

SITE DATA

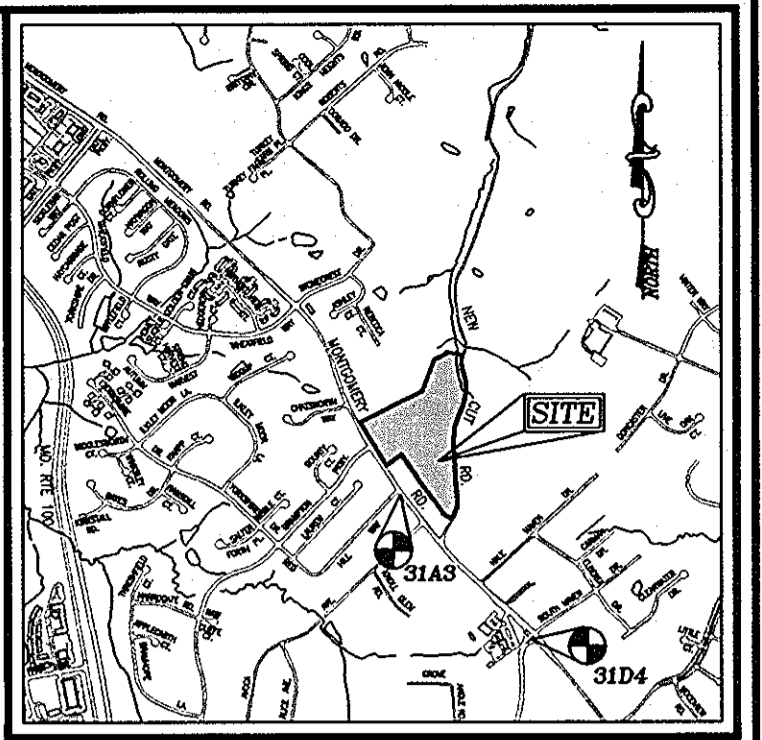
LOCATION: TAX MAP 31; BLOCK 1 & 8; PARCEL '10', LOTS 1-5
 5TH ELECTION DISTRICT
 EXISTING ZONING: R-20
 SUBDIVISION: GLEN MAR METHODIST CHURCH
 DPZ REFERENCES: BA-02-36C; WP-04-122; SDP-04-042
 GROSS AREA OF PROJECT: 21.0966 AC (918,988 SF)
 AREA OF STEEP SLOPES: 1.04 AC (45,229 SF)
 NET AREA OF PROJECT: 21.0966 AC
 APPROXIMATE LIMIT OF DISTURBANCE: 3.08 AC (134,133 SF)

