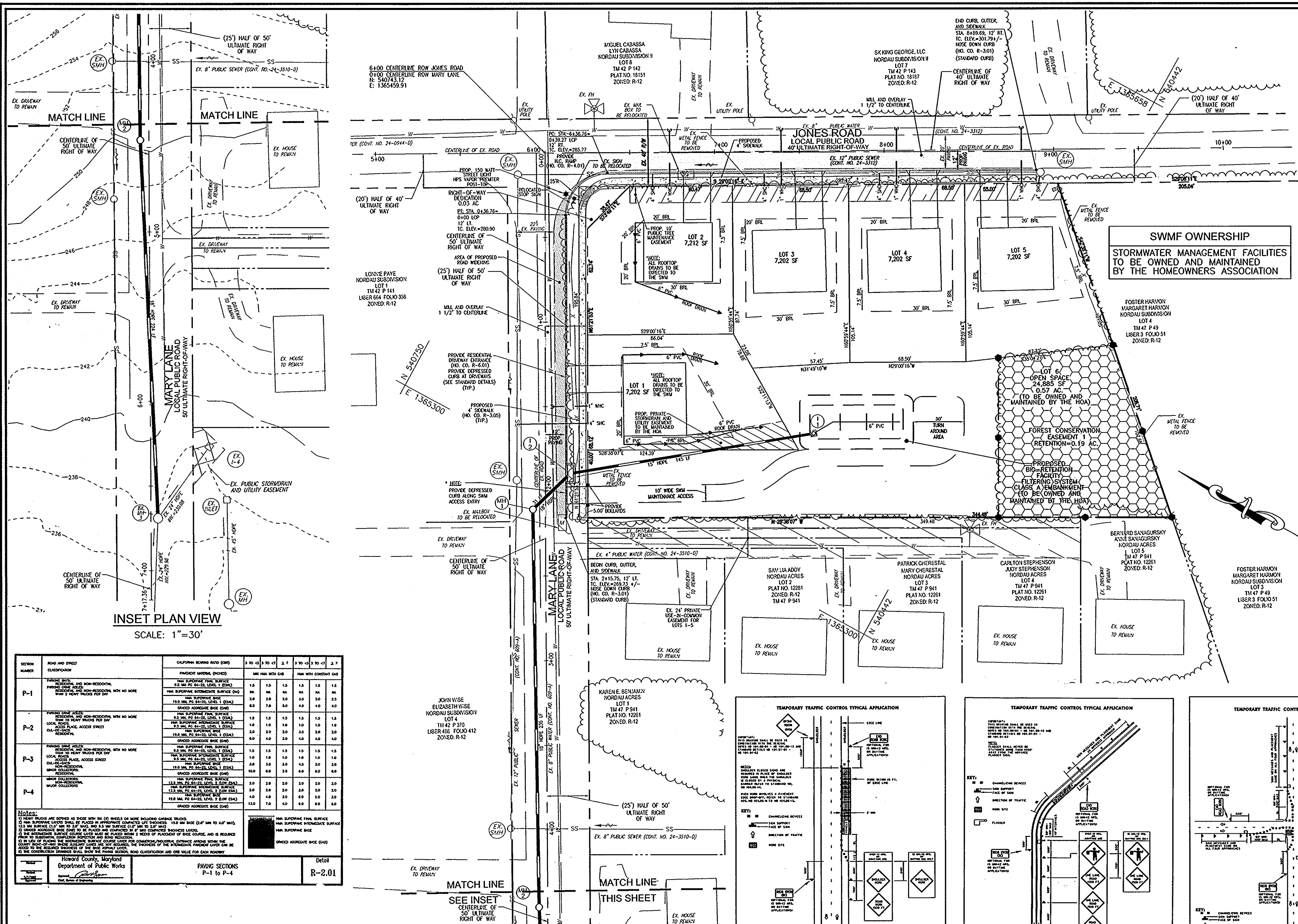
MICHAEL L. PFAU
 3675 PARK AVENUE, SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 490-0023

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: SEPTEMBER 27, 2008.



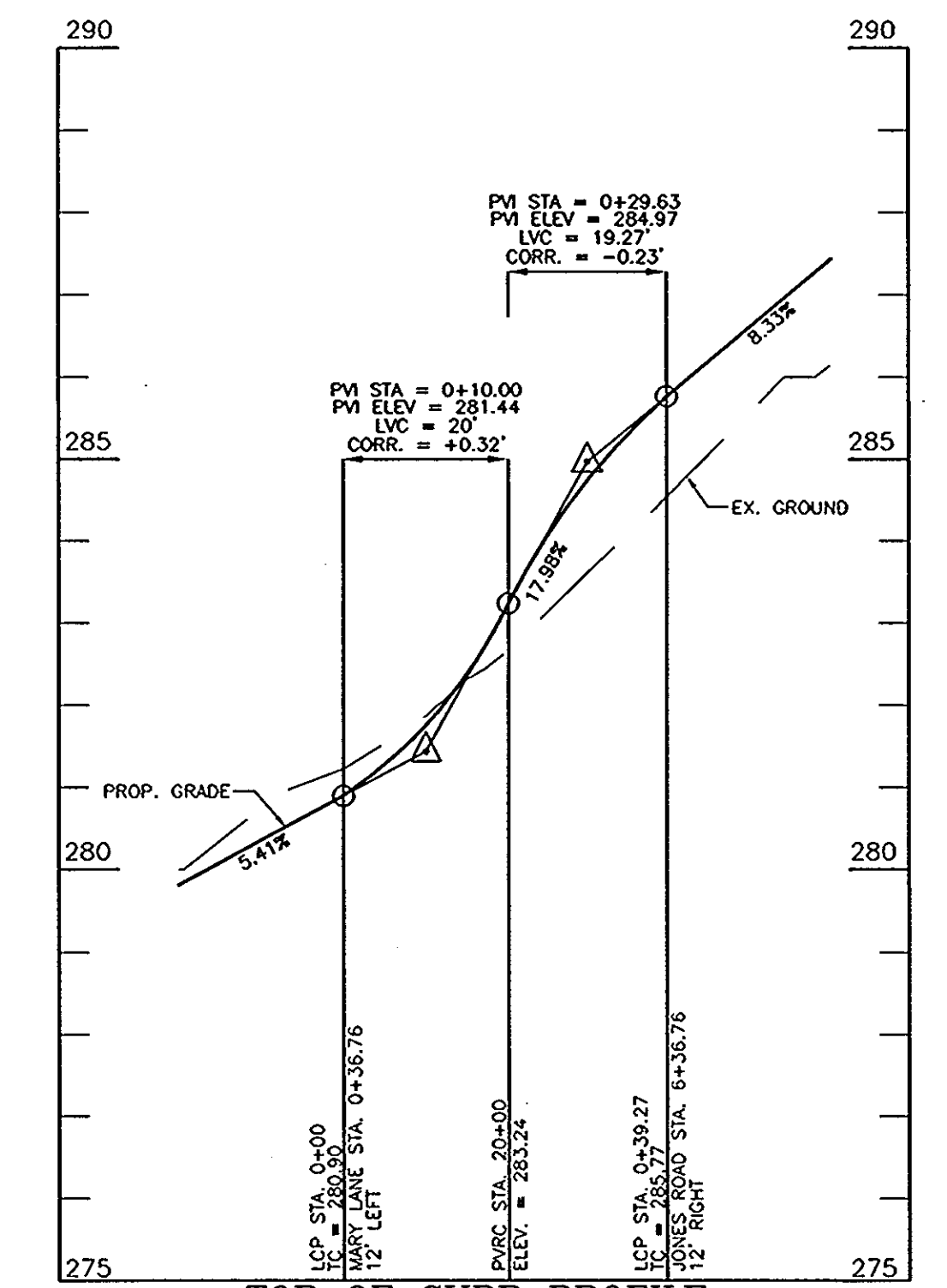
DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: JULY 2008
 SCALE: AS SHOWN
 W.O. NO.: 08-14

1 SHEET OF 7

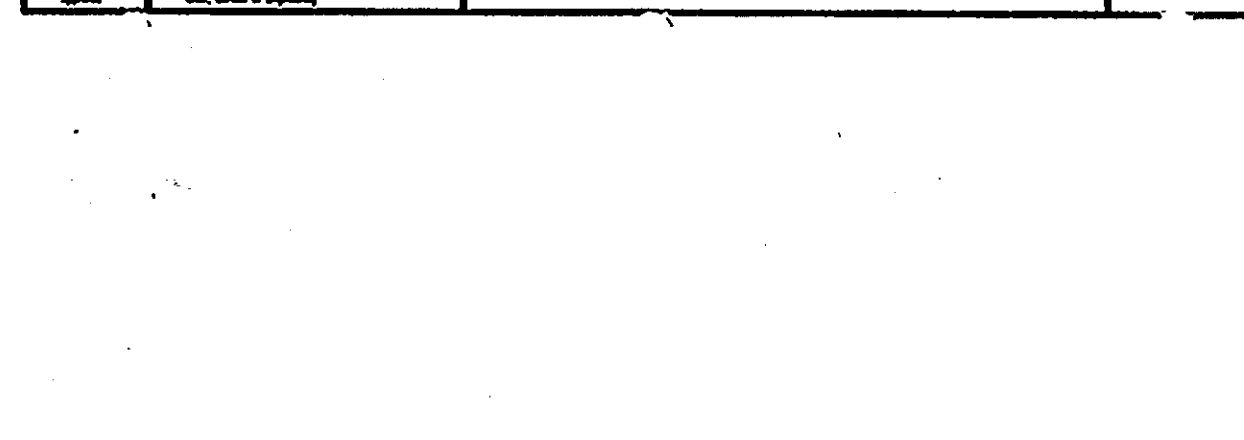


LEGEND

	PROPOSED RIGHT-OF-WAY		EXISTING TREELINE
	EXISTING RIGHT-OF-WAY		EXISTING UTILITY POLE
	BOUNDARY LINE		EXISTING SIGN
	ADJACENT BOUNDARY LINE		EXISTING WATER LINE
	EXISTING CONTOUR		EXISTING SEWER LINE
	PROPOSED CONTOUR		EXISTING FENCE LINE
	PROPOSED CURBLINE		EXISTING MAILBOX
	TEST PIT BORING LOCATION		PROPOSED STREET LIGHT
	PROPOSED SIDEWALK		EXISTING PRIVATE 2' USE-IN-COMMON EASEMENT
	PROPOSED FOREST CONSERVATION EASEMENT		PROPOSED 10' PUBLIC TREE MAINTENANCE EASEMENT
	PROPOSED PUBLIC STORMDRAIN AND UTILITY EASEMENT		AREA OF PROPOSED ROAD WIDENING
	EXISTING PUBLIC STORMDRAIN AND UTILITY EASEMENT		MILL AND OVERLAY 1 1/2\"/> TO CENTERLINE OF ROAD (SEE SHEET 4 FOR DETAIL)
	FOREST CONSERVATION SIGN		



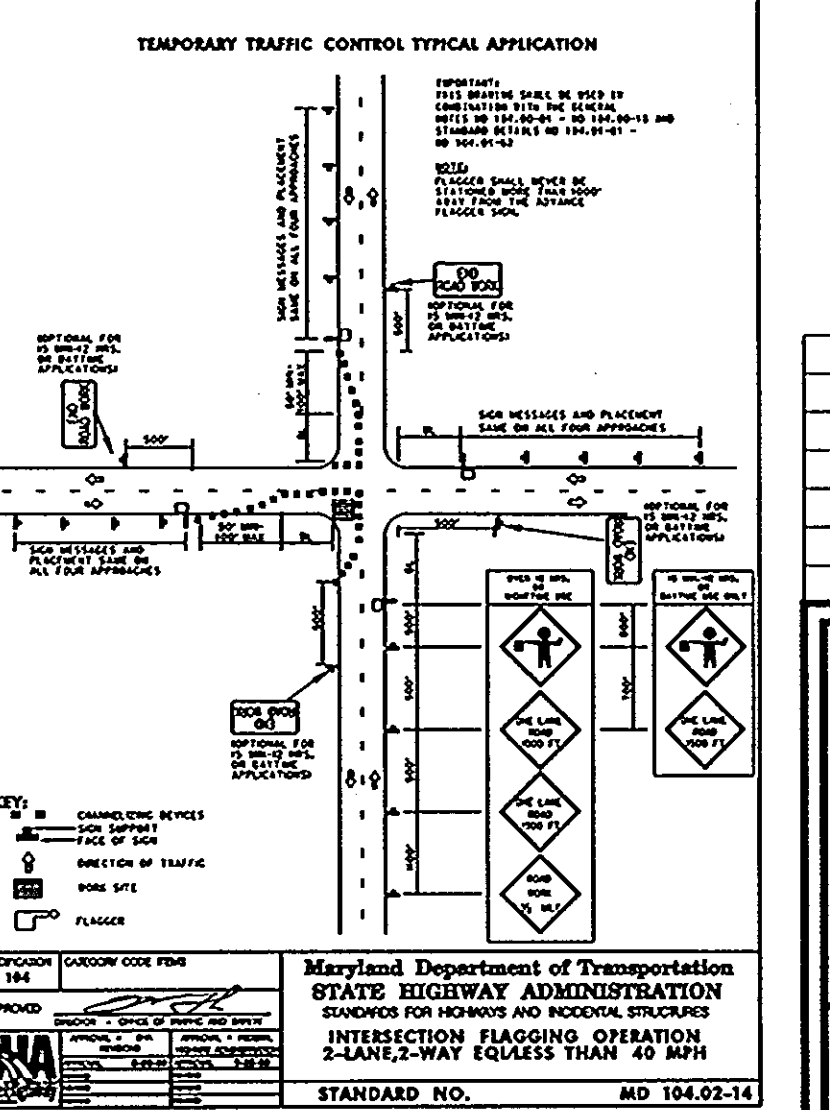
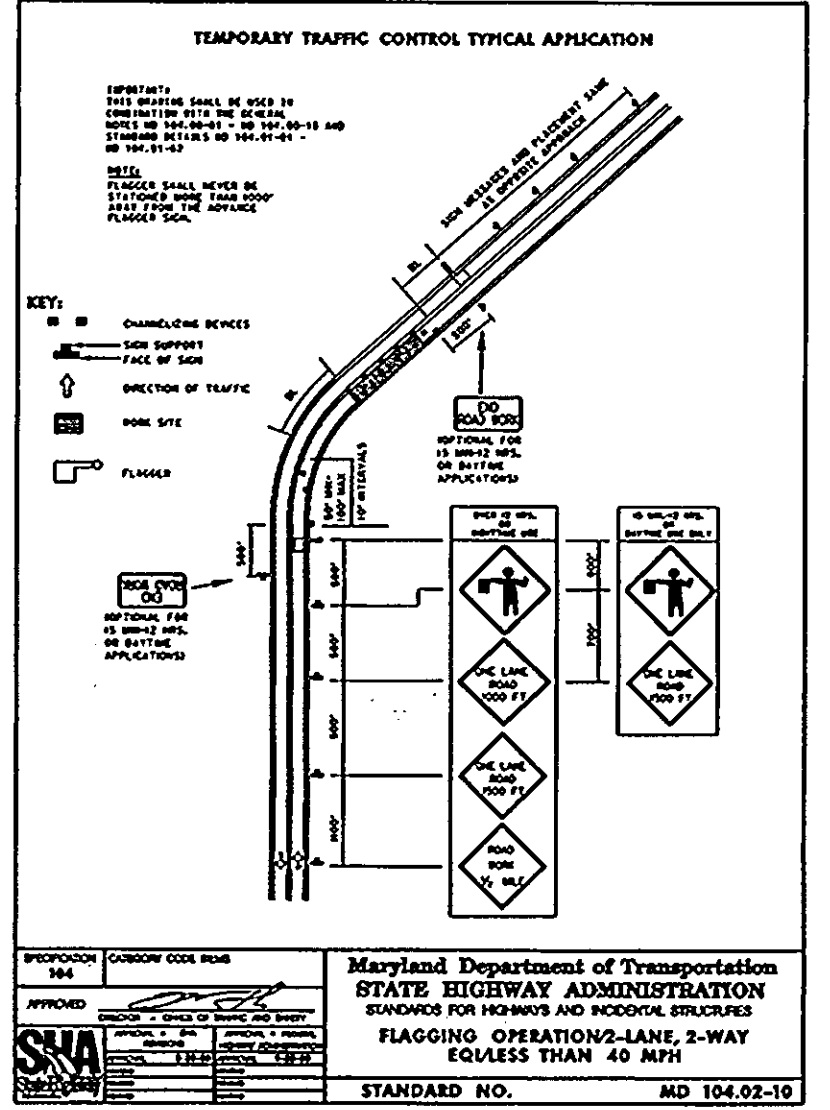
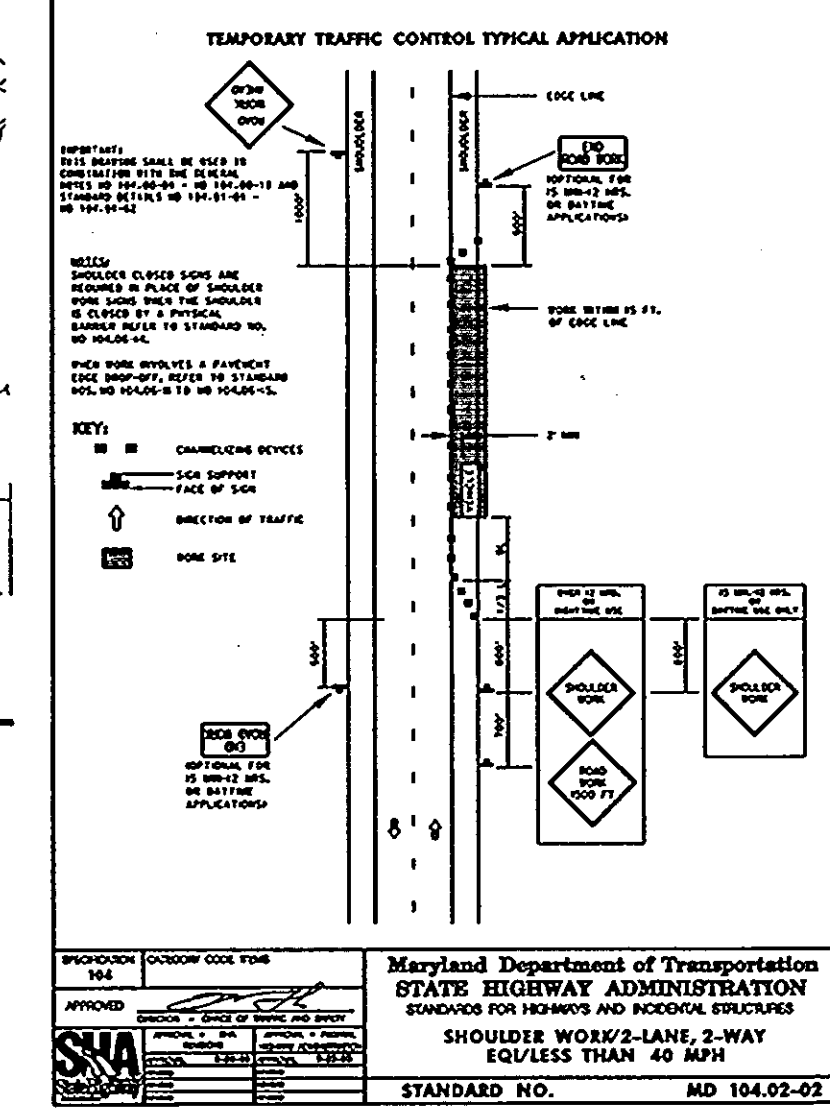
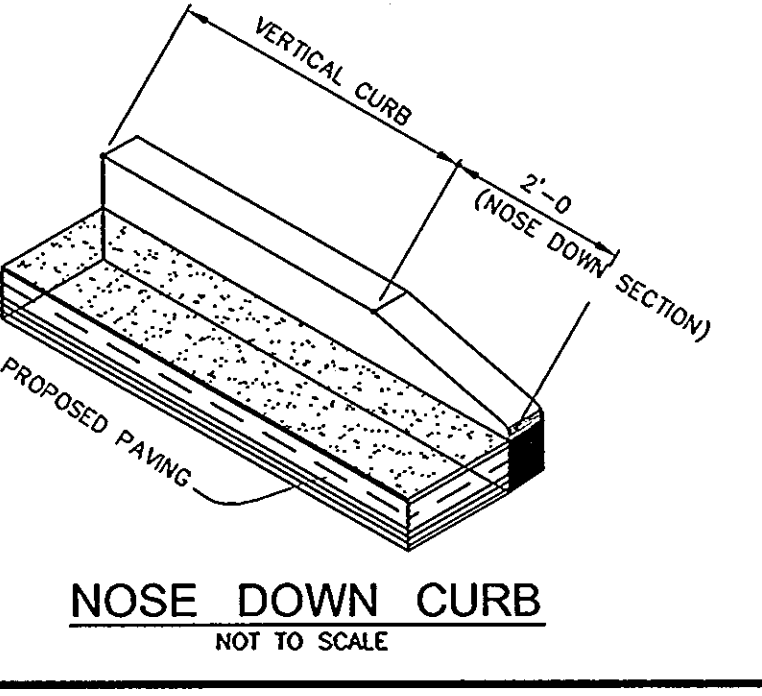
SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA MOVING BIRD (CMS)				HMA WITH CONSTANT GAB			
		3 TO 4	5 TO 6	7	8	3 TO 4	5 TO 6	7	8
P-1	PAVING SECTION P-1	1.0	1.5	1.5	1.5	1.0	1.5	1.5	1.5
P-2	PAVING SECTION P-2	1.0	1.5	1.5	1.5	1.0	1.5	1.5	1.5
P-3	PAVING SECTION P-3	1.0	1.5	1.5	1.5	1.0	1.5	1.5	1.5
P-4	PAVING SECTION P-4	1.0	1.5	1.5	1.5	1.0	1.5	1.5	1.5



APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 8-19-08
 Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 8/2/08
 Chief, Division of Land Development

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 8/2/08
 Chief, Development Engineering Division



APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

NO. _____ REVISION _____ DATE _____

**FINAL ROAD CONSTRUCTION PLAN
 ROAD CONSTRUCTION PLAN,
 PROFILES, AND DETAILS
 COLD SPRING**

LOTS 1-5 AND OPEN SPACE LOT 6
 A RESUBDIVISION OF THE NORTH SUBDIVISION LOT 5
 BLOCK E-1

TAX MAP 47 BLOCK 6
 6TH ELECTION DISTRICT
 DPZ REFS: P-08-02, S-06-017,
 WP-06-114, WP-08-99

L 9832/F 435 PARCEL 942
 HOWARD COUNTY, MARYLAND

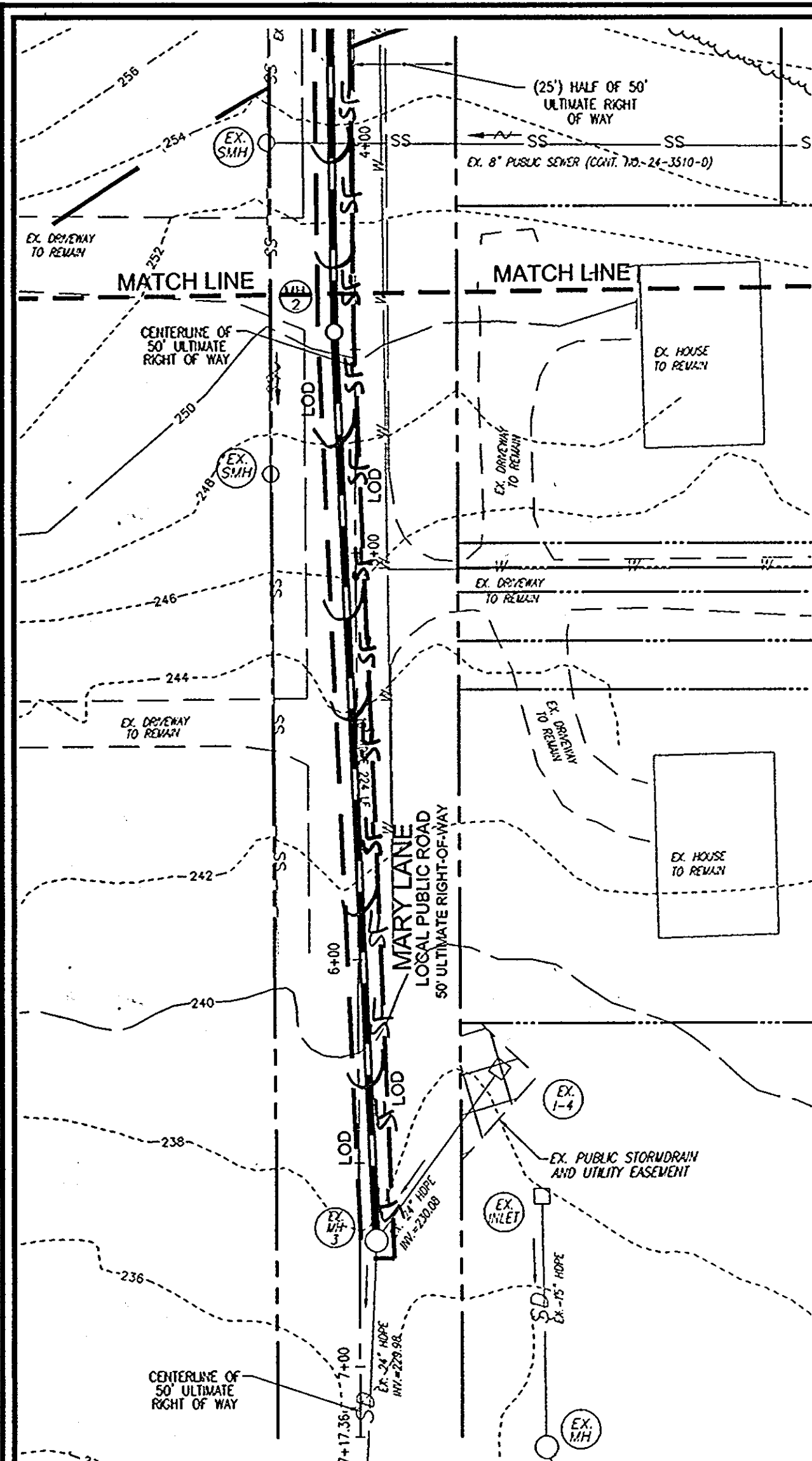
**ROBERT H. VOGEL
 ENGINEERING, INC.**
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET
 ELLICOTT CITY, MD 21043
 TEL: 410.461.7666
 FAX: 410.461.8961

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

DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: JULY 2008
 SCALE: AS SHOWN
 W.O. NO.: 06-14

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS
 WERE PREPARED OR APPROVED BY ME, AND
 THAT I AM A DULY LICENSED PROFESSIONAL
 ENGINEER UNDER THE LAWS OF THE STATE OF
 MARYLAND, LICENSE NO. 16193 EXPIRATION
 DATE: SEPTEMBER 27, 2008.

2 SHEET OF 7



INSET PLAN VIEW
SCALE: 1"=30'

STORMWATER MANAGEMENT REQUIREMENTS - STUDY POINT 'A'				
AREA (1.64 AC.)	REQUIREMENT	VOLUME REQUIREMENT WITHOUT CREDITS	CREDITS	NOTES
1	WATER QUALITY VOLUME (WQV)	1325 CF	-	BIO-RETENTION
2	RECHARGE VOLUME (REV)	331 CF	-	STONE TRENCH BELOW BIO-RETENTION
3	CHANNEL PROTECTION VOLUME (CPV)	NA	NA	1 YR PEAK DISCHARGE < 2.0 CFS
4	OVERHEAD FLOOD PROTECTION (OFP)	NA	NA	NA
5	EXTREME FLOOD VOLUME (EFV)	NA	NA	NA

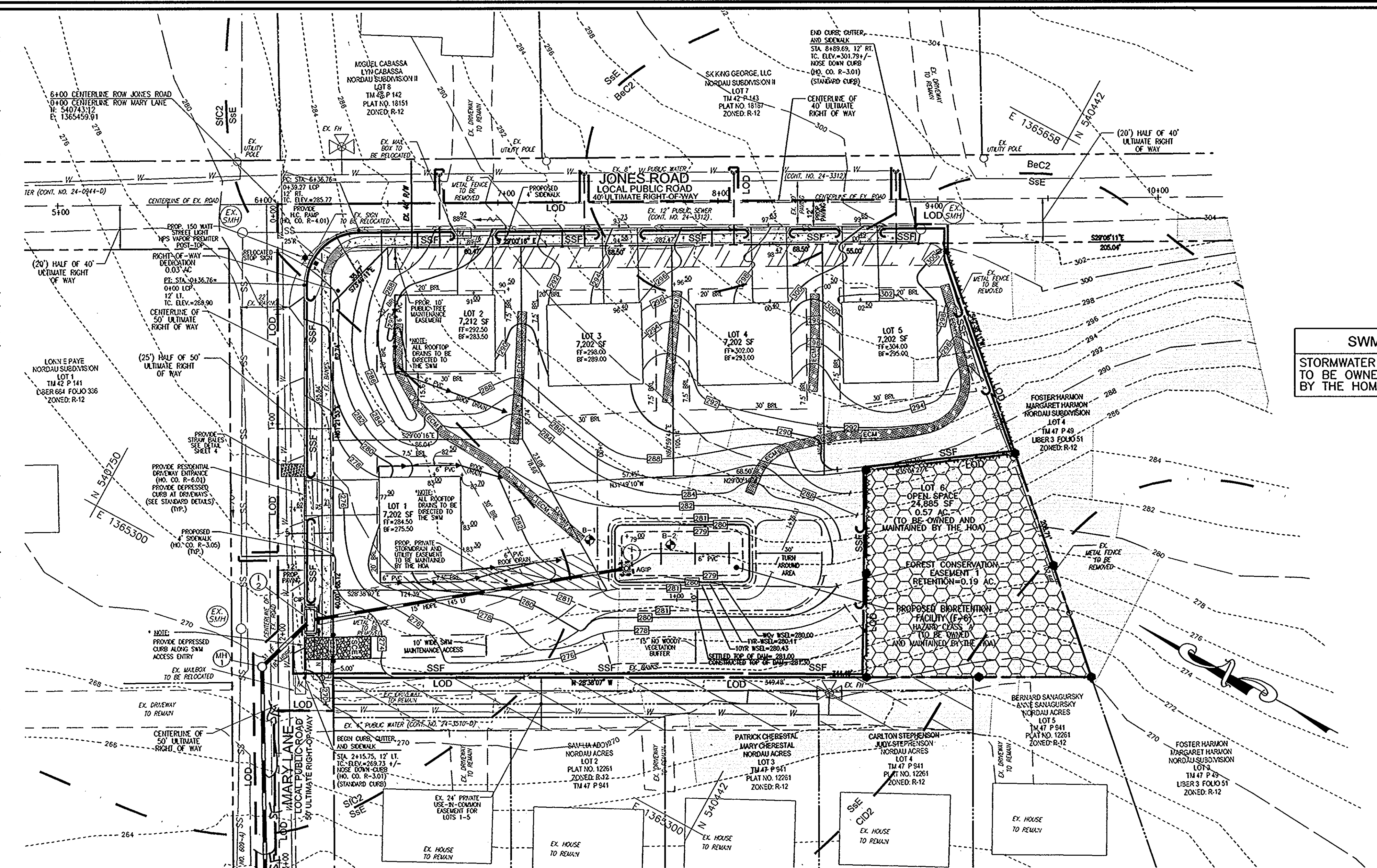
- NOTE:
1. WQV PROVIDED BY BIO-RETENTION FACILITY (F-6).
2. REV PROVIDED BY GRAVEL TRENCH UNDER BIO-RETENTION FACILITY.

SOILS LEGEND		
SYMBOL	NAME / DESCRIPTION	SOIL GROUP
Bc2	BELTSVILLE SILT LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	C
Cd2	CHILLUM GRAVELLY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
Sic2	SASSAFRAS GRAVELLY SANDY LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B
SsE	SASSAFRAS SOILS, 15 TO 40 PERCENT SLOPES	B

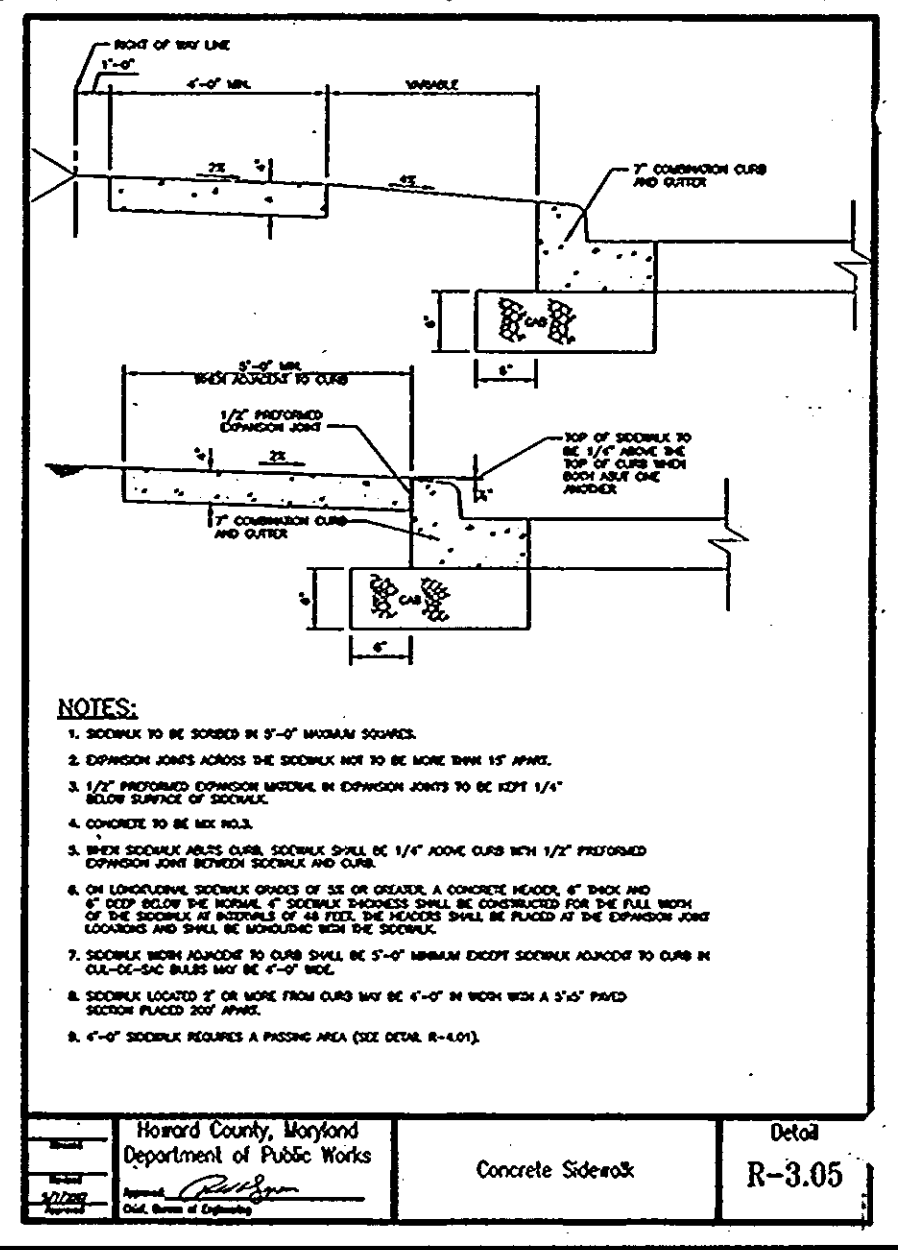
APPROVED: DEPARTMENT OF PUBLIC WORKS
Michael L. Pfauf 8-19-08
Chief, Bureau of Highways
Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Carole Hagan 5/21/08
Chief, Division of Land Development
Date