GENERAL NOTES

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- DEED REFERENCES: 5044/333
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PERFORMED BY FREDERICK WARD ASSOCIATES, INC DATED
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN SURVEY PROVIDED BY FREDERICK WARD ASSOCIATES, INC DATED MAY 22, 2001.
- COORDINATE DATUM IS BASED ON THE MARYLAND COORDINATE SYSTEM (MAD '83) AS PROJECTED BY THE FOLLOWING HOCO GEODETIC CONTROL STATIONS: 3104 & 31A3
- WATER AND SEWER FOR THIS PROJECT TO TIE TO A PUBLIC SYSTEM
 EXISTING WATER: 12-W
 EXISTING SEWER: 20-3339
- STORMWATER MANAGEMENT SERVING THE PROPOSED PUBLIC ROAD WILL BE INCLUDED IN THIS SUBMISSION. CPM IS NOT REQUIRED FOR THIS PROJECT ($Q < 2.0$ c.f.s.). WOV AND REV PROVIDED BY PROPOSED BIORETENTION FACILITY. THE PROPOSED STORMWATER MANAGEMENT FACILITY TO BE PRIVATELY OWNED AND MAINTAINED BY GLEN MAR UNITED METHODIST CHURCH. STORMWATER MANAGEMENT FOR THE BALANCE OF THE DEVELOPMENT TO BE ADDRESSED AT THE SITE DEVELOPMENT PLAN STAGE. STORMWATER MANAGEMENT IS IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL.
- STORMWATER MANAGEMENT SOIL BORINGS FOR THIS SITE ARE BASED ON A GEOTECHNICAL ANALYSIS PROVIDED BY ENGINEERING CONSULTING SERVICES, INC DATED MAY 15, 2003.
- WETLANDS DELINEATED BY FREDERICK WARD ASSOCIATES, INC. DATED AUGUST 2003.
- AREA OF SLOPES 25% OR GREATER CONTIGUOUS OF 20,000 SF OR MORE: 42,644.72 SF (0.99 AC.)
- THERE ARE NO FLOODPLAINS ON THIS SITE.
- FOREST STAND DELINEATION PLAN PREPARED BY FREDERICK WARD ASSOCIATES, INC. DATED SEPTEMBER 2003.
- TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, DATED JULY 25, 2003.
- A NOISE STUDY IS NOT REQUIRED FOR THIS SITE SINCE IT IS NON-RESIDENTIAL.
- THE FOREST CONSERVATION OBLIGATIONS FOR THE DEVELOPMENT OF THESE LOTS WILL BE MET AND PROVIDED WITH THE SITE DEVELOPMENT PLAN FOR GLEN MAR UNITED METHODIST CHURCH, LOTS 1-5, SDP-04-042, OR ANY SUBSEQUENT SITE DEVELOPMENT PLANS FOR THESE LOTS IF SDP-04-042 DOES NOT OBTAIN APPROVAL.
- SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
- THE PROPOSED STORMWATER MANAGEMENT FACILITY IS TO BE PRIVATELY OWNED AND MAINTAINED BY GLEN MAR UNITED METHODIST CHURCH.
- REFERENCE WP-04-122, APPROVED MAY 14, 2004; TO WAIVE SECTIONS 16.144(a) & (f) TO NOT REQUIRE THE SUBMISSION AND APPROVAL OF SKETCH AND PRELIMINARY PLANS FOR A MAJOR SUBDIVISION OF PARCEL 10 THAT WILL INVOLVE PUBLIC ROAD IMPROVEMENTS, SUBJECT TO THE FOLLOWING CONDITIONS:
 1. DEVELOPER WILL BE REQUIRED TO OBTAIN AND MEET ALL TERMS AND CONDITIONS OF A REQUIRED ACCESS PERMIT PRIOR TO ANY CONSTRUCTION IN THE SHA RIGHT-OF-WAY.
- REFERENCE SDP-04-42 FOR STORMWATER FOR GLEN MAR UNITED METHODIST CHURCH.
- ONLY THE REQUIRED PUBLIC ROAD STREET TREES AND THE REQUIRED PLANTING OF THE BIORETENTION SWMP ARE PROVIDED ON THE CERTIFIED PLANTING PLAN INCLUDED IN THIS ROAD CONSTRUCTION PLAN SET. ALL OTHER LANDSCAPE/PLANTING OBLIGATIONS FOR THE DEVELOPMENT OF THESE LOTS WILL BE MET AND PROVIDED WITH THE SITE DEVELOPMENT PLAN FOR GLEN MAR UNITED METHODIST CHURCH, LOTS 1-5, SDP-04-042, OR ANY SUBSEQUENT SITE DEVELOPMENT PLANS FOR THESE LOTS IF SDP-04-042 DOES NOT OBTAIN APPROVAL.
- THIS PLAN IS SUBJECT TO BA-02-36C, APPROVED NOVEMBER 18, 2002, FOR CONDITIONAL USES FOR A STRUCTURE USED PRIMARILY FOR RELIGIOUS ACTIVITIES AND FOR A CHILD DAY CARE AND NURSERY SCHOOL IN AN R-20 ZONING DISTRICT, FILED PURSUANT TO SECTIONS 131.N.13.B AND SECTION 131.N.13.C OF THE HOWARD COUNTY ZONING REGULATION; PROVIDED, HOWEVER, THAT THE CONDITIONAL USES WILL APPLY ONLY TO THE USES AND STRUCTURES AS DESCRIBED IN THE PETITION AND CONDITIONAL USE PLAN SUBMITTED, AS AMENDED HEREBY, AND NOT TO ANY OTHER ACTIVITIES, USES, STRUCTURES, OR ADDITIONS ON THE PROPERTY.
- SPECIFIC CRITERIA FOR RELIGIOUS ACTIVITIES, STRUCTURES USED PRIMARILY FOR (SECTION 131.N.3B)**
 1. THE PROPOSED BUILDING WILL COVER APPROXIMATELY 45,635 SF, WHICH IS NO MORE THAN 5% OF THE LOT SIZE. THE LOT COVERAGE WILL THEREFORE NOT EXCEED THE MAXIMUM OF 25% AS REQUIRED BY SECTION 131.N.3B(A).
 2. THE PROPOSED STRUCTURE WILL BE 43 FEET IN HEIGHT, WHICH IS ABOVE THE MAXIMUM HEIGHT LIMITATION OF 34 FEET IN THE R-20 ZONE. THIS HEIGHT IS PERMITTED UNDER SECTION 131.N.3B OF THE MINIMUM SETBACKS ARE INCREASED BY 9 FEET. THE STRUCTURE IS SET BACK 125 FEET FROM NEW CUT ROAD TO THE EAST AND 49 FEET FROM NEW CUT ROAD TO THE WEST. THESE SETBACKS WILL EXCEED THE MINIMUM OF 59 FEET AND 49 FEET, RESPECTIVELY. THE STRUCTURE WILL THEREFORE COMPLY WITH SECTION 131.N.3B(B).
SPECIFIC CRITERIA FOR CHILD DAY CARE CENTERS AND NURSERY SCHOOLS, DAY TREATMENT AND CARE FACILITIES (SECTION 131.N.13)
 1. THE INTERNAL DRIVEWAY LEADS TO TWO DROP-OFF AREAS ADJACENT TO SIDEWALKS LOCATED NEAR THE MAIN ENTRANCE AND NEAR THE EDUCATIONAL WING, PROVIDING SAFE CIRCULATION IN ACCORDANCE WITH SECTION 131.N.13.A.
 2. THE PROPOSED FACILITY IS NOT LOCATED IN A INDUSTRIAL COMMERCIAL DISTRICT; THEREFORE, SECTION 131.N.13.B DOES NOT APPLY.
 3. AT 500 GROSS FEET AREA OF LOT PER CHILD, A LOT OF 3.95 ACRES WOULD BE REQUIRED TO ACCOMMODATE THE 34 CHILDREN (184 DAYCARE CHILDREN PLUS 160 NURSERY SCHOOL CHILDREN) WHO WILL USE THE SITE. THE 22.36 ACRE SITE IS MORE THAN ADEQUATE TO MEET THE STANDARD OF SECTION 131.N.13.C.
 4. THE TWO PROPOSED PLAYGROUNDS WILL BE FENCED AND LOCATED TO THE SIDES OF THE PRINCIPAL STRUCTURES. EACH WILL BE LOCATED MORE THAN 230 FEET FROM THE NEAREST DWELLING AND SCREENED BY PERIMETER LANDSCAPING. THE PLAYGROUNDS THEREFORE MEET THE REQUIREMENTS OF SECTION 131.N.13.D.
 5. THE PARKING AREAS WILL BE LOCATED TOWARD THE CENTER OF THE SITE AND WILL BE WELL SET BACK FROM ADJACENT RESIDENTIAL PROPERTIES. THEY ARE ALSO ADEQUATELY BUFFERED BY THE LANDSCAPING IN ACCORDANCE WITH SECTION 131.N.13.F.
 6. THE DESIGN AND MASSING OF THE BUILDING, GIVEN THE SIZE OF THE SITE AND THE EXTENSIVE SETBACKS AND LANDSCAPING TO BE PROVIDED, WILL BE GENERALLY COMPATIBLE WITH THE RESIDENTIAL PROPERTIES IN THE VICINITY IN ACCORDANCE WITH SECTION 131.N.13.F.
 7. THE PROPOSED FACILITY WILL BE IN A RESIDENTIAL DISTRICT AND HAVE A CAPACITY OF MORE THAN 30 CHILDREN.
 (1) THE PROPERTY FRONTS ON MONTGOMERY ROAD, A MINOR ARTERIAL, AND WILL FRONT ON THE NEW CUT ROAD, A MAJOR COLLECTOR. THIS SITE WILL HAVE DIRECT ACCESS TO NEW CUT ROAD. THE SITE THEREFORE COMPLIES WITH SECTION 131.N.13.G(1).
 (2) THE PROPOSED BUILDING AND PLAY AREAS ARE LOCATED MORE THAN 50 FEET FROM ADJOINING PROPERTIES. IN COMPLIANCE WITH THE SETBACK REQUIREMENT OF SECTION 131.13.G(2), THE PARKING AREA IN THE SOUTHWEST PORTION OF THE LOT, HOWEVER, IS 29 FEET FROM THE ADJACENT PROPERTIES. I MAY REDUCE THIS SETBACK TO NO LESS THAN 20 FEET IF THE PROPERTY IS PROPERLY BUFFERED IN ACCORDANCE WITH SECTION 131.N.13.G(1). I FIND THAT THE TYPE C LANDSCAPE BUFFER PROPOSED FOR THE SOUTH END OF THE LOT, COMBINED WITH THE PROPOSED SETBACK OF 29 FEET, WILL PROVIDE AN EFFECTIVE AND ATTRACTIVE BUFFER FOR NEIGHBORING RESIDENTIAL PROPERTIES IN ACCORDANCE WITH THIS SECTION.
 (3) APPROXIMATELY 5.6 ACRES OF THE 11.51 ACRE BUILDING ENVELOPE, OR 48%, WILL BE GREEN SPACE. THIS EXCEEDS THE MINIMUM OF 20% GREEN SPACE REQUIRED BY SECTION 131.13.G(3).
 THIS PROJECT IS SUBJECT TO COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
 PLANNING AND ZONING FILE NUMBERS: S-02-03; F-99-25; F-86-13; P-03-02; BA-02-036C; SDP-04-042; WP-04-122.
 NON-BUILDABLE OPEN SPACE LOT 5 HAS BEEN SUBDIVIDED TO BE CONVEYED TO HOWARD COUNTY FOR THE PURPOSE OF A PUBLIC ROAD.
 LOT 2 IS NOT BUILDABLE SINCE IT DOES NOT MEET BULK REGULATIONS ON ITS OWN. NON-BUILDABLE OPEN SPACE LOT 2 IS INTENDED TO BE CONVEYED TO THE ADJACENT PROPERTY OWNER.
 WETLANDS DELINEATED BY FREDERICK WARD ASSOCIATES, INC. DATED AUGUST 2003.
 THE FOREST CONSERVATION OBLIGATION OF 3.21 ACRES OF AFFORESTATION FOR SDP-04-042 AND THIS SUBDIVISION SHALL BE SATISFIED BY PROVIDING 2.99 ACRES OF ON-SITE AFFORESTATION AND PAYMENT OF \$4,791.60 TO THE HO. CO. FOREST CONSERVATION FUND FOR THE REMAINING 0.22 ACRES OF AFFORESTATION.
 ANY ADDITIONAL PARKING AREAS THAT ARE ADDED IN FUTURE PHASES WILL REQUIRE REVISED SHM PLAN.
 NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE REQUIRED STREAM(S) OR THEIR BUFFERS. AREAS OF STEEP SLOPES GREATER THAN OR EQUAL TO 25,000 SF, AND FOREST CONSERVATION EASEMENT AREAS.

FINAL ROAD CONSTRUCTION PLAN RELOCATED NEW CUT ROAD GLEN MAR UNITED METHODIST CHURCH PARCEL 10, LOTS 1-5

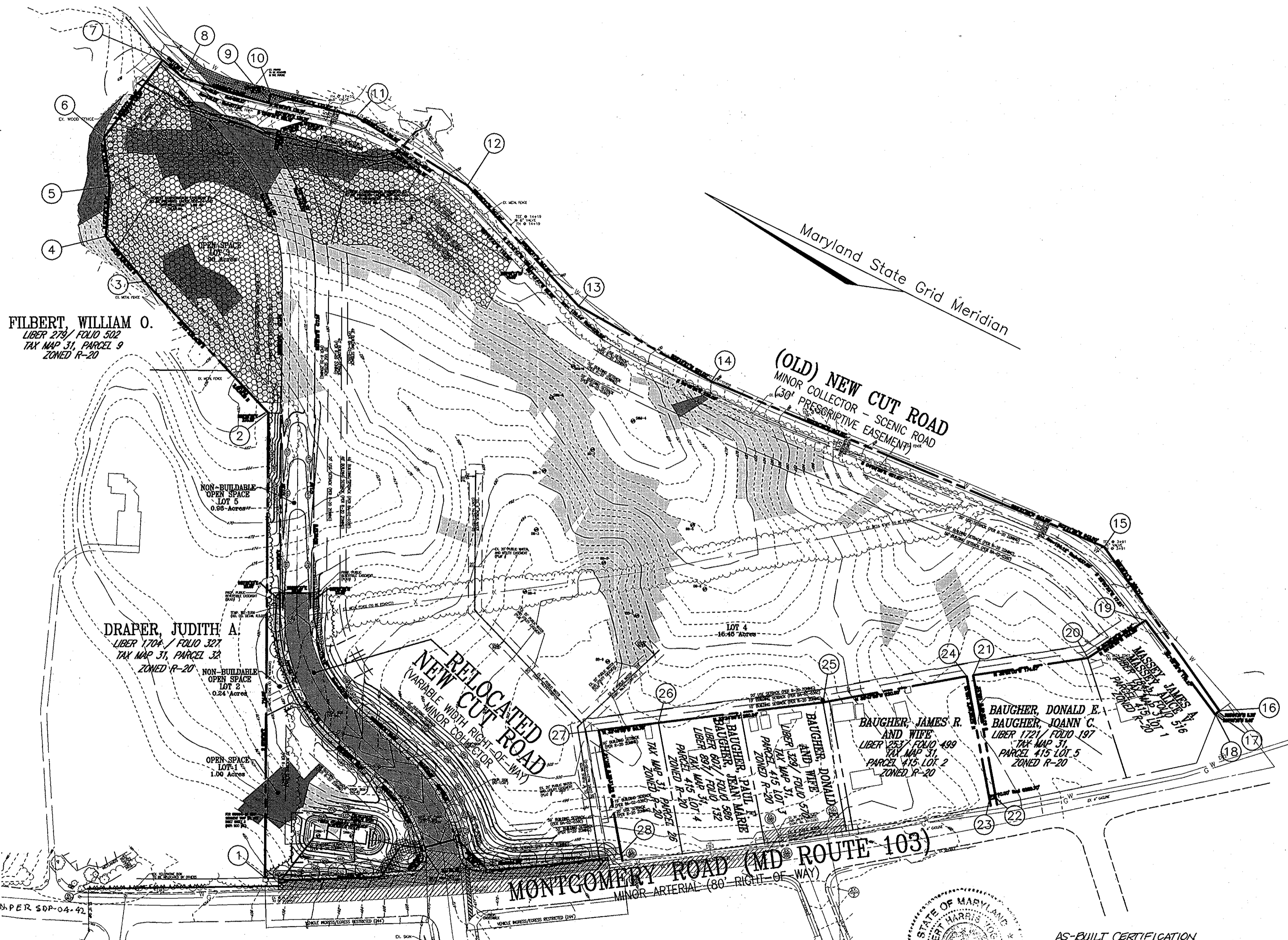
BENCHMARKS
 HOWARD COUNTY BENCHMARK 3104 (CONCRETE MONUMENT)
 N 571700.65900 E 1369606.28100 ELEV. 495.179
 HOWARD COUNTY BENCHMARK 31A3 (CONCRETE MONUMENT)
 N 573217.87700 E 1368237.66200 ELEV. 487.641



VICINITY MAP
 SCALE: 1"=2000'

LEGEND

- Existing Contour: ---382---
- Proposed Contour: ---82---
- Existing Spot Elevation: +82.53
- Proposed Spot Elevation: +82.53
- Direction of Flow: [Symbol]
- Existing Trees to Remain: [Symbol]
- Light Poles: [Symbol] Single Overhead [Symbol] Double Overhead
- Concrete: [Symbol]



COORDINATE CHART

No.	Northing	Easting
1	573989.2467	1367839.3278
2	574299.6737	1368472.2371
3	574555.6409	1368567.8163
4	574638.4186	1368602.8905
5	574687.5027	1368673.5480
6	574708.0745	1368736.7100
7	574681.1118	1368880.6566
8	574641.9987	1368869.9575
9	574509.0639	1368893.4806
10	574512.7597	1368907.1083
11	574381.6301	1368934.0565
12	574184.5326	1368915.1736
13	573953.4289	1368826.5885
14	573722.7941	1368813.6031
15	573080.5133	1368853.1961
16	572813.8354	1368707.8640
17	572816.2476	1368703.1139
18	572815.9507	1368699.6815
19	572974.8311	1368781.1946
20	573027.1193	1368691.0636
21	573170.1133	1368950.7525
22	573056.3921	1368439.3066
23	573064.3194	1368433.2104
24	573178.1210	1368584.7627
25	573354.2885	1368452.9864
26	573563.0165	1368314.4106
27	573638.4729	1368263.9314
28	573524.3392	1368111.3634

OWNER/DEVELOPER
 GLENMAR UNITED METHODIST CHURCH
 8430 GLENMAR RD
 ELLICOTT CITY, MD 21043
 AL HAMMER
 (410) 465-4995

LOCATION MAP
 SCALE: 1"=100'

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 NO. 16193
 PEN.
 10193
 PEN.
 AS-BUILT CERTIFICATION
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND SPECIFICATIONS.