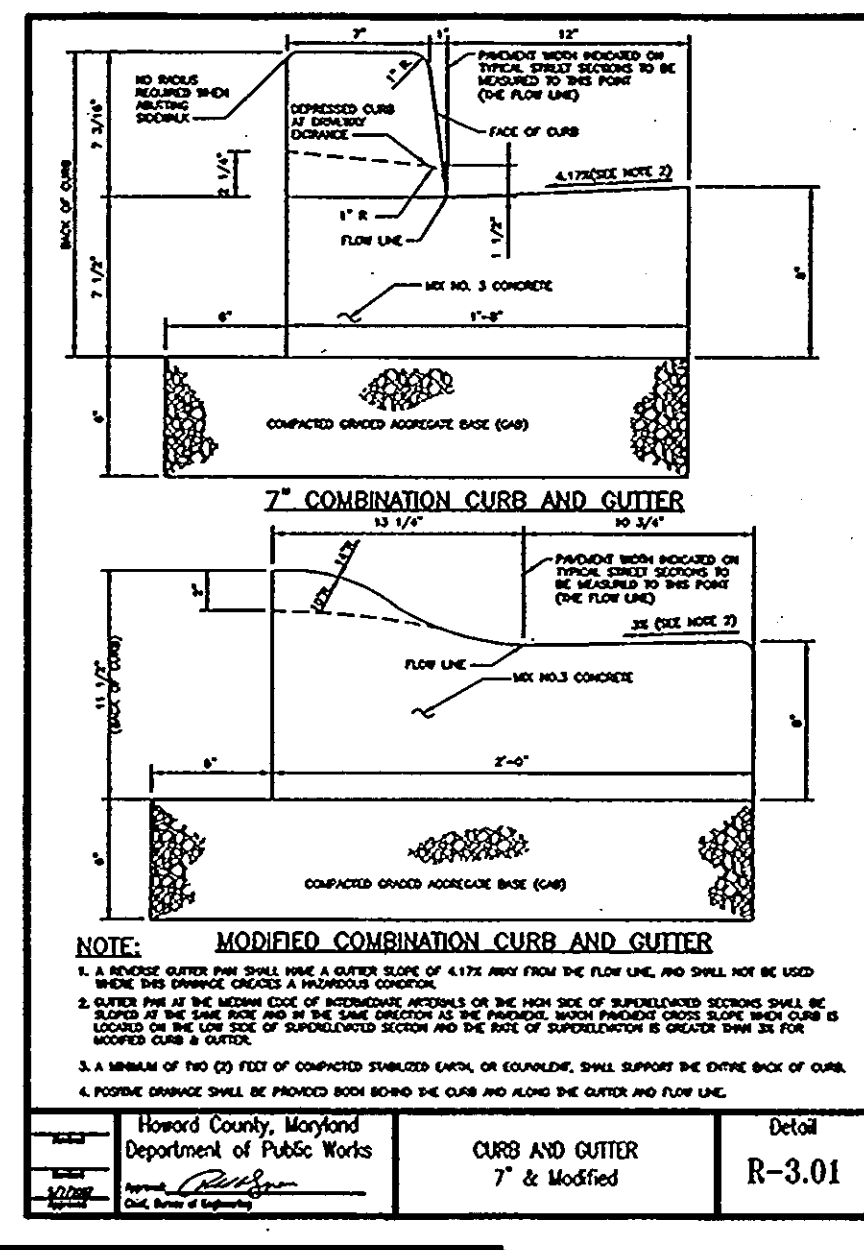
Robert H. Vogel 8/21/08
Chief, Development Engineering Division
Date



PLAN VIEW
SCALE: 1"=30'



- NOTES:
1. SIDEWALK TO BE FINISHED TO 2" BELOW FINISH GRADE.
2. EXPANSION JOINTS ACROSS THE SIDEWALK TO BE MADE WITH 1/2" ASPHALT FILL.
3. EXPANSION JOINTS BETWEEN SIDEWALK AND CURB TO BE MADE WITH 1/2" ASPHALT FILL.
4. CONCRETE TO BE 3000 PSI.
5. CURB AND GUTTER SHALL BE 1/2" ABOVE FINISH GRADE.
6. TOP OF SIDEWALK TO BE 2" BELOW FINISH GRADE.
7. TOP OF CURB TO BE 1/2" ABOVE FINISH GRADE.
8. 4" MINIMUM OF 100 TO 200 PERCENT FINE SAND SHALL BE PLACED UNDER THE CURB AND ALONG THE SIDEWALK.
9. 4" MINIMUM OF 100 TO 200 PERCENT FINE SAND SHALL BE PLACED UNDER THE SIDEWALK.



- NOTE: MODIFIED COMBINATION CURB AND GUTTER
1. A GUTTER GARDEN SHALL BE INSTALLED AT THE END OF THE GUTTER AND SHALL NOT BE USED UNDER ANY CIRCUMSTANCES.
2. GUTTER SHALL BE 1/2" ABOVE FINISH GRADE.
3. TOP OF SIDEWALK TO BE 2" BELOW FINISH GRADE.
4. TOP OF CURB TO BE 1/2" ABOVE FINISH GRADE.
5. A MINIMUM OF 100 TO 200 PERCENT FINE SAND SHALL BE PLACED UNDER THE CURB AND ALONG THE SIDEWALK.
6. A MINIMUM OF 100 TO 200 PERCENT FINE SAND SHALL BE PLACED UNDER THE SIDEWALK.

Howard County, Maryland
Department of Public Works
Concrete Sidewalk
Detail
R-3.05

Howard County, Maryland
Department of Public Works
CURB AND GUTTER
7" & Modified
Detail
R-3.01

DEVELOPER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. I HEREBY ENGAGE REGISTERED PROFESSIONAL ENGINEER TO SUPERSEDE ROAD CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Michael Pfauf (PRESIDENT) 7/30/08
SIGNATURE OF DEVELOPER
DATE

ENGINEER'S CERTIFICATE
"I HEREBY CERTIFY THAT THIS PLAN FOR ROAD CONSTRUCTION, 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. I HAVE ADVISED THE DEVELOPER THAT HE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERSEDE ROAD CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Robert H. Vogel
SIGNATURE OF ENGINEER
ROBERT H. VOGEL
DATE

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

USDA NATURAL RESOURCES CONSERVATION SERVICE
DATE

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

John R. Veltan
HOWARD S.C.D.
DATE

OWNER/DEVELOPER
Michael L. Pfauf
3675 PARK AVENUE, SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: SEPTEMBER 27, 2008.

LEGEND

- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- BOUNDARY LINE
- ADJACENT BOUNDARY LINE
- EXISTING CONTOUR
- EXISTING TREENLINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING MAILBOX
- EXISTING WATER LINE
- EXISTING SEWER LINE
- EXISTING FENCE LINE
- PROPOSED CURBLINE
- PROPOSED STREET LIGHT
- PROPOSED CONTOUR
- TEST PIT BORING LOCATION
- SOILS
- PROPOSED SIDEWALK
- AREA OF 15 TO 24.9 PERCENT SLOPES
- PROPOSED FOREST CONSERVATION EASEMENT
- PROPOSED PUBLIC STORMDRAIN AND UTILITY EASEMENT
- EXISTING PUBLIC STORMDRAIN AND UTILITY EASEMENT
- EXISTING PRIVATE 24' USE-IN-COMMON EASEMENT
- PROPOSED 10' PUBLIC TREE MAINTENANCE EASEMENT
- AREA OF PROPOSED ROAD WIDENING
- FOREST CONSERVATION SIGN
- INLET PROTECTION
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- STABILIZED CONSTRUCTION ENTRANCE

SWMF OWNERSHIP
STORMWATER MANAGEMENT FACILITIES TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT
DATE

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
GRADING, SEDIMENT, AND EROSION
CONTROL PLAN; SOILS MAP
COLD SPRING
LOTS 1-5 AND OPEN SPACE LOT 6
A RESUBDIVISION OF THE NORDAU SUBDIVISION LOT 5
BLOCK E-1

TAX MAP 47 BLOCK 6
6TH ELECTION DISTRICT
DPZ REFS: P-08-04, S-08-017,
WP-06-114, WP-08-39

ZONED: R-12
L 9833/F 435 PARCEL 342
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND
PROFESSIONAL ENGINEER
No. 16193

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: JULY 2008
SCALE: AS SHOWN
W.O. NO.: 06-14

3 SHEET OF 7

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-TERM VEGETATIVE SEEDING PREPARATION: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously done.

SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following:

- 1) Preferred—Apply 2 tons per acre dolomitic limestone (92 lbs./1000 sq.ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq.ft.) 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 sq.ft.).
- 2) Acceptable—Apply 2 tons per acre dolomitic limestone (92 lbs./1000 sq.ft.) and apply 1000 lbs. per acre 10-10-10 fertilizer (23 lbs./1000 sq.ft.) 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 (70 to 90 lbs./1000 sq.ft.) of Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.6 lbs./1000 sq.ft.) of creeping bentgrass. During the period of October 16 thru February 28, protect site by Option (1) 2 tons per acre wet anchored straw mulch and seed as soon as possible in the spring. Option (2) Use seed, Option (3) Seed with 60 lbs./acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre wet anchored straw.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq.ft.) of untreated small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq.ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre.

MAINTENANCE: Inspect all seeded areas and make needed repairs.

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Placement of topsoil over a prepared subsoil prior to seeding is required for permanent long-term vegetative seeding. To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, and/or materials toxic to plants, and/or

Conditions Where Practice Applies

- i. This practice is limited to areas having 2:1 or flatter slopes. The texture of the exposed subsoil/parent material is such that 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.
- ii. The original soil to be vegetated contains a. Soil is so acidic that treatment with lime is required. b. 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 methods and materials.

Construction and Material Specifications

- i. 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 to be salvaged for a given soil type can be found in the representative soil profile section (A.1.) of the survey published by USGS-SSS in cooperation with Maryland.
- ii. Topsoil Specifications - Soil to be used as topsoil:
 - a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be 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, silt, roots, trash, or other materials larger than 1 and 1/2" in diameter.
 - b. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, etc. where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 1-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with slope operations as described.
- iii. For sites having disturbed areas under 5 acres:
 - a. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 - b. 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 (313-1855).
 - c. All vegetation and structural practices are to be installed according to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
 - d. Following initial soil disturbance or restoration, permanent or temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater than 3:1, (b) 14 days on to all other disturbed or graded areas on the project site.
 - e. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
 - f. 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 seeding, soil, temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
 - g. 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.
 - h. Site Analysis:

Total Area	1.43 Acres
Area Disturbed	1.57 Acres
Area to be seeded or paved	0.57 Acres
Area to be vegetatively stabilized	1.00 Acres
Total Cut	7710 CY
Total Fill	2725 CY
WASTE/BORROW LOCATION	OFFSITE *
 - i. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
 - j. Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
 - k. 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 disturbances or grading. Other building or grading operations may not be authorized until this initial approval by the inspection agency is made.
 - l. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

* To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved bid active grading permit.

SEQUENCE OF CONSTRUCTION

1. OBTAIN HOWARD COUNTY GRADING PERMIT. (WEEK 1)
2. NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION. (WEEK 1)
3. CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE. (WEEK 1)
4. INSTALL ALL SILT FENCE, AS INDICATED ON PLANS. (WEEK 2)
5. BEGIN DEMOLITION OF EXISTING FEATURES OF SHOWON ON THE DEMOLITION PLAN.
6. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB SITE. (WEEK 3)
7. BEGIN SITE GRADING AND UTILITY CONSTRUCTION. PROVIDE INLET PROTECTION AS SHOWN ON SEDIMENT CONTROL PLAN.
8. BEGIN UTILITY AND STORMWATER CONSTRUCTION.
9. BEGIN BUILDING CONSTRUCTION. (WEEK 7)
10. WITH INSPECTOR'S APPROVAL, INSTALL ON-SITE PAVING BASE COURSE. (WEEK 8)
11. BEGIN INSTALLATION OF ON-SITE CURB AND GUTTER. (WEEK 11)
12. COMPLETE ALL CURB & GUTTER AND PAVEMENT CONSTRUCTION. (WEEK 12)
13. INSTALL ALL PAVING SURFACE COURSE. (WEEK 13)
14. INSTALL SIDEWALK FOR SITE. (WEEK 13)
15. FINE GRADE AND STABILIZE ALL AREAS OF PARCEL, INCLUDING ANY EXPOSED EARTH AREAS OUTSIDE THE LOD. REMOVE ALL TRASH JUNK AND DEBRIS FROM ENTIRE PARCEL. (WEEK 14)
16. INSTALL SITE LANDSCAPING. (WEEK 15)
17. REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. (WEEK 15)

NOTES:

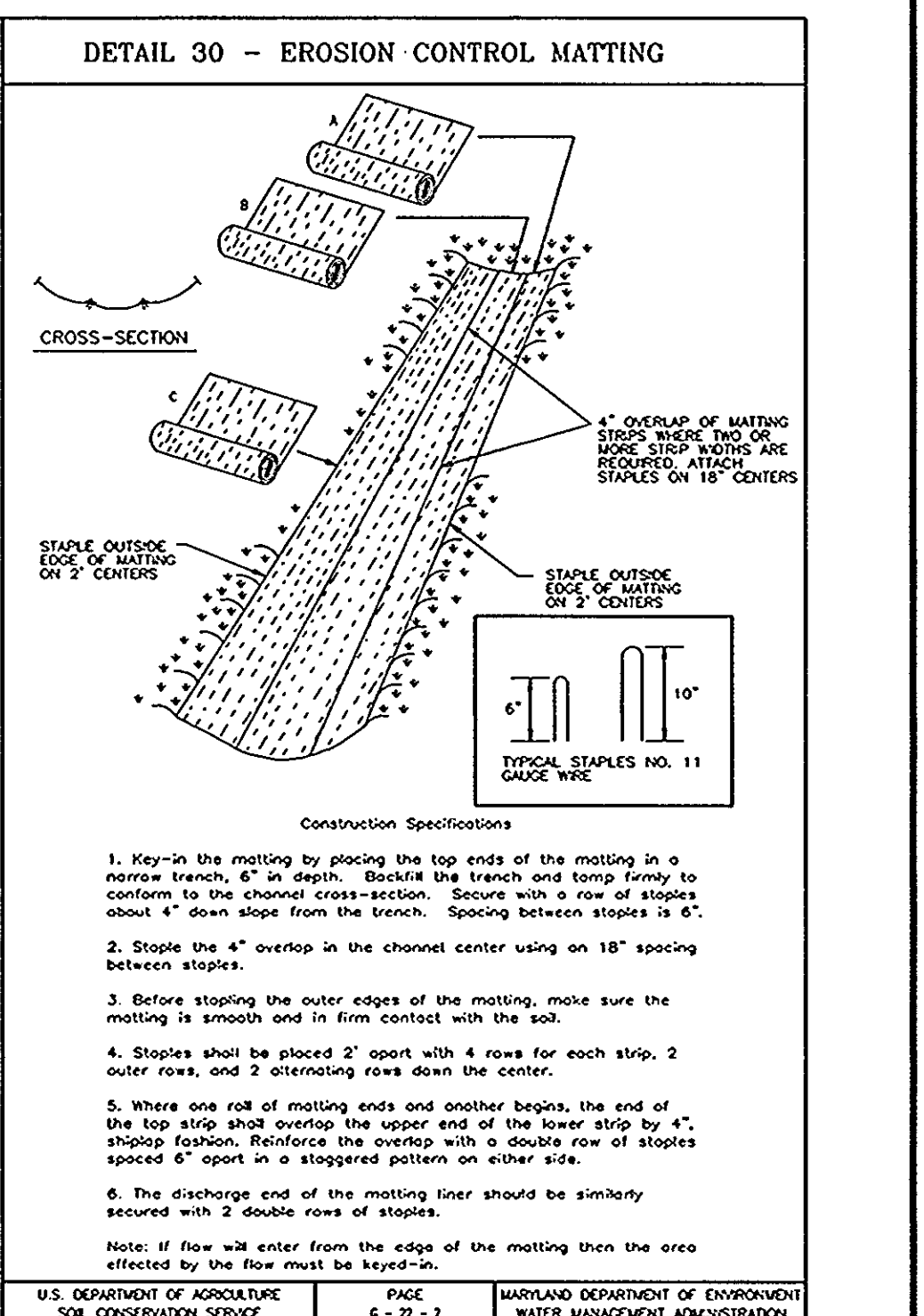
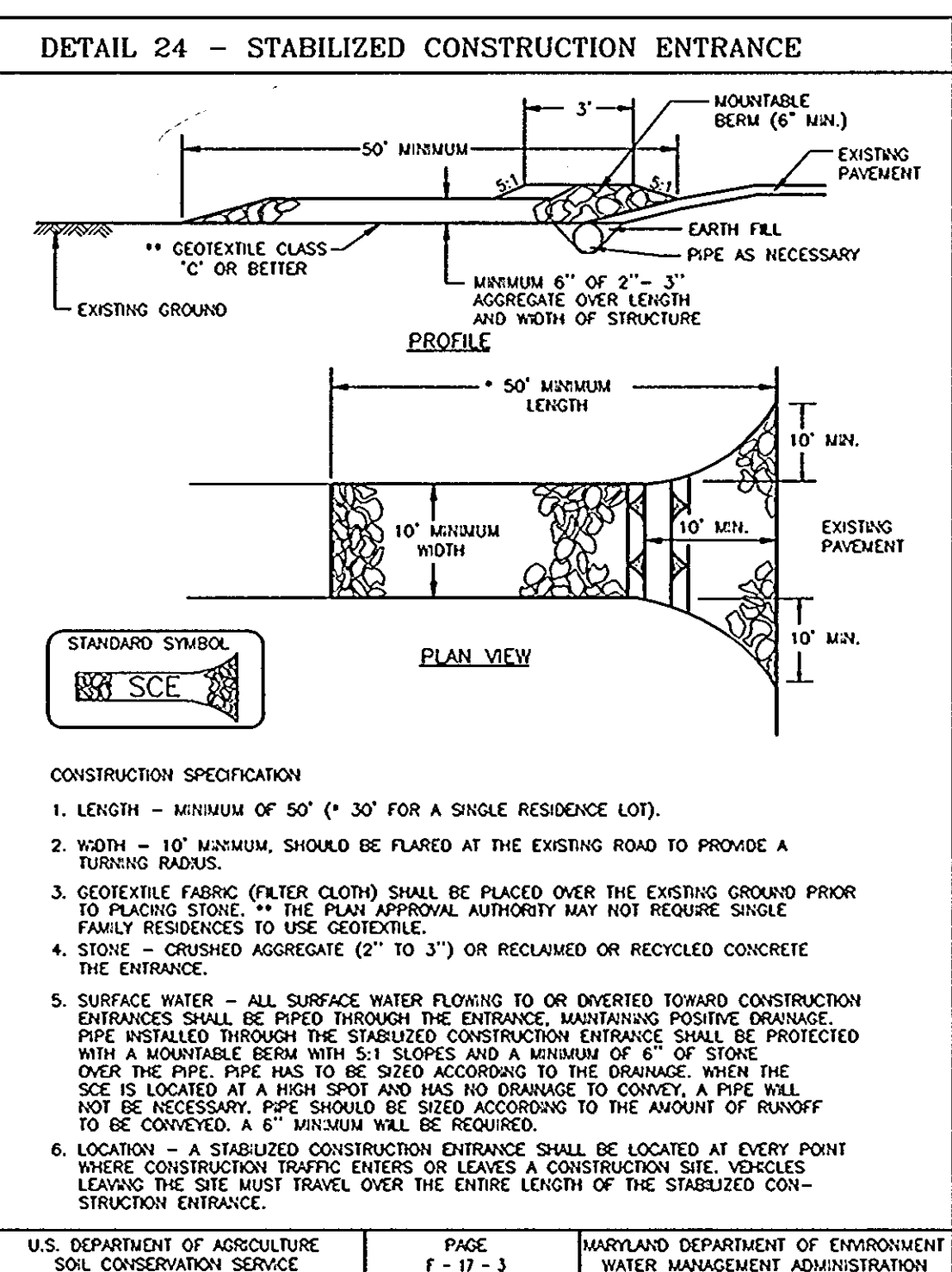
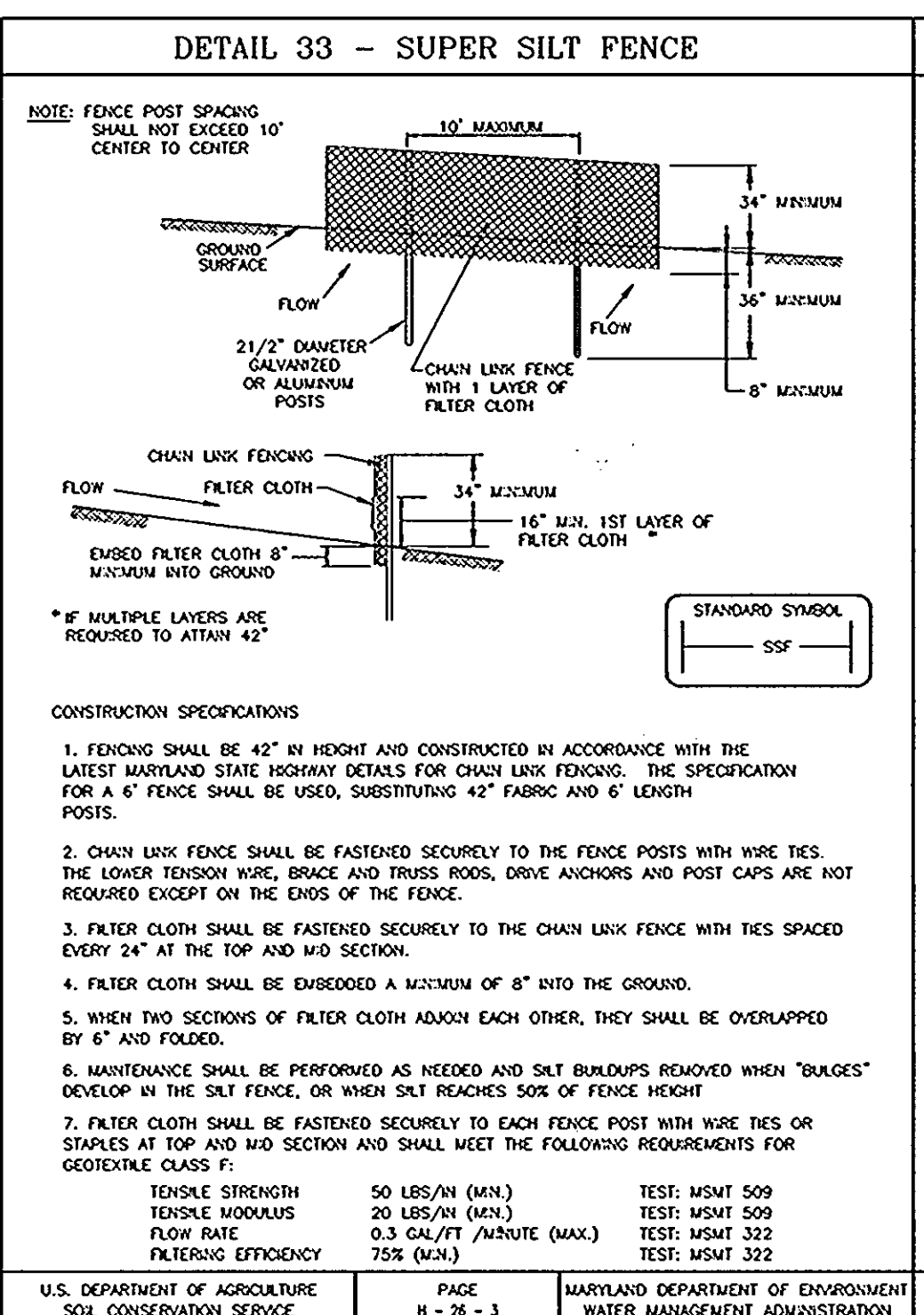
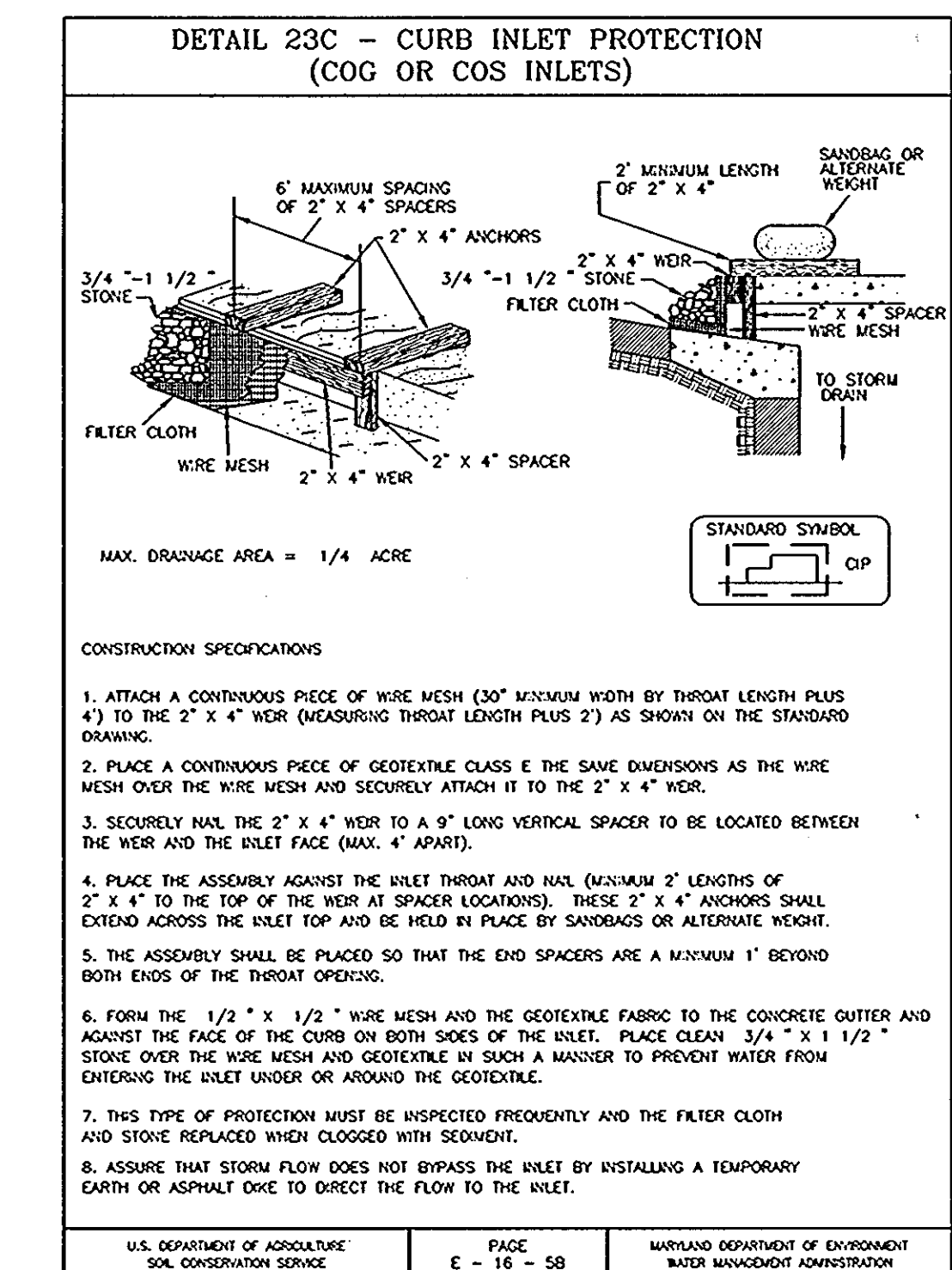
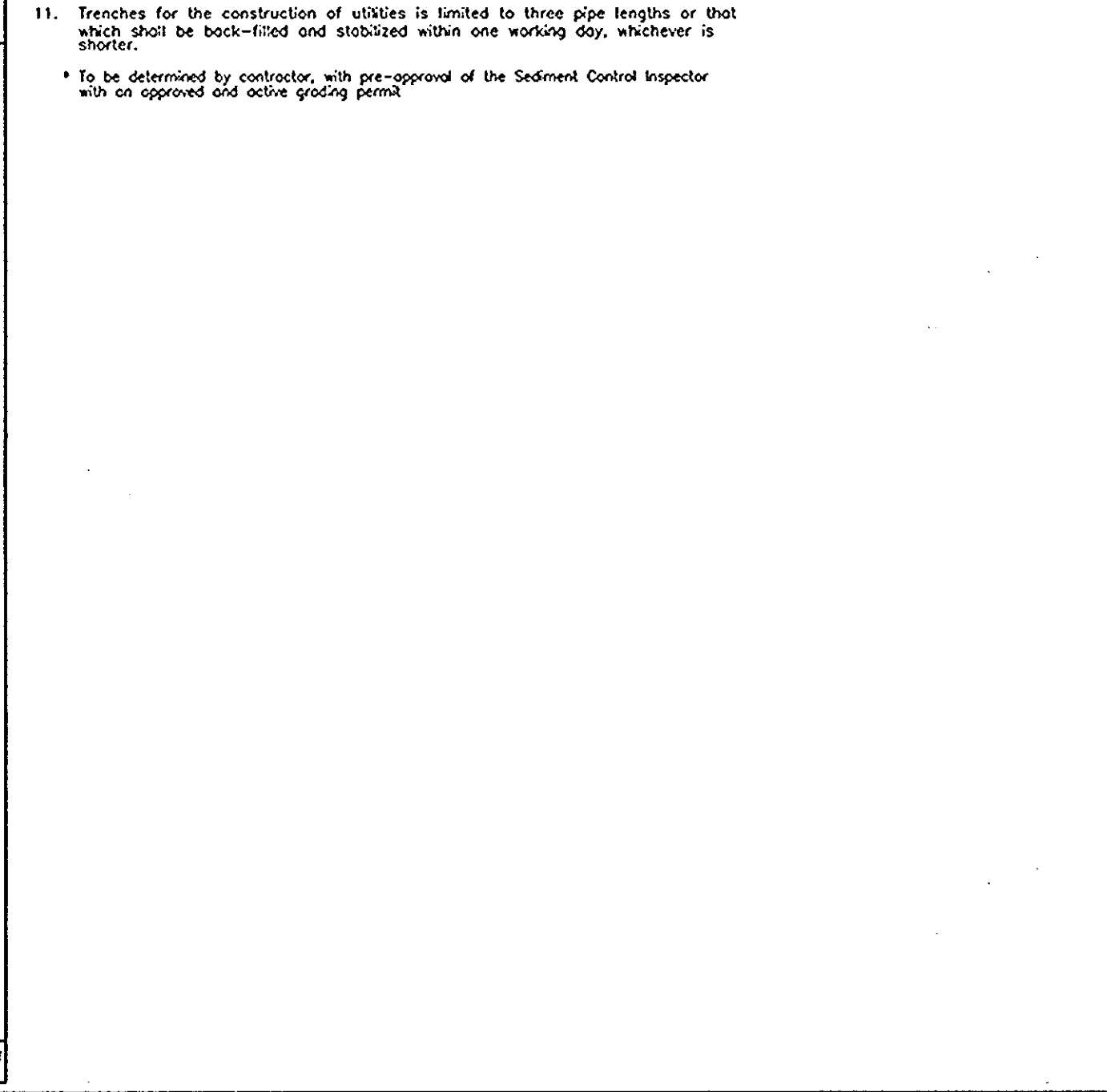
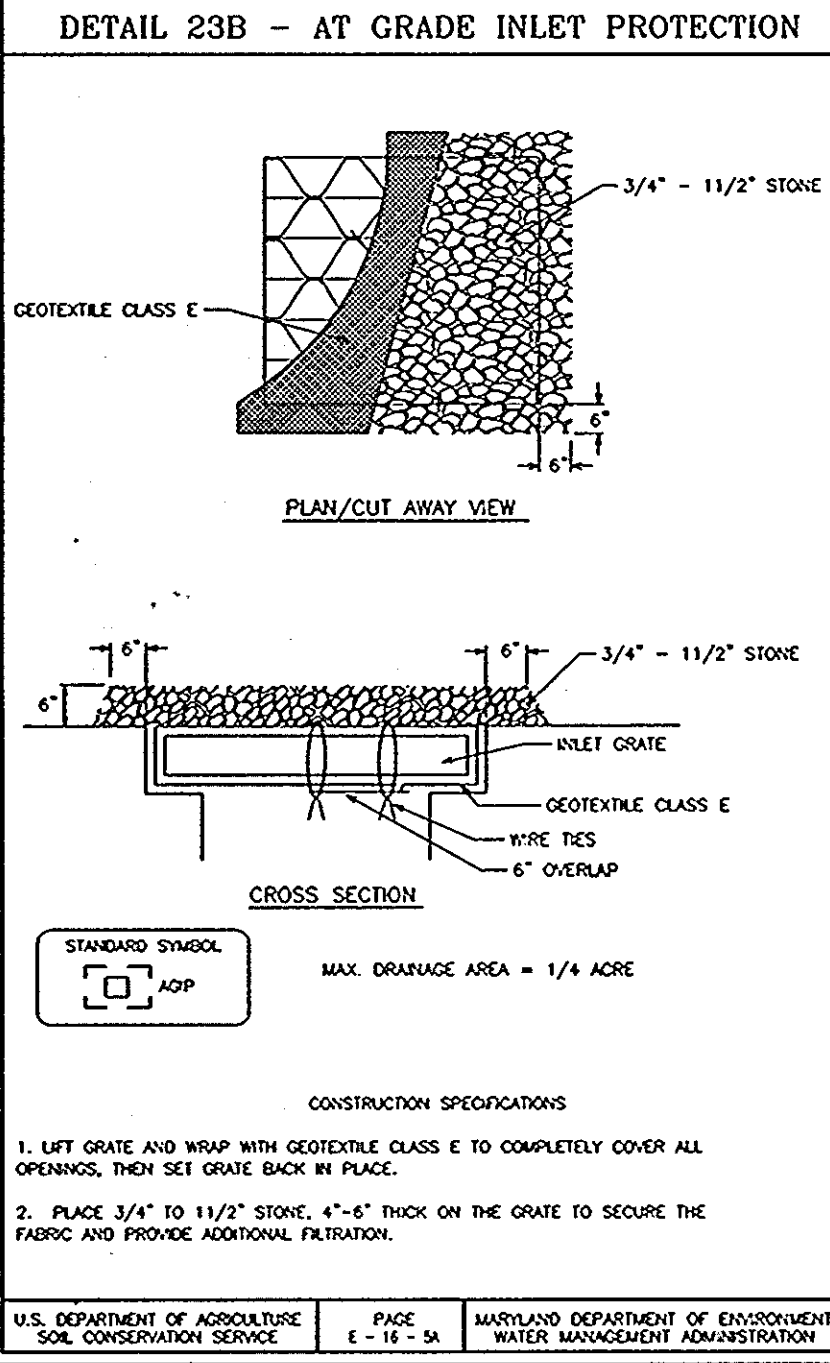
1. DUE TO THE DIFFICULTY OF MAINTAINING INTERNAL EARTH DIVES, CONTRACTOR SHALL LIMIT GRADING AND FILL TO AREA BETWEEN SUPER SILT FENCE AND EXIST. AND MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
2. DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL MEASURES ON THIS PLAN.
3. FOLLOWING INITIAL SOIL DISTURBANCES OR RESTORATION PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - A. 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, SLOPES AND ALL SLOPES GREATER THAN 3:1.
 - B. 14 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.

SEDIMENT CONTROL NOTES

1. 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 (313-1855).
2. All vegetation and structural practices are to be installed according to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
3. Following initial soil disturbance or restoration, permanent or temporary stabilization shall be completed within: (a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes, and all slopes greater than 3:1, (b) 14 days on to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7, HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. 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 seeding, soil, temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall 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.
7. Site Analysis:

Total Area	1.43 Acres
Area Disturbed	1.57 Acres
Area to be seeded or paved	0.57 Acres
Area to be vegetatively stabilized	1.00 Acres
Total Cut	7710 CY
Total Fill	2725 CY
WASTE/BORROW LOCATION	OFFSITE *
8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. 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 disturbances or grading. Other building or grading operations may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

* To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved bid active grading permit.