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 of 8
ROAD PLANS, PROFILE AND SECTIONS	2 of 8
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SITE LAYOUT, GRADING, SEDIMENT AND EROSION CONTROL PLAN	4 of 8
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	5 of 8
STORM DRAIN PROFILE AND SWM DETAILS	6 of 8
STORM DRAIN DRAINAGE AREA MAP AND BIORETENTION PLAN	7 of 8
PLANTING PLAN	8 of 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 1-26-05
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/26/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 2/10/05
 CHIEF, DIVISION OF LAND DEVELOPMENT

DIRECTOR [Signature]

ROAD CONSTRUCTION PLANS
COVER SHEET
 RELOCATED NEW CUT ROAD
 GLEN MAR UNITED METHODIST CHURCH
 TAX MAP 31 BLOCK 1 & 8 PARCEL '10', LOTS 1-5
 5TH ELECTION DISTRICT 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

DESIGN BY: RHV
 DRAWN BY: DZ
 CHECKED BY: RHV
 DATE: DECEMBER 2004
 SCALE: AS SHOWN
 W.O. NO.: 04-64

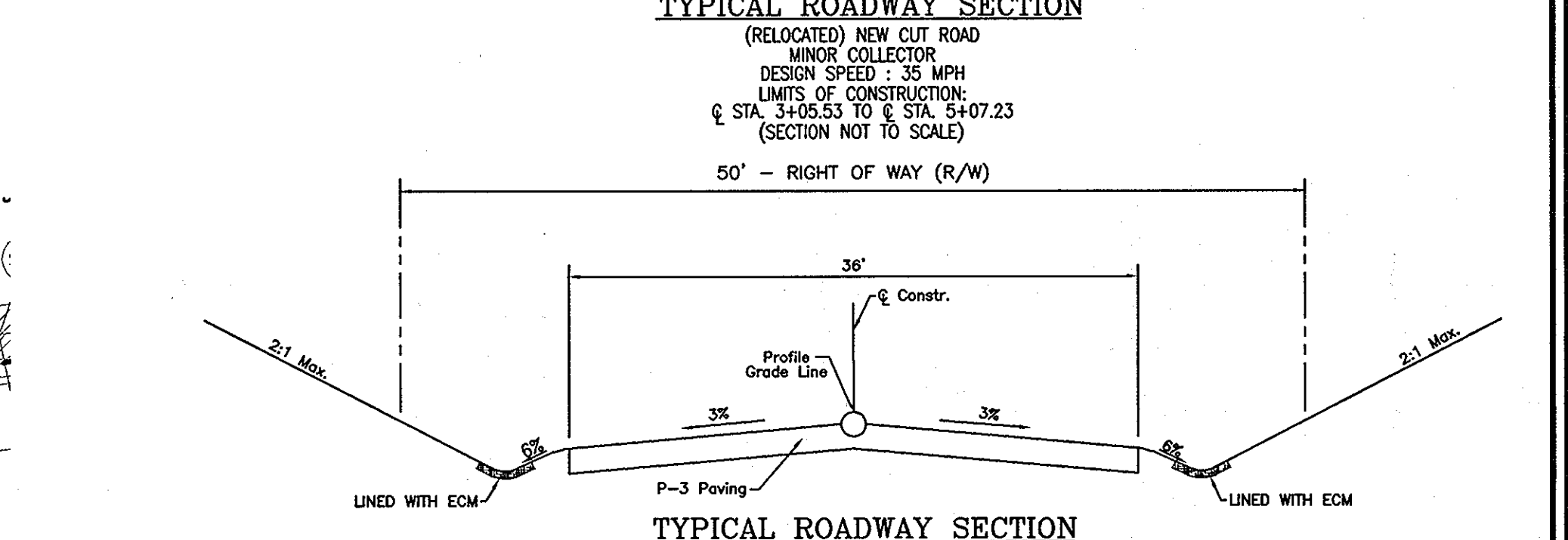
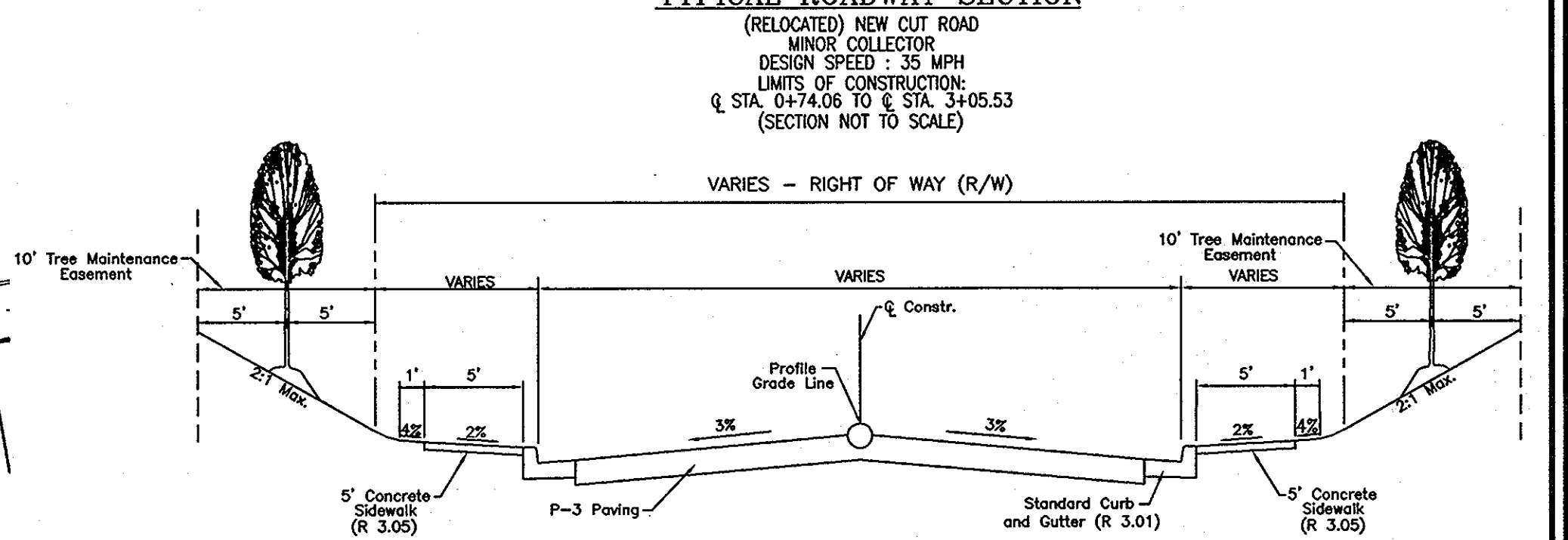
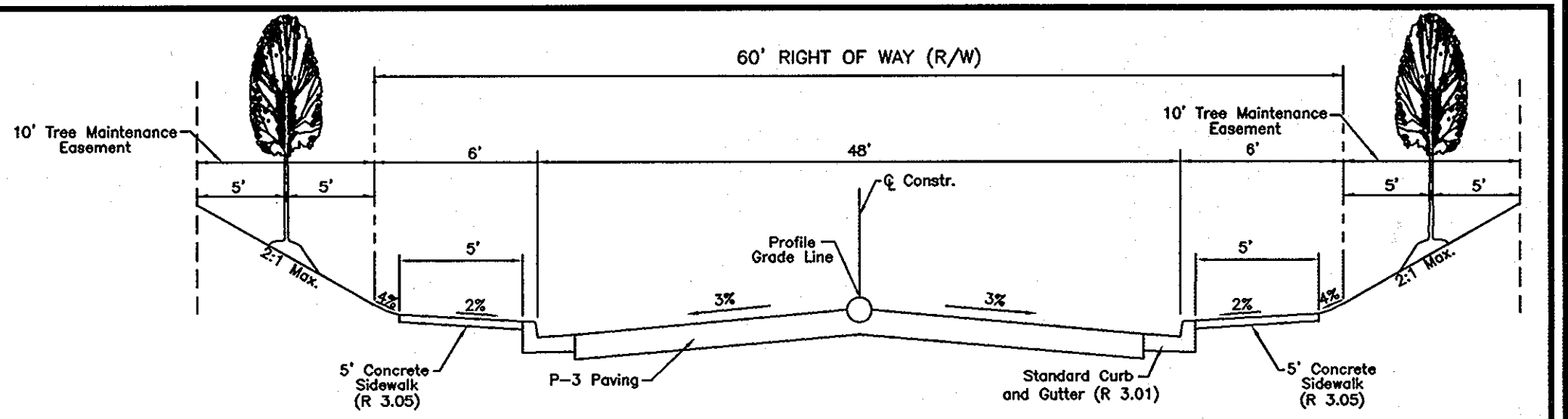
1 SHEET OF 8

AS-BUILT 4-7-2010 F-04-166

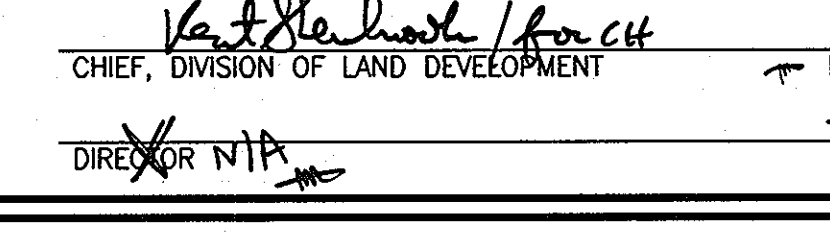
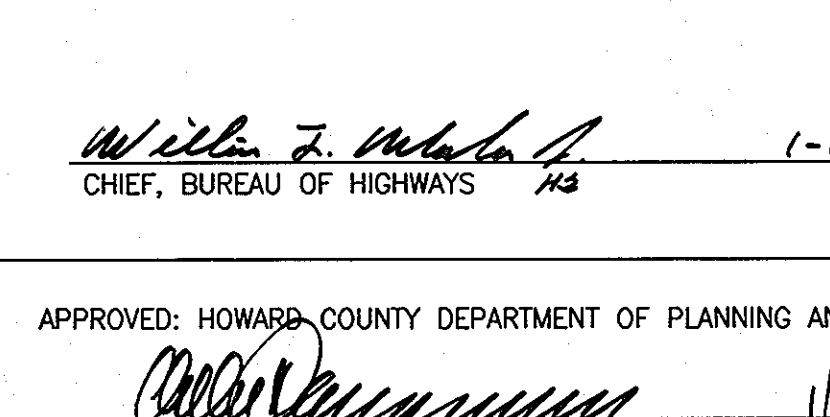
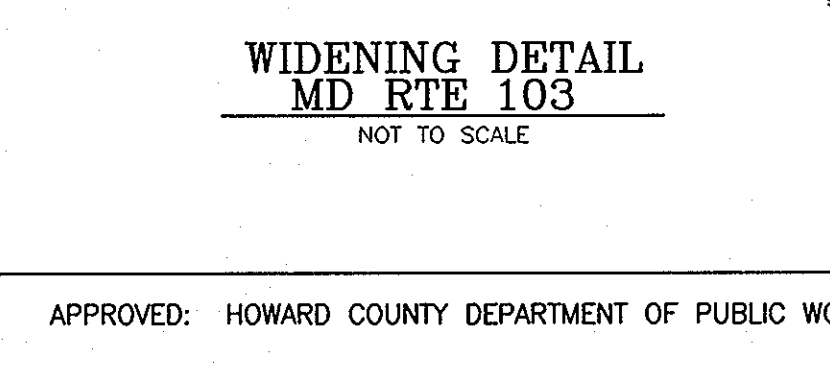
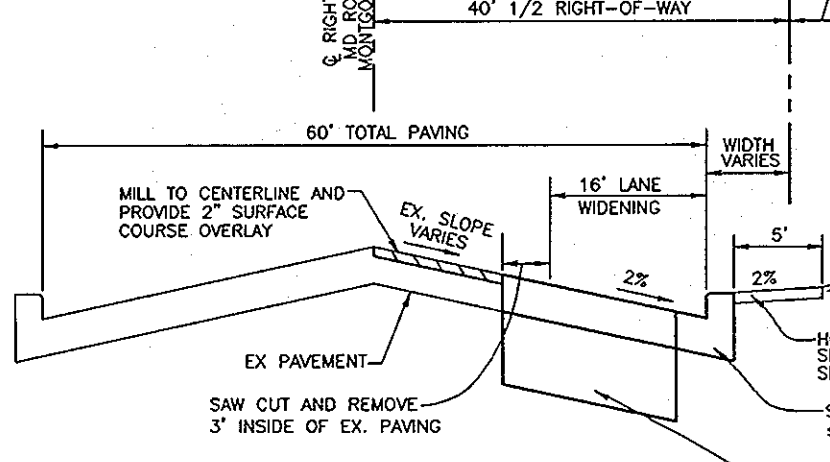
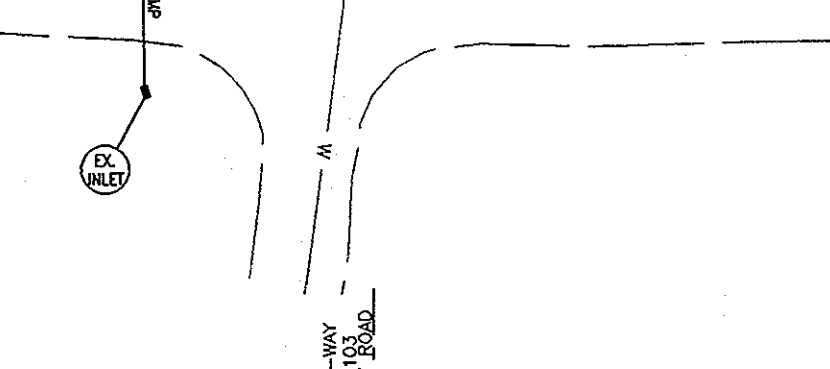
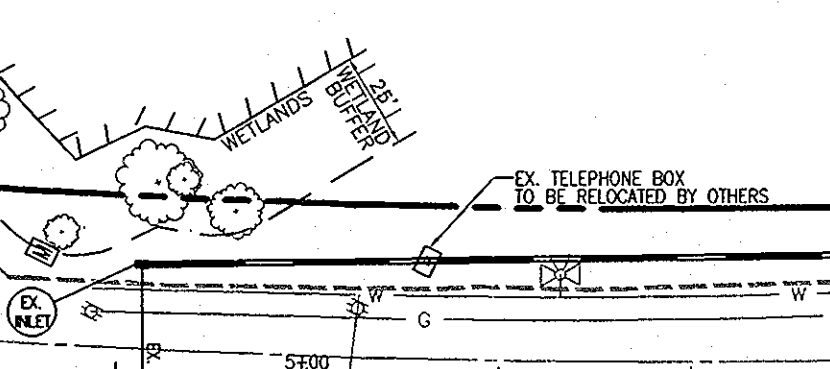
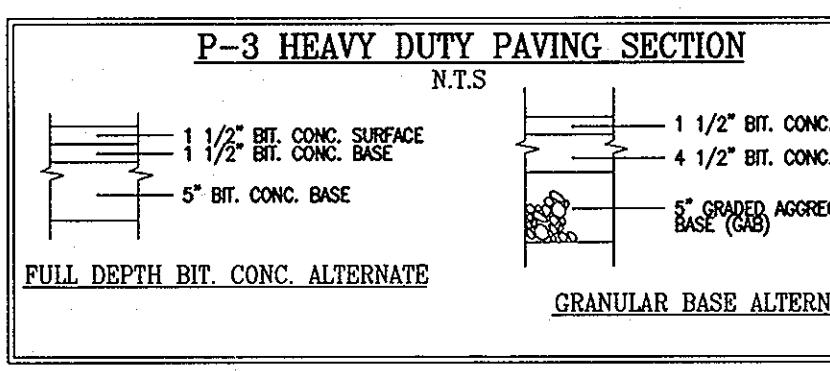
DRAPER, JUDITH A.
 LIBER 1704 / FOLIO 327
 TAX MAP 31, PARCEL 32
 ZONED R-20