APPROVED: DEPARTMENT OF PUBLIC WORKS

Michael L. Pfau 8-19-08
Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chris Hawn 8/21/08
Chief, Division of Land Development

Chris Hawn 8/21/08
Chief, Development Engineering Division

DEVELOPER'S CERTIFICATE

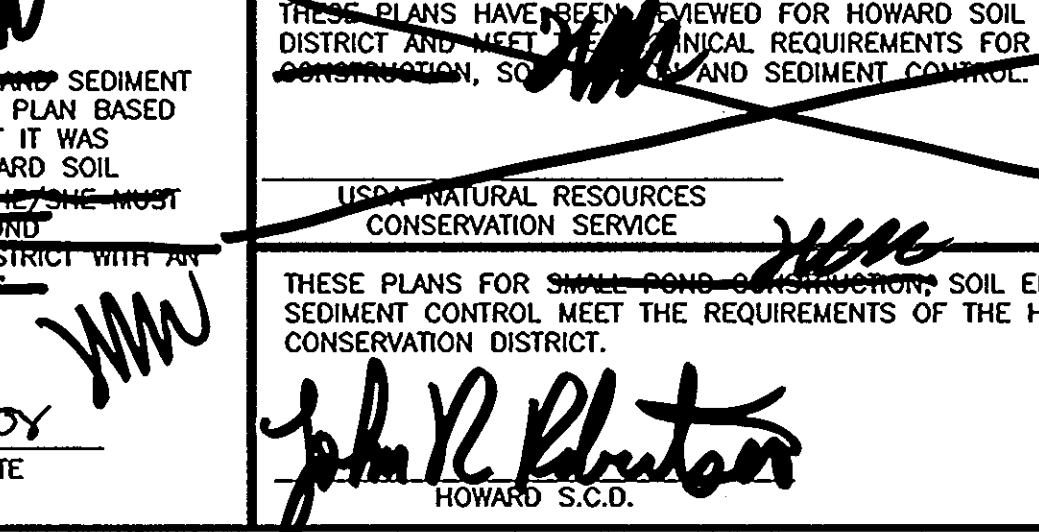
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT. I SHALL EMPLOY REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD COUNTY SOIL CONSERVATION DISTRICT WITH AN APPROVED PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Michael L. Pfau 07/30/08
SIGNATURE OF DEVELOPER

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, 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 COUNTY SOIL CONSERVATION DISTRICT. I HAVE REVIEWED THE DEVELOPER'S PLAN AND I MUST BE CONVINCED THAT THE DEVELOPER'S PLAN IS A PRACTICAL AND WORKABLE PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Robert H. Vogel 8/14/08
SIGNATURE OF ENGINEER
ROBERT H. VOGEL



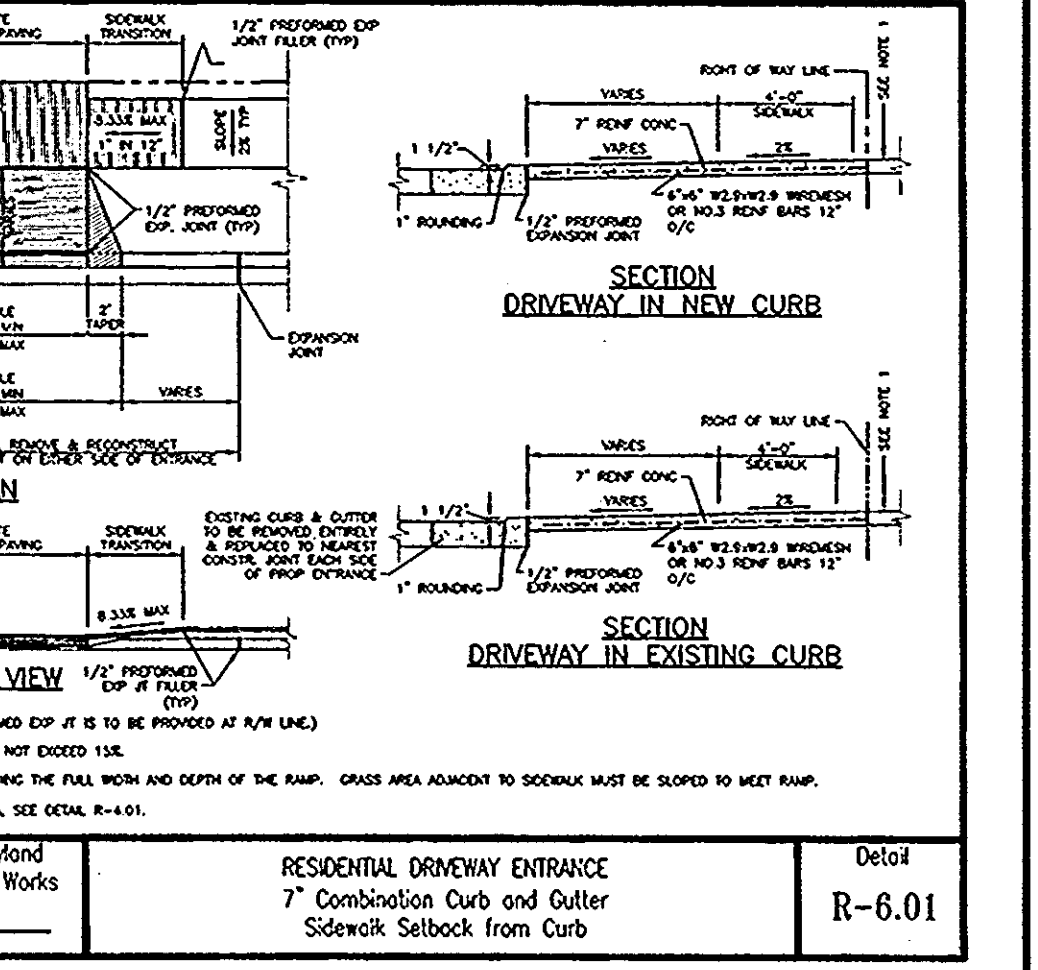
OWNER/DEVELOPER

Michael L. Pfau
3675 PARK AVENUE, SUITE 301
ELICOTT CITY, MD 21043
(410) 480-0023

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: SEPTEMBER 27, 2008.

John R. Pfauf 8/14/08
SIGNATURE OF ENGINEER
HOWARD S.C.D.



APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

NO. _____ REVISION _____ DATE _____

FINAL ROAD CONSTRUCTION PLAN

GRADING, SEDIMENT, AND EROSION CONTROL NOTES AND DETAILS

COLD SPRING

LOTS 1-5 AND OPEN SPACE LOT 6
A RESUBDIVISION OF THE MORDAU SUBDIVISION LOT 5
BLOCK E-1

TAX MAP 47 BLDG 10
6TH ELECTION DISTRICT
DPZ REFS: P-08-02, S-06-017,
WP-06-114, WP-08-99

ZONED: R-12
L 8832/F 435 PARCEL 942
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.

ENGINEERS • SURVEYORS • PLANNERS

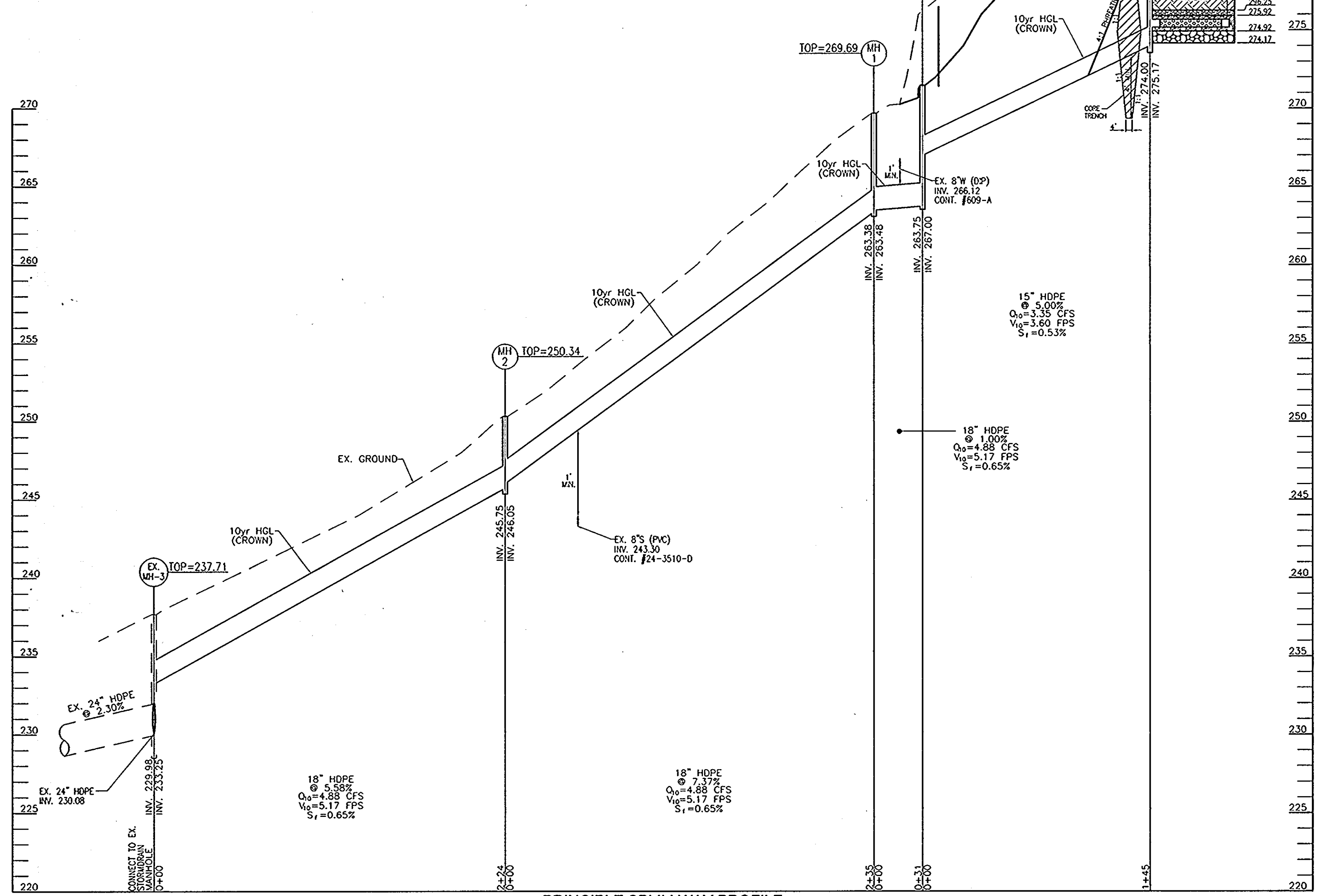
8407 MAIN STREET
ELICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: JULY 2008
SCALE: AS SHOWN
W.O. NO.: 06-14

4 SHEET OF 7

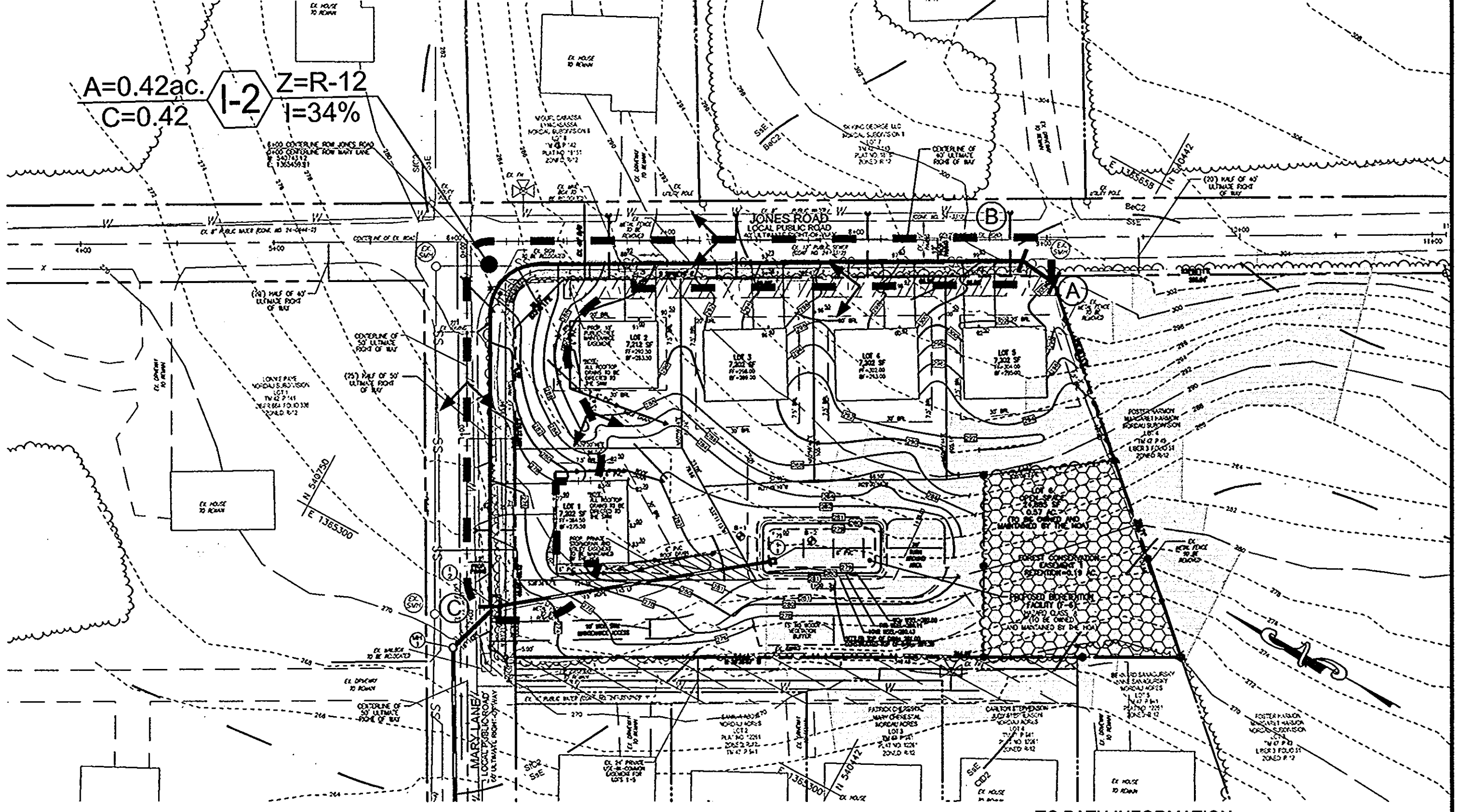
STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS
I-1	STANDARD TYPE 'D' INLET (MODIFIED)	N 540524.72 E 1365390.08	280.83	275.17	274.00	HO. CO. STD D-4.10 (PRIV. OWNED AND MAINTAINED) (SEE DETAIL SHEET 6)
I-2	STANDARD A-10 TYPE INLET	N 540639.41 E 1365300.73	271.46	267.00	263.75	HO. CO. STD D-4.04 (PUB. OWNED AND MAINTAINED)
MH-1	STANDARD 4" PRECAST MANHOLE	N 540648.62 E 1365271.52	269.69	263.48	263.38	HO. CO. STD G-5.12 (PUB. OWNED AND MAINTAINED)
MH-2	STANDARD 4" PRECAST MANHOLE	N 540533.12 E 1365066.82	250.34	246.05	245.75	HO. CO. STD G-5.12 (PUB. OWNED AND MAINTAINED)

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
18"	HDPE (PUBLICLY OWNED AND MAINTAINED)	490 LF
15"	HDPE (PRIVATELY OWNED AND MAINTAINED)	145 LF
6"	PVC (PRIVATELY OWNED AND MAINTAINED)	83 LF



PRINCIPLE SPILLWAY PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

MATERIALS SPECIFICATIONS FOR BIO-RETENTION			
MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SPECIFICATION	N/A	PLANTINGS ARE SITE-SPECIFIC
PLANTING SOIL (2' TO 4" DEEP)	20-SIEVE TOPSOIL 20-SIEVE LEAF COMPOSITE 50% COURSE ORGANIC CONSTRUCTION SAND	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SPEEDWOOD HARDWOOD		AGED 6 MONTHS, MINIMUM
PEA GRAVEL (EMPHASIS AND CURB DRAIN)	PEA GRAVEL ASTM-D-448 ORNAMENTAL STONE: WASHED 0088LES	PEA GRAVEL NO. 6 STONE: 2" TO 5"	
GEOTEXTILE	CLASS 'C'-APPARENT OPENING SIZE (ASTM-D-4751), GRADE TENSILE STRENGTH (ASTM-D-4632), PUNCTURE RESISTANCE (ASTM-D-4633)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	ASTM-D-443	0.375" TO 0.75"	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR ASTM-D-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SD35S	3/8" PERFORATED HOLES FOR MIN. OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERDRAIN PIPES
PLURED IN PLACE CONCRETE (IF REQUIRED)	ACPA MIX NO. 3: 14-3500 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENRICHED, REFORCING TO MEET ASTM-615-06	N/A	ON-SITE TESTING OF Poured-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MIXING AND CURE 300R/89, VERTICAL LOADING (0-110 OR 110-200) ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURE); AND ANALYSIS OF POTENTIAL CRACKING.
SAND (1" DEEP)	ASTM-D-6 or ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIBASE AND GRAVELS #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR VOLCANIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "POCK DUST" CAN BE USED FOR SAND



STORM DRAIN DRAINAGE AREA MAP
SCALE: 1"=50'

LEGEND			
--- PROPOSED RIGHT-OF-WAY	--- EXISTING WATER LINE	--- SOILS	--- EXISTING PRIVATE 24' USE-IN-COMMON EASEMENT
--- EXISTING RIGHT-OF-WAY	--- EXISTING SEWER LINE	--- STORM DRAIN DRAINAGE AREA	--- PROPOSED 10' PUBLIC TREE MAINTENANCE EASEMENT
--- BOUNDARY LINE	--- EXISTING FENCE LINE	--- PROPOSED SIDEWALK	--- AREA OF PROPOSED ROAD WIDENING
--- ADJACENT BOUNDARY LINE	--- EXISTING MAILBOX	--- PROPOSED FOREST CONSERVATION EASEMENT	--- FOREST CONSERVATION SIGN
--- 202- EXISTING CONTOUR	--- PROPOSED STREET LIGHT	--- PROPOSED PUBLIC STORM DRAIN AND UTILITY EASEMENT	
--- 1220- EXISTING CONTOUR	--- PROPOSED CURBLINE	--- EXISTING PUBLIC STORM DRAIN AND UTILITY EASEMENT	
--- EXISTING TREELINE	--- AREA OF 15 TO 24.9 PERCENT SLOPES	--- TEST PIT BORING LOCATION	
--- EXISTING UTILITY POLE	--- EXISTING SIGN		