CURVE TABLE

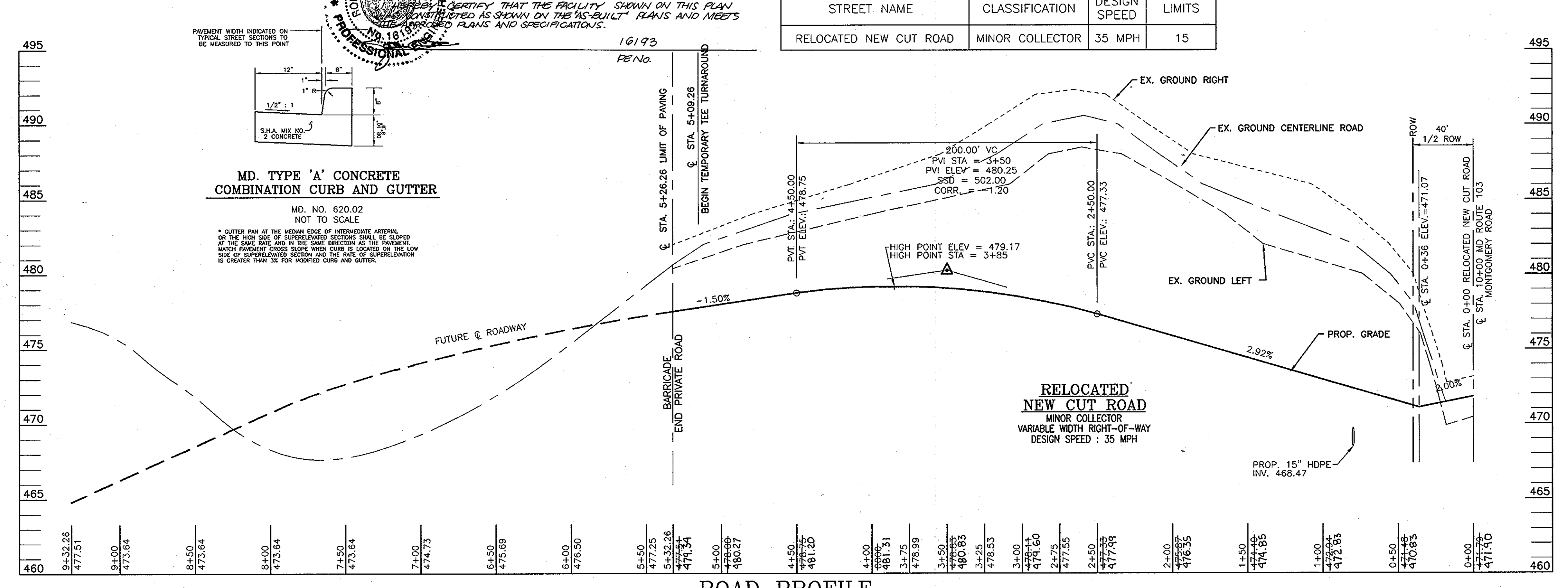
CURVE	RADIUS	LENGTH	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	240.00	174.81	41°43'59"	91.49	N36°22'04"E	170.97
C2	216.00	121.44	32°12'49"	62.37	N31°36'21"E	119.85
C3	264.00	149.32	32°24'23"	76.72	N31°42'17"E	147.34
C4	240.00	202.62	48°22'18"	107.79	S39°41'14"W	196.65
C5	252.00	115.72	26°18'41"	58.90	S50°43'02"W	114.71
C5	200.00	168.85	48°22'18"	89.82	S39°41'14"W	163.88



THE SWMF TO BE PRIVATELY OWNED AND MAINTAINED BY GLEN MAR UNITED METHODIST CHURCH.



ROAD PLAN
 SCALE: 1"=50'



STREET TREE CALCULATIONS

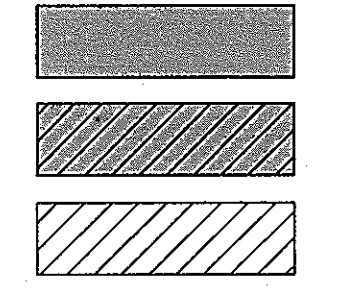
STREET NAME	LINEAR FEET	REQUIRED	PROVIDED
RELOCATED NEW CUT ROAD	784	20	20
MONTGOMERY ROAD	454	11	11

ROAD CLASSIFICATION

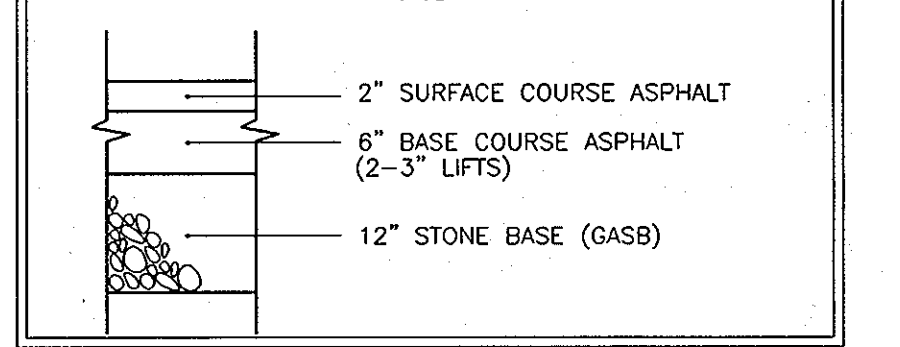
STREET NAME	CLASSIFICATION	DESIGN SPEED	LIMITS
RELOCATED NEW CUT ROAD	MINOR COLLECTOR	35 MPH	15

PAVING LEGEND

LIMITS OF TYPE P-3 PAVING (SEE DETAIL THIS SHEET)
 LIMITS OF SHA STANDARD PAVING (SEE DETAIL THIS SHEET)
 MILL TO CENTERLINE AND PROVIDE 2" SURFACE COURSE OVERLAY (SEE DETAIL THIS SHEET)



MD RTE. 103 (SHA) PAVING SECTION
 N.T.S.



OWNER/DEVELOPER
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 8430 GLENMAR RD
 ELLICOTT CITY, MD 21043
 AL HAMMER
 (410) 465-4995

NO.	REVISION	DATE

ROAD CONSTRUCTION PLANS
ROAD PLAN AND PROFILE
RELOCATED NEW CUT ROAD
GLEN MAR UNITED METHODIST CHURCH
 TAX MAP 31 BLOCK 1 & 8 PARCEL 10, LOTS 1-5
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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DESIGN BY: RHY
 DRAWN BY: DZ
 CHECKED BY: RHY
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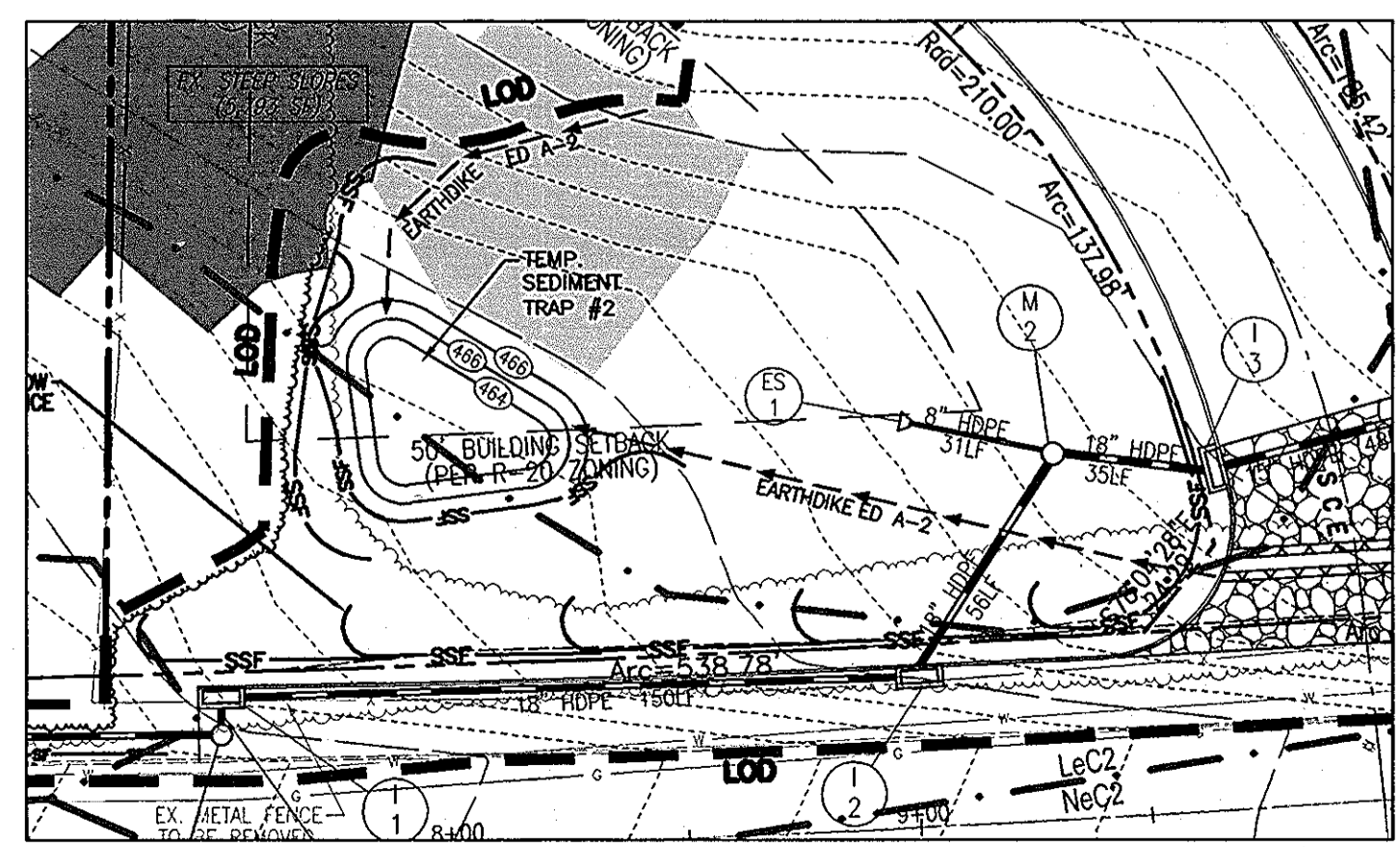
2 SHEET OF 8

AS-BUILT 4-7-2010



THE SWMF TO BE PRIVATELY OWNED AND MAINTAINED BY GLEN MAR UNITED METHODIST CHURCH.

PLAN VIEW
SCALE: 1"=50'



GRADING FOR TEMP. SEDIMENT TRAP #2
SCALE: 1"=40' (REF: SOC #5)

TEMP. SEDIMENT TRAP #2
TYPE: SUPER SILT FENCE TRAP
DEVELOPED DRAINAGE AREA: 0.9 AC.
TOTAL STORAGE REQUIRED: 3240 CF
WET STORAGE (EXCAVATED): 1620 CF
DRY STORAGE (TOP OF SSF): 1620 CF
BOTTOM ELEVATION: 464.00
WET STORAGE ELEVATION: 466.00
DRY STORAGE ELEVATION: 468.00
WET STORAGE PROVIDED: 2200 CF
DRY STORAGE PROVIDED: 2500 CF



AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
10/19/05
R.H.V.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William J. Underhill 1-26-05
CHIEF, BUREAU OF HIGHWAYS HS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John J. Williams 1/21/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ DATE
Robert H. Vogel 2/10/05
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
DIRECTOR N.P.A. DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.
Jim Meyer 1/18/05
NDA-NATURAL RESOURCES CONSERVATION SERVICE DATE
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John J. Williams 1/18/05
HOWARD S.C.D. DATE

BY THE DEVELOPER:
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.
Al Hammer Administrator 1/7/05
SIGNATURE OF DEVELOPER DATE

BY THE ENGINEER:
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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 1/7/05
SIGNATURE OF ENGINEER ROBERT H. VOGEL, P.E. DATE