TC PATH INFORMATION
DA 1-2"
AB 20" SHEET FLOW, GRASS @ 2.0%
BC 440' SHALLOW CONCENTRATED, PAVED @ 6.0%
USE 5 MINUTES

SWMF OWNERSHIP
STORMWATER MANAGEMENT FACILITIES
TO BE OWNED AND MAINTAINED
BY THE HOMEOWNERS ASSOCIATION

APPENDIX B.3. CONSTRUCTION SPECIFICATIONS FOR SAND FILTERS, BIORETENTION AND OPEN CHANNELS
SPECIFICATIONS FOR BIORETENTION
1. MATERIAL SPECIFICATIONS
THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN TABLE B.3.2.
2. PLANTING SOIL
THE SOIL SHALL BE A UNIFORM MIX FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR CLUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVIDE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BROMELADA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER WOODS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.06.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
PH RANGE = 5.2 - 7.0
ORGANIC MATTER = 15 - 24% (BY WEIGHT)
MACROSIUM = 150 LB/AC
PHOSPHORUS (ORGANIC) = 30 TO 75 LB/AC
POTASSIUM (ORGANIC) = 100 TO 250 LB/AC
SULFUR SALTS = 100 TO 200 PPM
ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS AND POTASSIUM AND ADDITIONAL ORGANIC MATTER. A TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.
SINCE DIFFERENT LAB CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY. SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE WOODRED (HARDER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.
3. COMPACTION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED MULCH. WHEN POSSIBLE, USE HAND TOOLS TO COMPACT THE BIORETENTION AREAS. BIORETENTION AREAS ARE EXCAVATED VERY DEEPLY. THE COMPACTION SHOULD BE DONE BY HAND, USING OR HIGH PRESSURE TINES. THIS WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILING OPERATION SUCH AS CHISEL FLOW, RIPPER, OR SPREADER. THESE TILING OPERATIONS ARE TO REDUCE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE REQUIRED SAND LAYER. PUMP ANY PONDING WATER BEFORE PREPARING (ROTOTILLING) BASE.
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 2 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A BLENDED ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH WALKER TRACKS.
4. PLANT MATERIAL
RECOMMENDED PLANT MATERIAL FOR BIORETENTION AREAS CAN BE FOUND IN APPENDIX A, SECTION A.2.3. OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL.
5. PLANT INSTALLATION
WHEN SHOULD BE PLANTED TO A UNIFORM THICKNESS OF 2" TO 3". SPEEDWOOD HARDWOOD WHICH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL PLANT AND MOVE TO THE PERIPHERY OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SPEEDWOOD MULCH MUST BE WELL KEPT (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO THE TOP OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING HOLE SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS.
TREES SHALL BE BRANDED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE.
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLOTS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATTER TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADJACENT FERTILIZER TREATMENTS, OR AT ALL TIMES, EXCESSIVE USE OF SOIL ONLY AND FERTILIZER IS WOOD CHIPS OR MULCH ARE USED TO AVOID THE SOIL. ROTOTILL AREA FERTILIZER AT A RATE OF 2 POUNDS OF NITROGEN PER 1000 SQUARE FEET.
6. UNDERDRAINS
UNDERDRAINS ARE TO BE PLACED ON A 2'-0" WIDE SECTION FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.
THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5% OBSERVATION WELL AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).
7. MISCELLANEOUS
THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

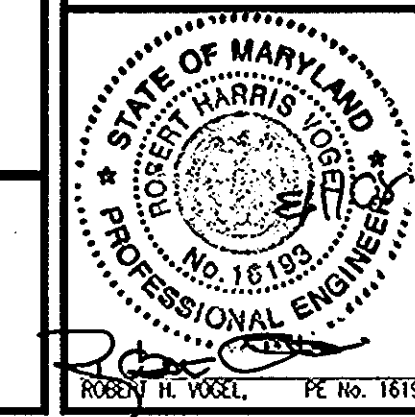
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
STORM DRAIN DRAINAGE
AREA MAP AND DETAILS
COLD SPRING
LOTS 1-5 AND OPEN SPACE LOT 6
A RESUBDIVISION OF THE NORDA SUBDIVISION LOT 5
BLOCK C-1
TAX MAP 47 BLOCK 6
6TH ELECTION DISTRICT
DPZ REFS: P-08-07-06-017,
WP-06-114, WP-08-99
L 9832/F 435 PARCEL 942
HOWARD COUNTY, MARYLAND
ZONED: R-12

ROBERT H. VOGEL
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961



DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: JULY 2008
SCALE: AS SHOWN
W.O. NO.: 06-14
5 SHEET OF 7

APPROVED: DEPARTMENT OF PUBLIC WORKS
Date: 8-19-08
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Date: 8/21/08

DEVELOPER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. I SHALL EMPLOY A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE ROAD CONSTRUCTION AND APPROVE THE HOWARD SOIL CONSERVATION DISTRICT MAP AND AS BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
Date: 07/30/08
SIGNATURE OF DEVELOPER: Michael P. ...

ENGINEER'S CERTIFICATE
"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION AND 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. I HAVE ADVISED THE DEVELOPER THAT THE PLAN MUST BE APPROVED BY A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE ROAD CONSTRUCTION AND APPROVE THE HOWARD SOIL CONSERVATION DISTRICT MAP AND AS BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."
Date: 8/14/08
SIGNATURE OF ENGINEER: ROBERT H. VOGEL

PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
DATE: 8/14/08
OWNER/DEVELOPER: MICHAEL L. ...
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: SEPTEMBER 27, 2008.

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 breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe 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 designated 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 inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on 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, 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 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 on which fill is 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 are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

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

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

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. The mixture shall have a 100-200 psi; 28 day unconfined 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 minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. If 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 (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil 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 shall completely fill all voids adjacent to the flowable fill zone. 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 structure or pipe unless there 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.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

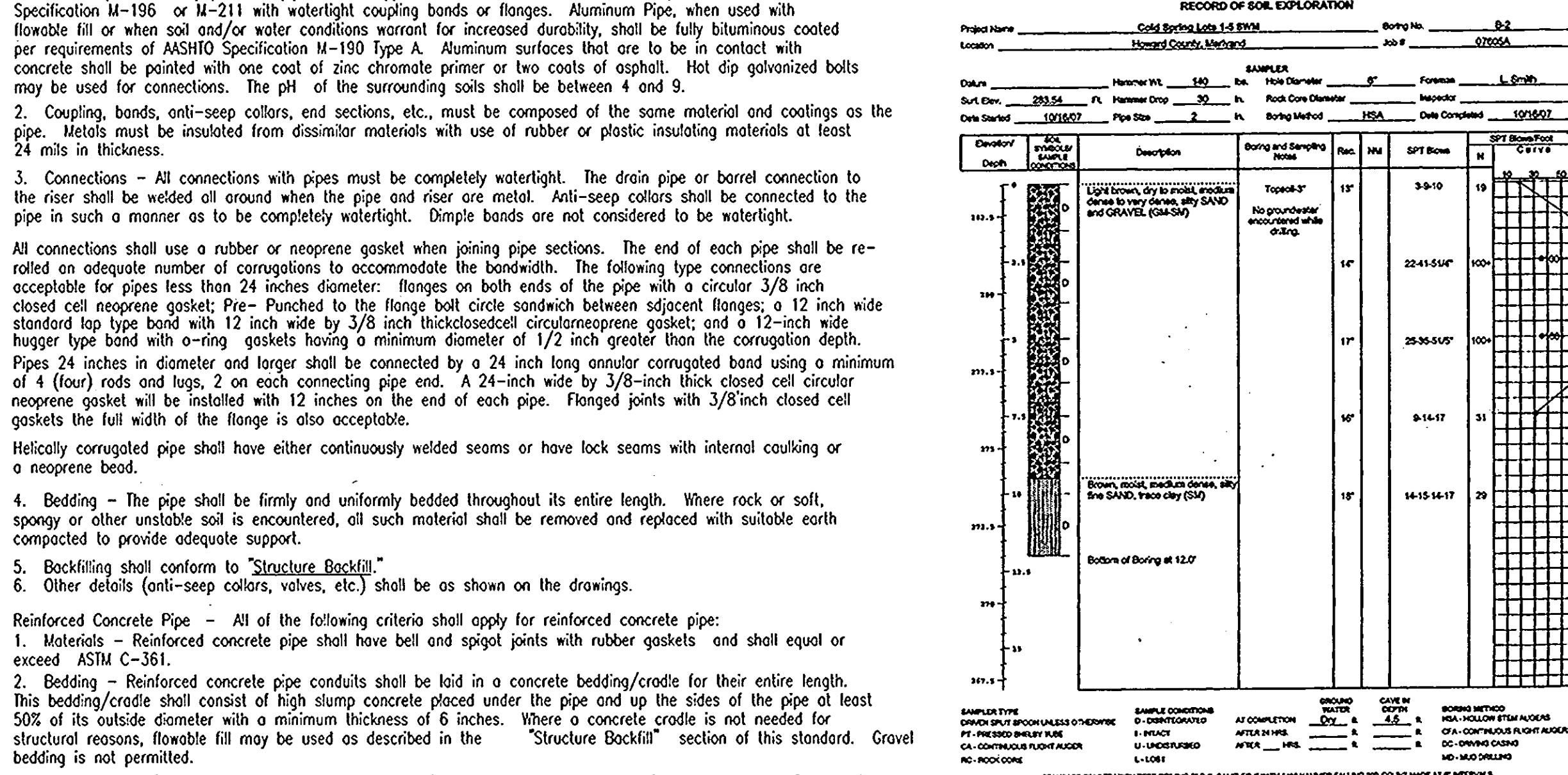
1. **Materials** - (Polymer Coated steel pipe) - Steel pipes with polymer coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be pointed with one coat of zinc chromate primer or two coats of asphalt.

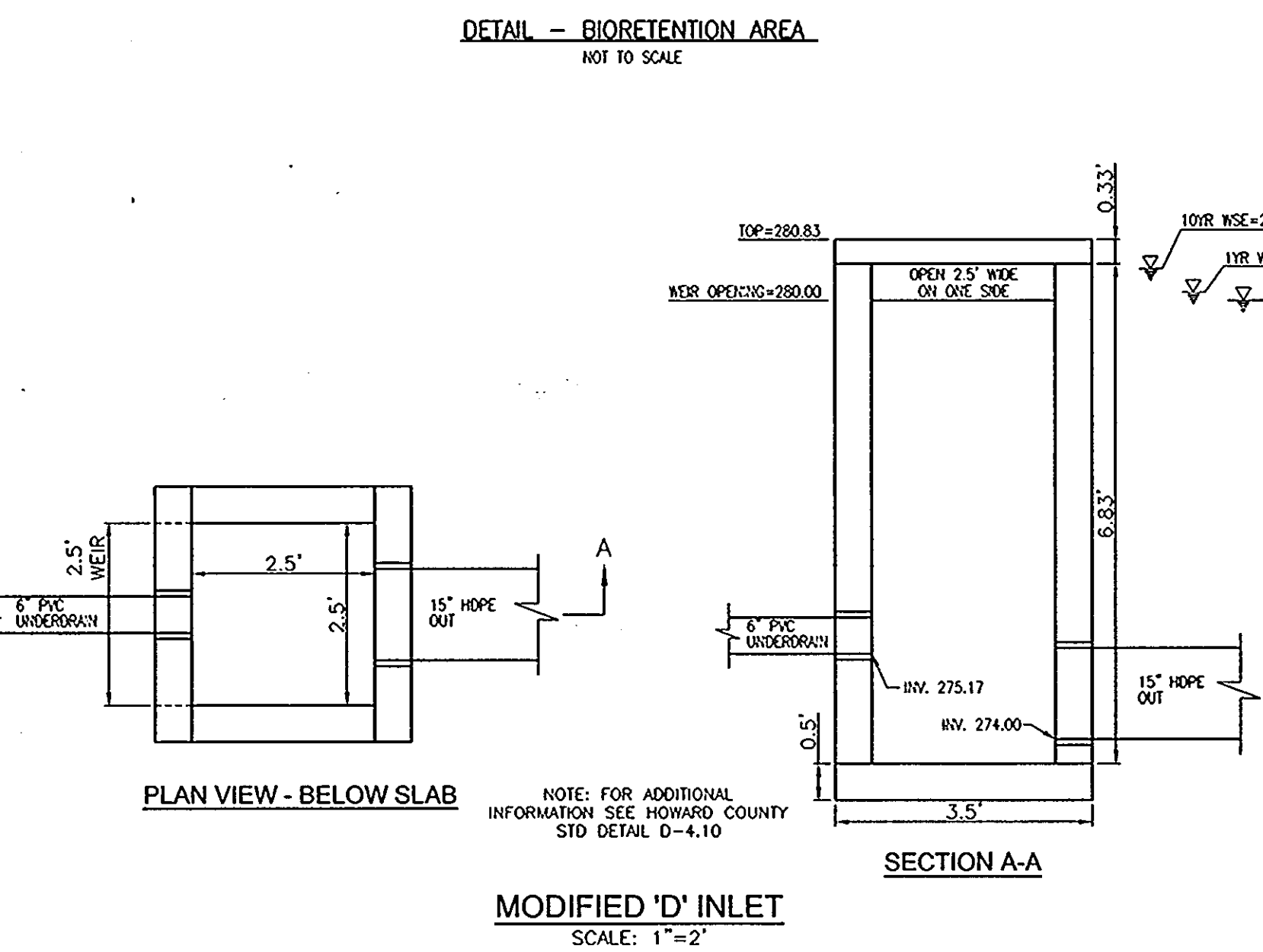
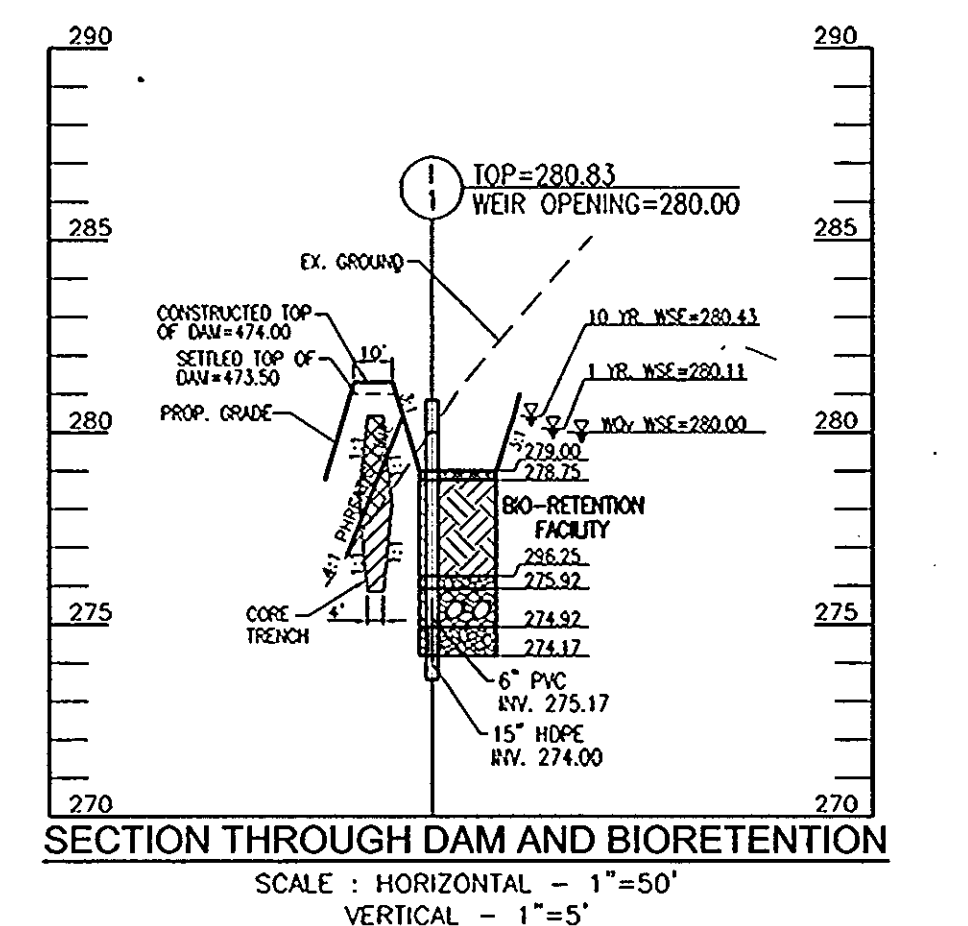
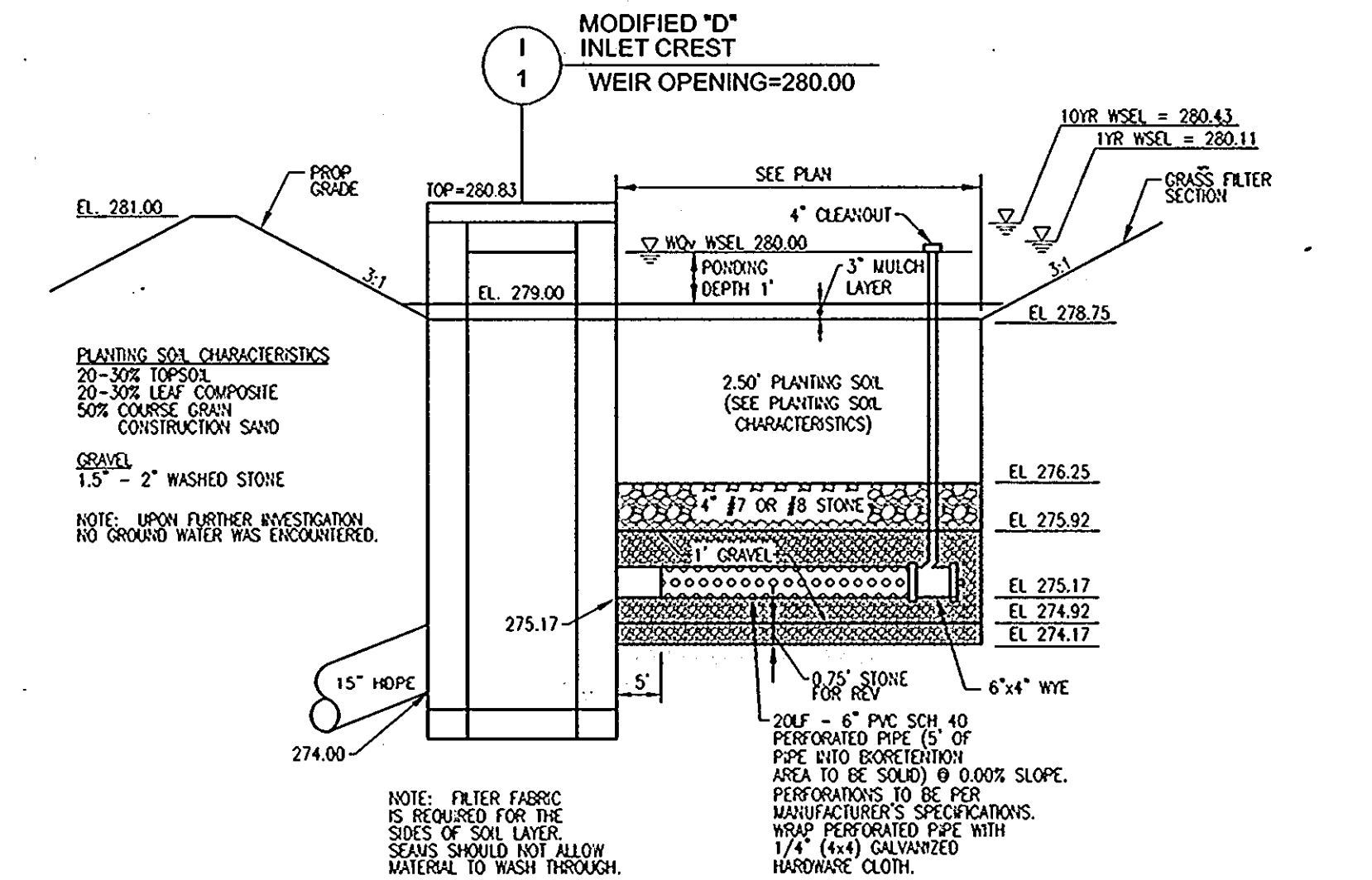
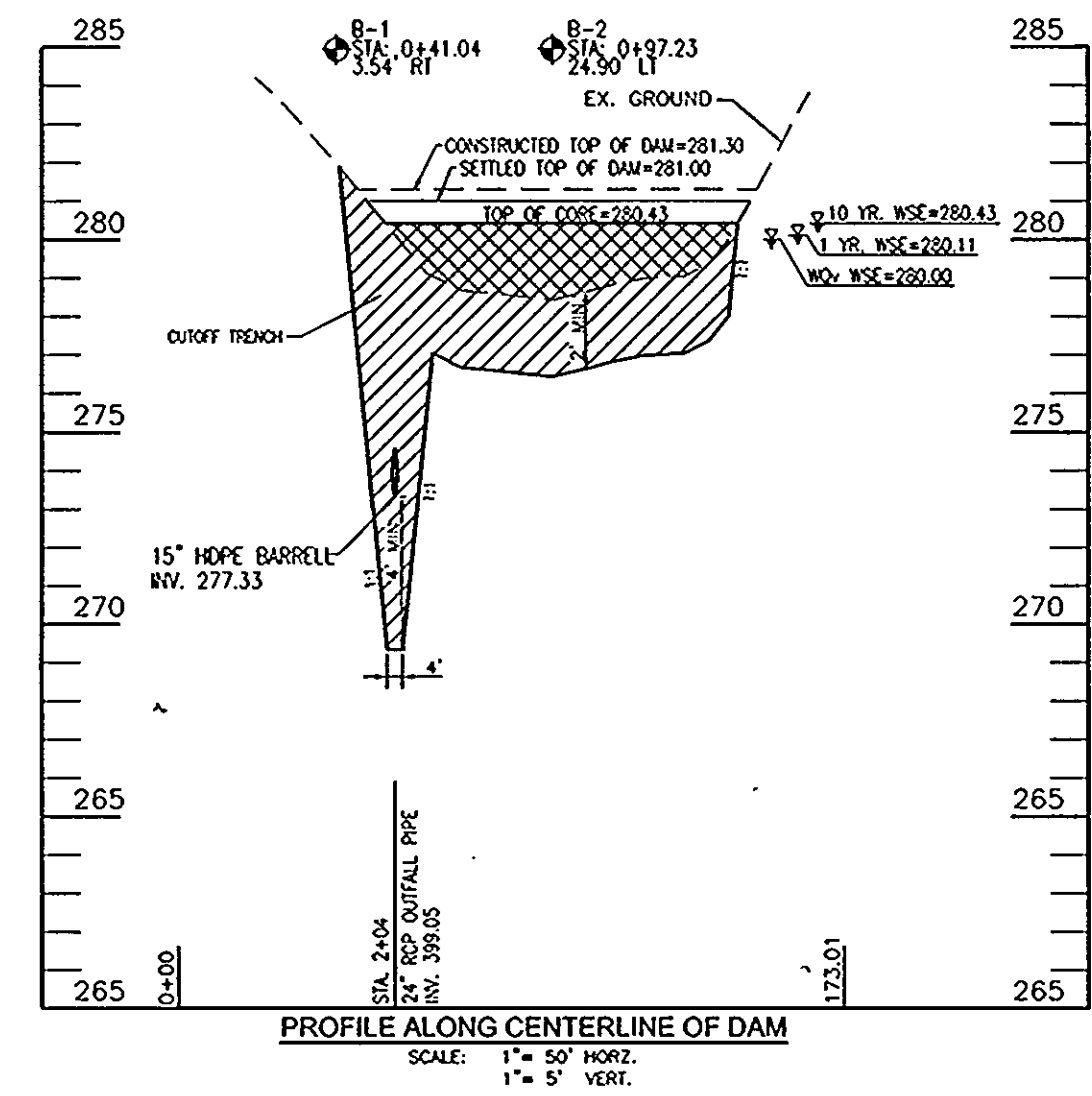
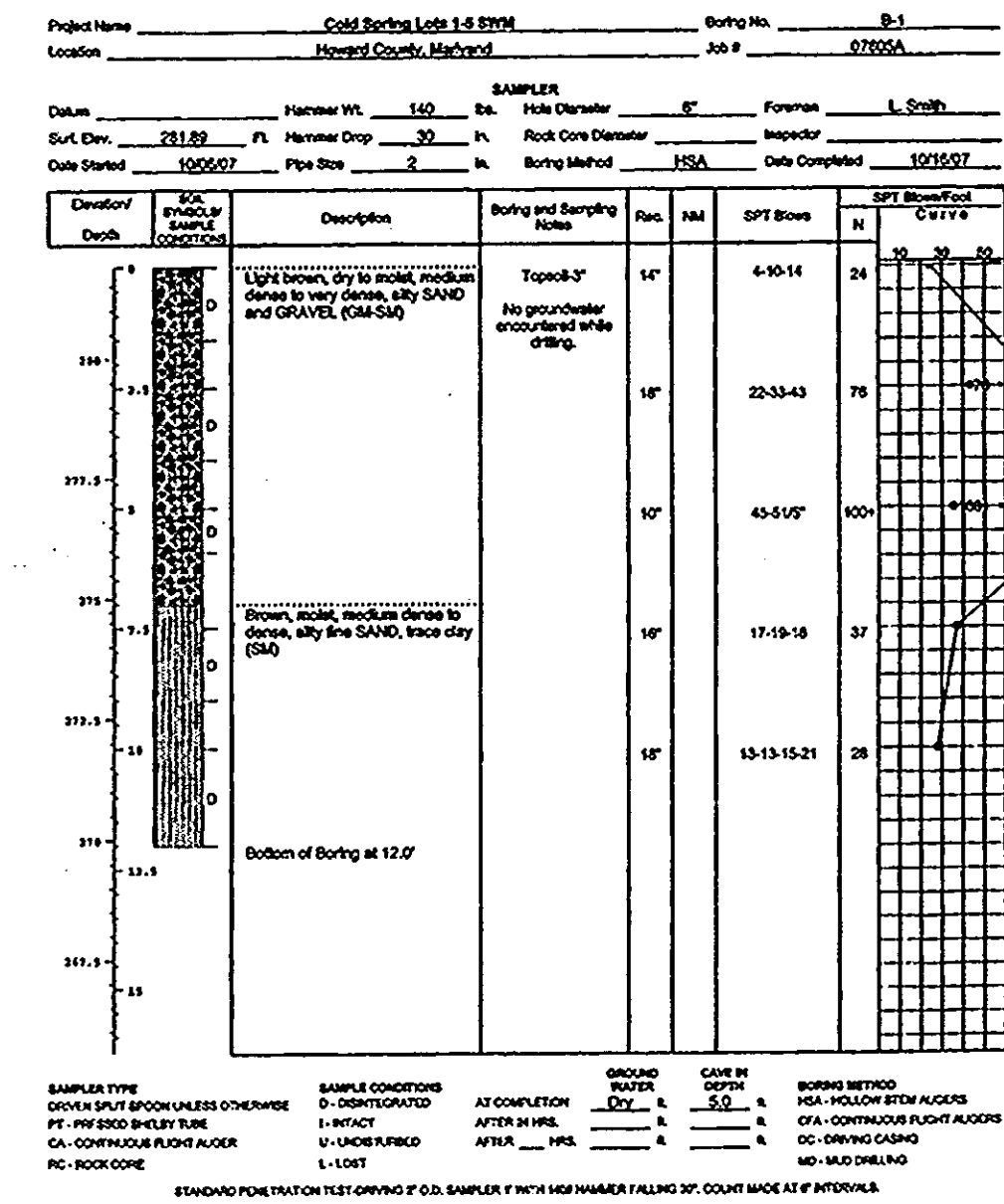
OPERATION AND MAINTENANCE

- SCHEDULE FOR BIO-RETENTION AREAS**
- ANNUAL MAINTENANCE OF PLANT MATERIAL MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF MULCH OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
 - SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DEFICIENT STAKES AND WIRES.
 - MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
 - SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED WITH A MINIMUM ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.



APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. ... 8-19-08
Chief, Bureau of Highways
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy ... 8/21/08
Chief, Division of Land Development
... 8/21/08
Chief, Development Engineering Division

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
Michael ... (PRESIDENT) 07/30/08
SIGNATURE OF DEVELOPER

ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION AND 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. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.
Robert H. Vogel 8/1/08
SIGNATURE OF ENGINEER

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.
USDA - NATIONAL RESOURCES CONSERVATION SERVICE
DATE: _____
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD S.C.D. DATE: _____

OWNER/DEVELOPER
Michael L. Pfau
3675 PARK AVENUE, SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16183 EXPIRATION DATE: SEPTEMBER 27, 2008.

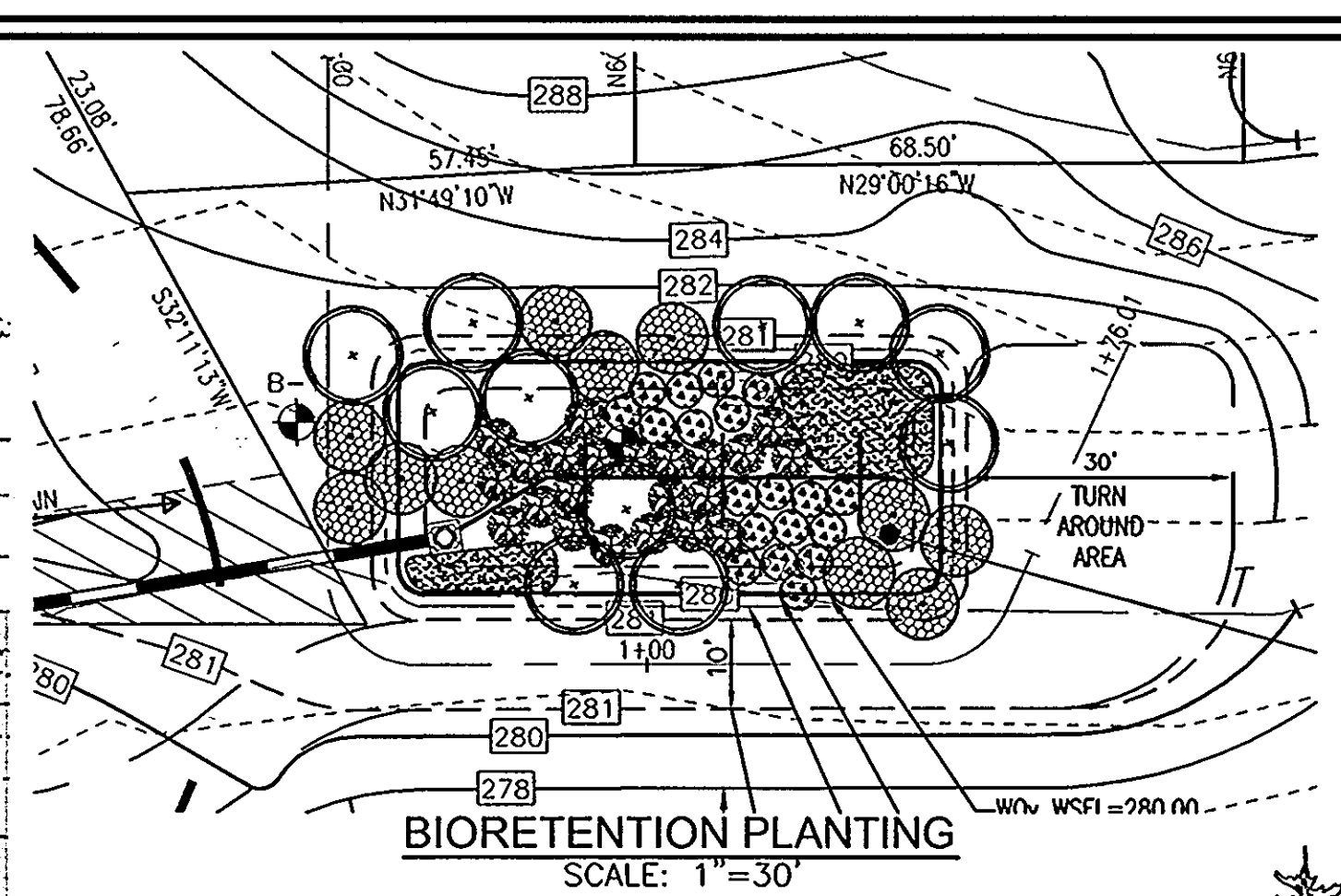
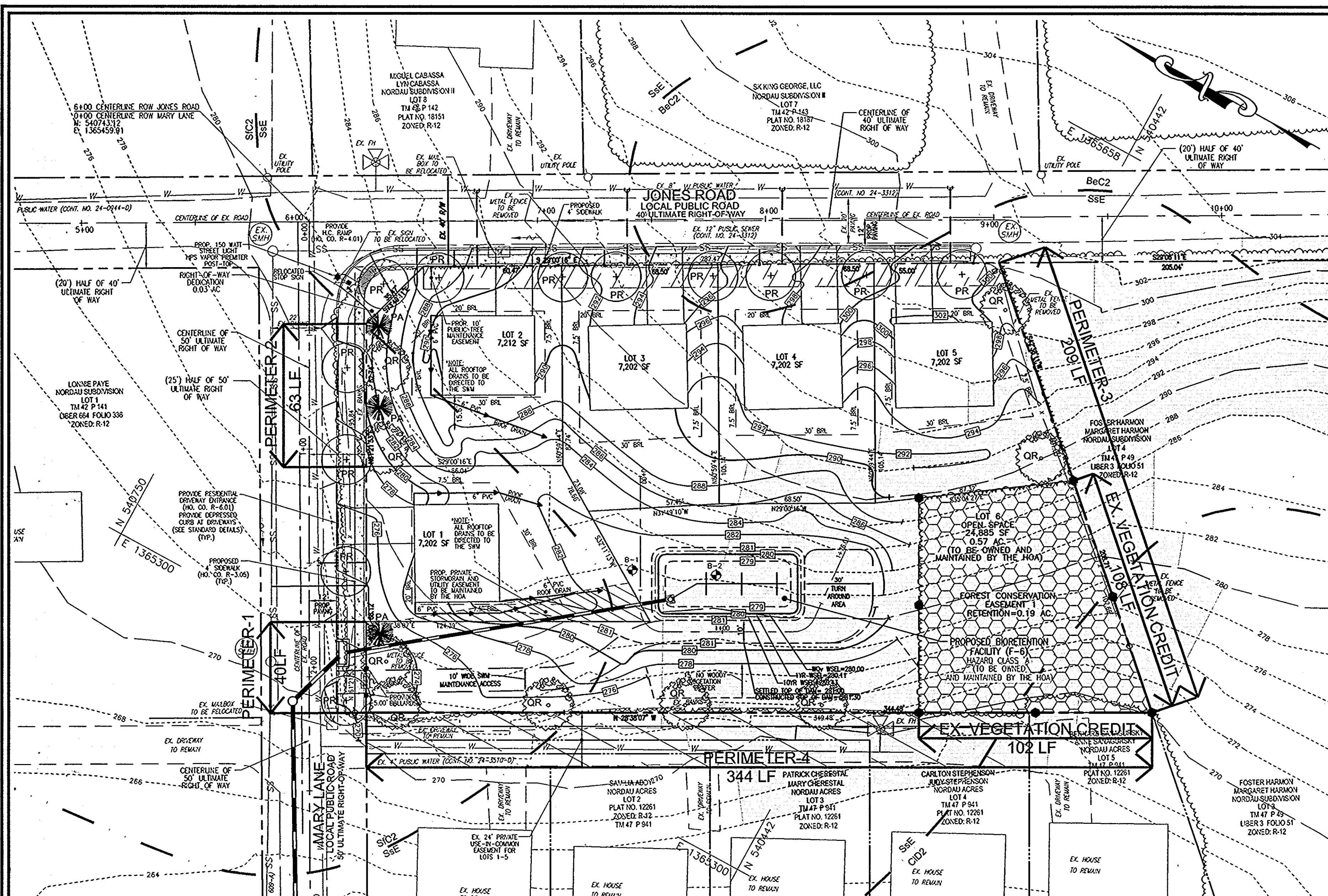
APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT
DATE: _____

FINAL ROAD CONSTRUCTION PLAN
STORMWATER MANAGEMENT
NOTES AND DETAILS
COLD SPRING
LOTS 1-5 AND OPEN SPACE LOT 6
A RESUBDIVISION OF THE NORDAU SUBDIVISION LOT 5
BLOCK E-1
TAX MAP 47 BLOCK 6
6TH ELECTION DISTRICT
DPZ REFS: 08-02-13-06-017
WP-10-114, WP-08-99
L 9832/F 435 PARCEL 942
HOWARD COUNTY, MARYLAND
ZONED: R-12
TEL: 410.461.7666
FAX: 410.461.8561

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043

DESIGN BY: RHY
DRAWN BY: JMR
CHECKED BY: RHY
DATE: JULY 2008
SCALE: AS SHOWN
W.O. NO.: 06-14

6 SHEET OF 7



SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	190 LF (BIORETENTION)
CREDIT FOR EXISTING VEGETATION (NO. YES AND LINEAR FEET)	NO
CREDIT FOR OTHER LANDSCAPING (NO. YES AND %)	YES, 100%
NUMBER OF TREES REQUIRED	0 SHADE TREES 0 EVERGREEN TREES
NUMBER OF TREES PROVIDED	SEE BIORETENTION PLANT SCHEDULE*

*SURETY FOR BIORETENTION PROVIDED IN THE BID COST ESTIMATE

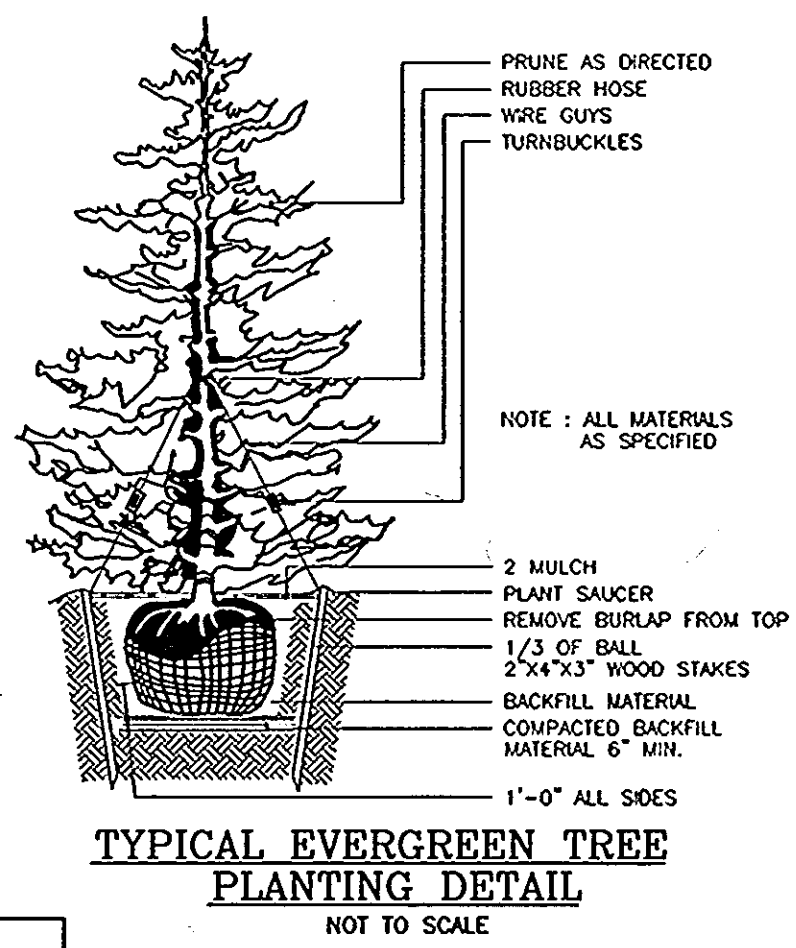
BIORETENTION PLANTING REQUIREMENTS

NBR	AREA	TREES REQUIRED	SHRUBS REQUIRED	TREES PROVIDED	SHRUBS PROVIDED
1	1100 SF	22	44	22	44

BIORETENTION AREAS ARE TO BE PLANTED BASED ON A RATIO OF 1 TREE AND 2 SHRUBS PER 50 SF.

BIORETENTION PLANTING SCHEDULE

KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
(Symbol)	11	ACER RUBRUM RED MAPLE	1" - 1-1/2" CAL	B & B
(Symbol)	11	JUNIPER VIRGINIANA EASTERN RED CEDAR	5" - 6" HT.	B & B
(Symbol)	22	VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY	3 GALLON	CONT
(Symbol)	22	LINDERA BENZON SPICE BUSH	3 GALLON	CONT
(Symbol)	100	ANDROPOGON VIRGINICUS BROOM SEDGE	2" POT	CONT
(Symbol)	100	PANICUM VIRGATUM SWITCH GRASS	2" POT	1' O.C.



LEGEND

- PROPOSED RIGHT-OF-WAY
- EXISTING RIGHT-OF-WAY
- BOUNDARY LINE
- ADJACENT BOUNDARY LINE
- EXISTING CONTOUR
- EXISTING TREELINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING MAILBOX
- EXISTING WATER LINE
- EXISTING SEWER LINE
- EXISTING FENCE LINE
- PROPOSED CONTOUR
- PROPOSED CURBLINE
- PROPOSED STREET LIGHT
- AREA OF 15 TO 24.9 PERCENT SLOPES
- BORING LOCATION
- SOILS
- PROPOSED SIDEWALK
- PROPOSED FOREST CONSERVATION EASEMENT
- PROPOSED PUBLIC STORMDRAIN AND UTILITY EASEMENT
- EXISTING PUBLIC STORMDRAIN AND UTILITY EASEMENT
- EXISTING PRIVATE 24' USE-IN-COMMON EASEMENT
- PROPOSED 10' PUBLIC TREE MAINTENANCE EASEMENT
- AREA OF PROPOSED ROAD WIDENING
- FOREST CONSERVATION SIGN
- PROPOSED STREET TREE
- LANDSCAPE PERIMETER 1 225 LF
- LANDSCAPE PERIMETER
- PROPOSED EVERGREEN TREE
- PROPOSED SHADE TREE

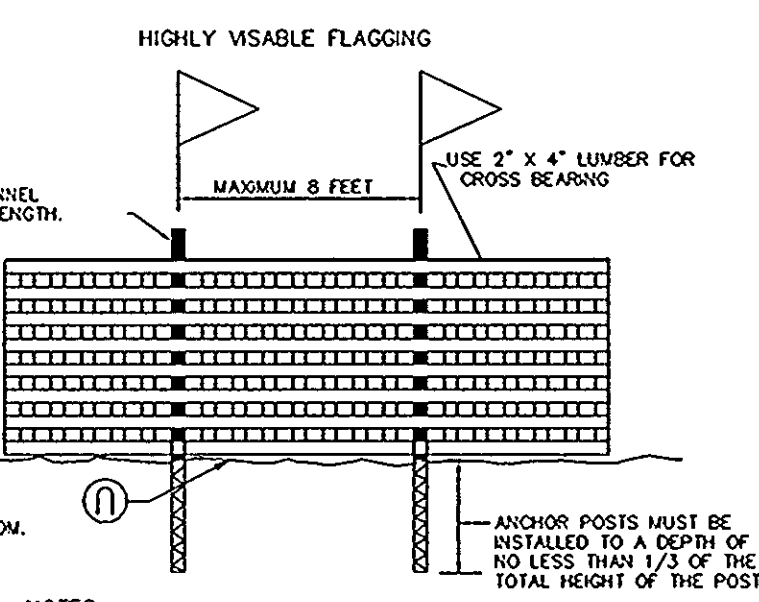
STREET TREES (PUBLIC)

ROAD NAME	LINEAR DISTANCE	QTY.	BOTANICAL NAME	KEY
MARY LANE	206 FT	5	PRUNUS SARGENTII (SARGENT CHERRY)	(Symbol)
JONES ROAD	252 FT	7	PRUNUS SARGENTII (SARGENT CHERRY)	(Symbol)

NOTE: A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.

SWMF OWNERSHIP
STORMWATER MANAGEMENT FACILITIES TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION

LANDSCAPE PLAN
SCALE: 1"=30'



GENERAL NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AND SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HED PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED FOR THIS SITE BE OF THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELATIONS OF THE REQUIRED PLANTING MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERRIS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN THE LANDSCAPE EDGE FOR WHICH CREDIT IS BEING TAKEN; HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED.

DEVELOPER'S AGREEMENT:

- STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124 (e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL.
- PERIMETER LANDSCAPING IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL SHALL BE PROVIDED AS SHOWN ON THE LANDSCAPE PLAN SHEET OF THE ROAD CONSTRUCTION DRAWINGS FOR THIS FINAL PLAN. SURETY IN THE AMOUNT OF \$3,150.00 FOR 9 SHADE AND 3 EVERGREEN TREES SHALL BE PROVIDED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN, F-08-167.
- FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1202 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL FOR THIS SITE SHALL BE FULFILLED BY THE PLACEMENT OF .19 ACRES OF EXISTING FOREST INTO AN EASEMENT AREA AND THE PAYMENT OF A FEE-IN-LIEU FOR 48 ACRES OF REQUIRED REFORESTATION IN THE AMOUNT OF \$15,682.00 (20,908.80 SQ.FT. X .75) TO THE FOREST CONSERVATION FUND, SURETY IN THE AMOUNT OF \$1,686.00 FOR 19 ACRES OF RETENTION (8,276.40 SQ.FT. X .20) SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN, F-08-167.

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:
A. TOTAL TRACT AREA = 1.43 AC
B. DEDICATIONS = 0.00 AC
C. NET TRACT AREA = 1.43 AC

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

D. AFFORESTATION THRESHOLD (NET TRACT AREA X 15%) = 0.21 AC
E. CONSERVATION THRESHOLD (NET TRACT AREA X 20%) = 0.29 AC

EXISTING FOREST COVER:
F. EXISTING FOREST COVER (WITHIN THE NET TRACT AREA) = 1.43 AC
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 1.14 AC

BREAK EVEN POINT:
H. BREAK EVEN POINT = 0.51 AC
I. FOREST CLEARING PERMITTED WITHOUT MITIGATION = 0.92 AC

PROPOSED FOREST CLEARING:
J. TOTAL AREA OF FOREST TO BE CLEARED = 1.24 AC
K. TOTAL AREA OF FOREST TO BE RETAINED = 0.19 AC

PLANTING REQUIREMENTS:
L. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD = 0.29 AC
M. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD = 0.19 AC
N. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.00 AC
P. TOTAL REFORESTATION REQUIRED = 0.48 AC
Q. TOTAL AFFORESTATION REQUIRED = 0.00 AC
R. TOTAL PLANTING REQUIRED = 0.48 AC

APPROVED: FOR PUBLIC WATER AND PUBLIC SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER: _____ DATE: _____
HOWARD COUNTY HEALTH DEPARTMENT

NO.	REVISION	DATE

FOREST RETENTION AREA
MAINTENANCE, MONITORING OR STORAGE OF ANY MATERIAL IS PROHIBITED.
VOLUNTEERS ARE REQUESTED TO FILL IN SIGNED AT THE CONSERVATION ACT OF 1991.

RETENTION PROTECTION SIGNAGE
NTS

DEVELOPER/SOWNER'S LANDSCAPE CERTIFICATE

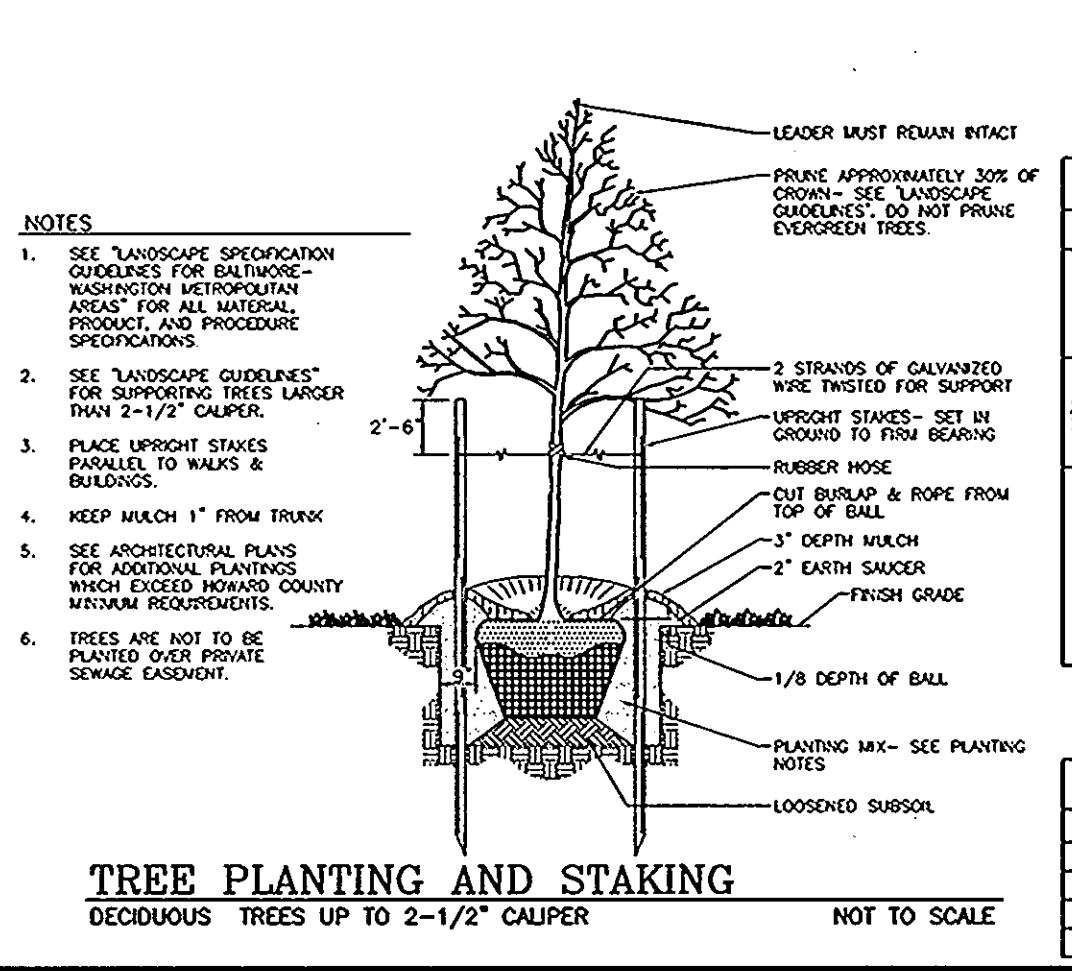
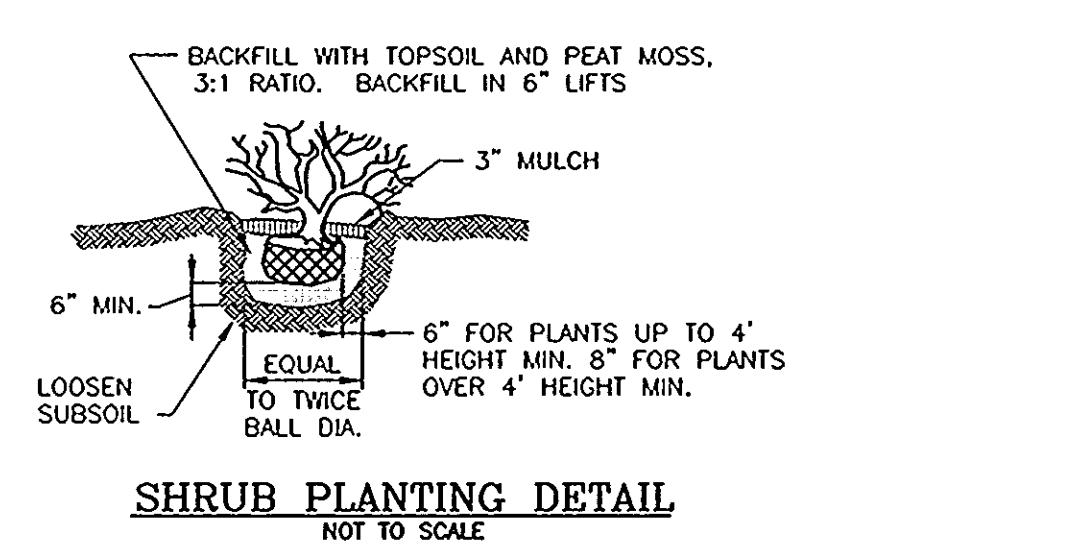
I/WE CERTIFY THAT LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF THE PROJECT, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER/SOWNER'S NAME: Michael PFAU (owner)

APPROVED: DEPARTMENT OF PUBLIC WORKS
Michelle Z. G... 8-19-08
Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
... 8/21/08
Chief, Division of Land Development

... 8/2/08
Chief, Development Engineering Division



LANDSCAPE SCHEDULE

KEY	QUAN	BOTANICAL NAME	SIZE	REM.
(Symbol)	3	PICEA ABIES NORWAY SPRUCE	6" - 8" HT	B & B
(Symbol)	9	QUERCUS ROBUR 'FASTIGIATA' COLUMNAR ENGLISH OAK	2 1/2" - 3" Cal.	B & B

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AND SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HED PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	SOIL GROUP
Bc2	BELTSVILLE SILT LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	C
Cd2	CHILLUM GRAVELLY LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
Sic2	SASSAFRAS GRAVELLY SANDY LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED	B
Sic	SASSAFRAS SOILS, 15 TO 40 PERCENT SLOPES	B

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES	TOTAL
Perimeter/Frontage Designation	1	2	3
Linear Feet of Roadway	40'	63'	209'
Linear Feet of Roadway	40'	63'	209'
Linear Feet of Roadway	40'	63'	209'
Credit for Existing Vegetation (Yes, No, Linear Feet)	No	No	108 LF
Credit for Wall, Fence or Berm (Yes, No, Linear Feet)	No	No	102 LF
Number of Plants Required	1:50	1:50	1:50
Shade Trees	1	2	1:60
Evergreen Trees	1	2	1:60
Number of Plants Provided	1	2	4
Shade Trees	1	2	3
Evergreen Trees	1	2	3
Other Trees (2:1 Substitution)	-	-	-
Shrubs (10:1 Substitution)	-	-	-
Describe Perimeter Substitution Credits Below if needed	-	-	-

SOILS LEGEND

ROMA JOSHI
DNR QUALIFIED PROFESSIONAL

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

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 15193 EXPIRATION DATE: SEPTEMBER 27, 2008.

FINAL ROAD CONSTRUCTION PLAN
FOREST CONSERVATION AND LANDSCAPE PLAN
COLD SPRING
LOTS 1-5 AND OPEN SPACE LOT 6
A RESUBDIVISION OF THE NORDAU SUBDIVISION LOT 5
BLOCK E-1

TAX MAP 47, BLOCK 6
8TH ELECTION DISTRICT
DPZ REFS: P-08-02, S-06-017,
WP-06-114, WP-08-99

L 9832/F 435 PARCEL 942
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: JULY 2008
SCALE: AS SHOWN
W.O. NO.: 08-14

7 SHEET OF 7