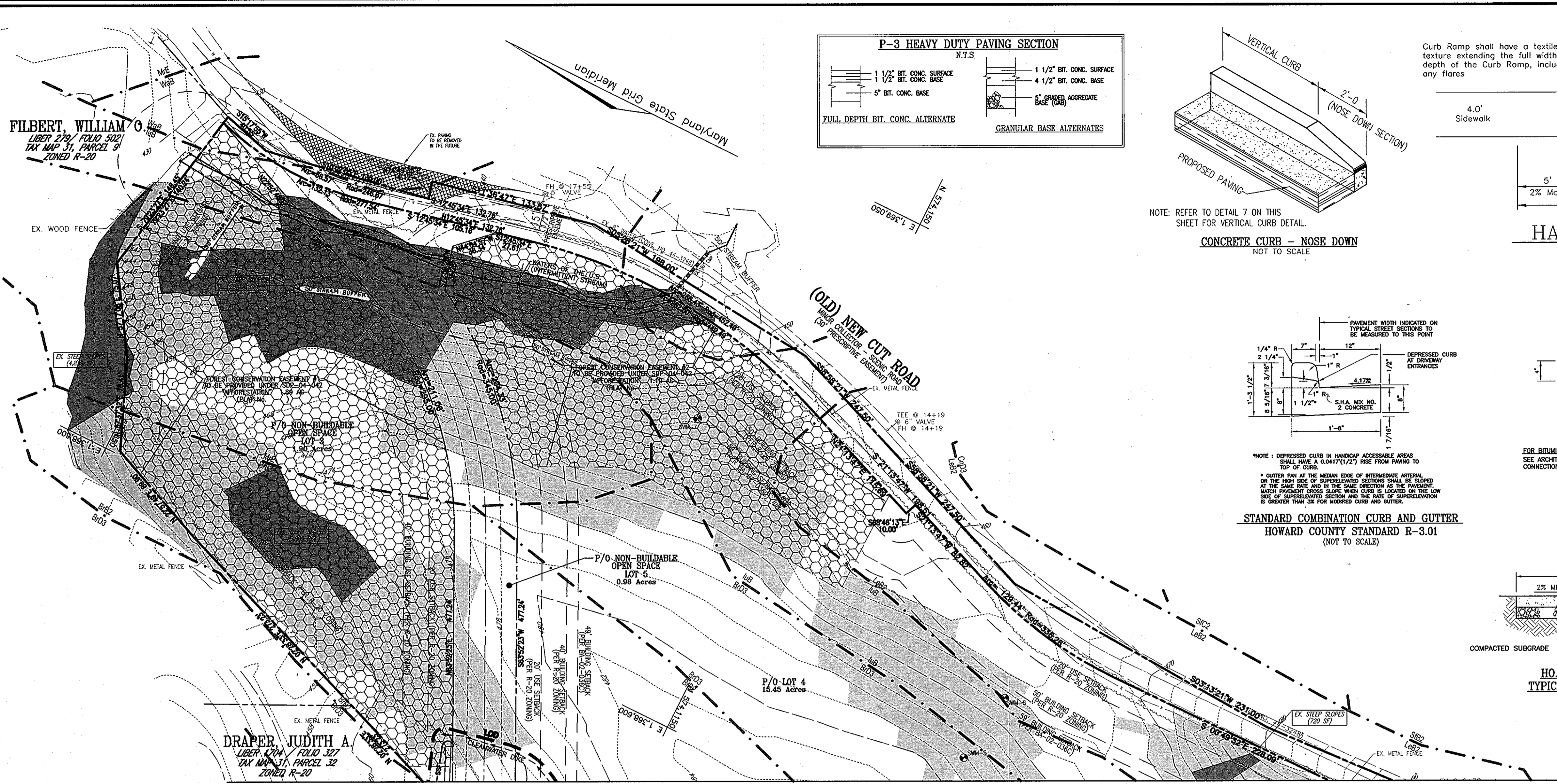
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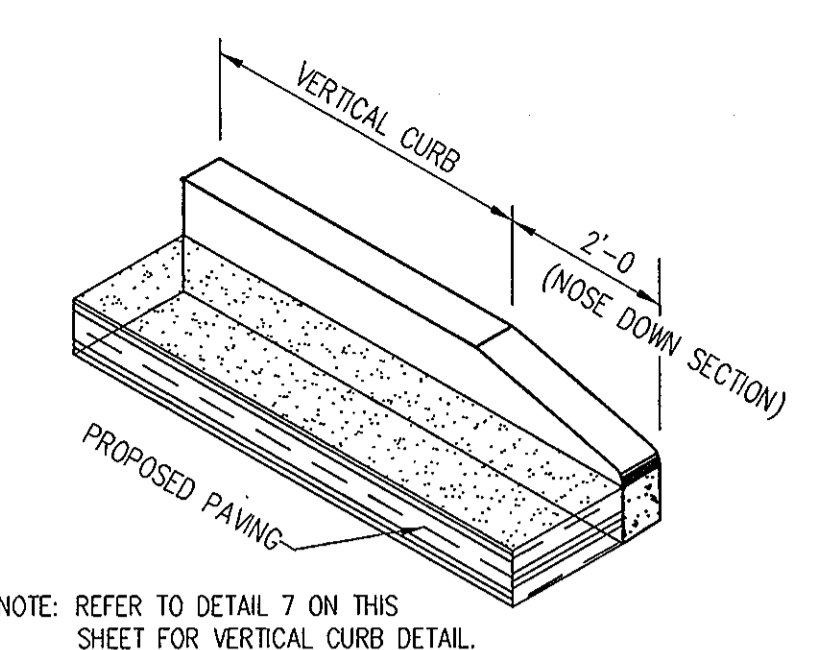
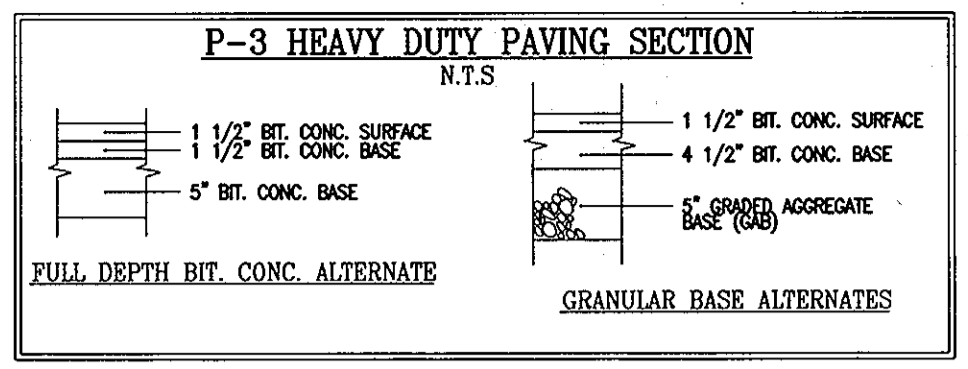
ROAD CONSTRUCTION PLANS
SITE LAYOUT, GRADING, AND SEDIMENT AND EROSION CONTROL PLAN
RELOCATED NEW CUT ROAD
GLEN MAR UNITED METHODIST CHURCH
TAX MAP 31 BLOCK 1 & 8 PARCEL "10", LOTS 1-5
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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W.O. NO.: 04-64
3 SHEET OF 8

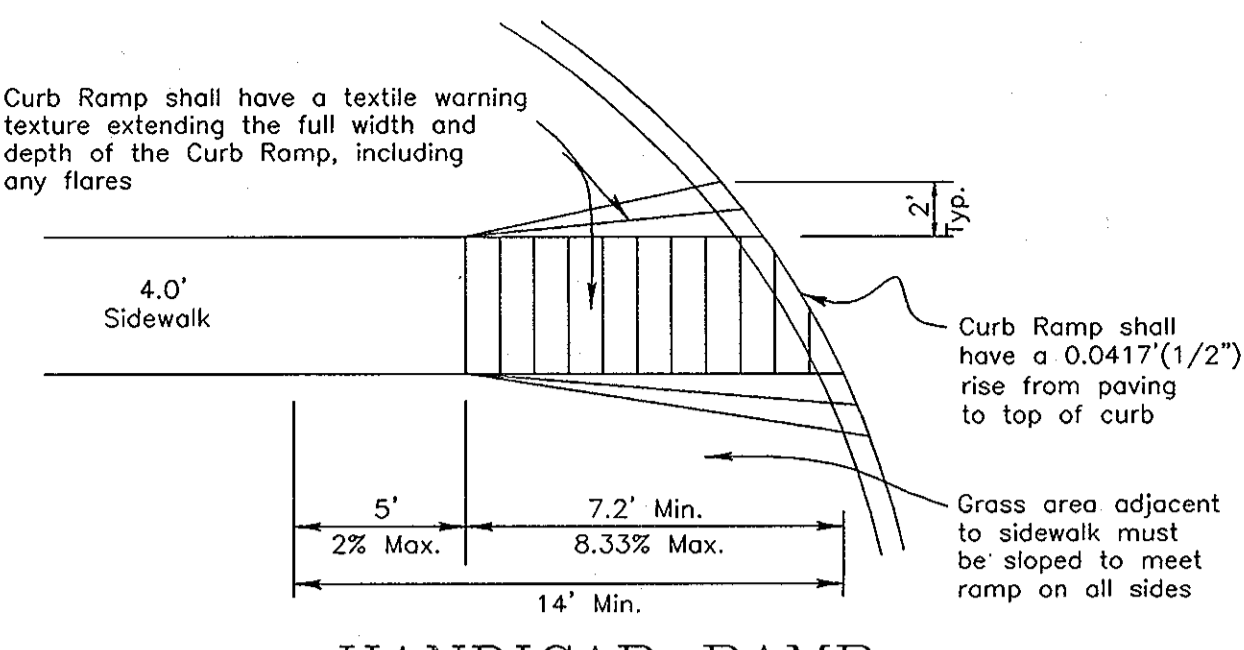


MATCHLINE - SHEET 3

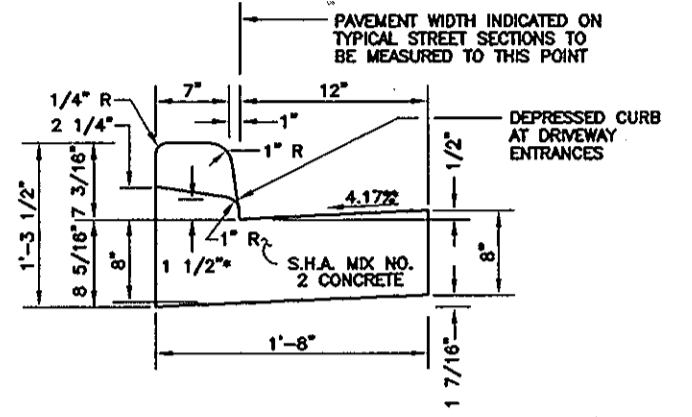


NOTE: REFER TO DETAIL 7 ON THIS SHEET FOR VERTICAL CURB DETAIL.

CONCRETE CURB - NOSE DOWN NOT TO SCALE



HANDICAP RAMP NOT TO SCALE

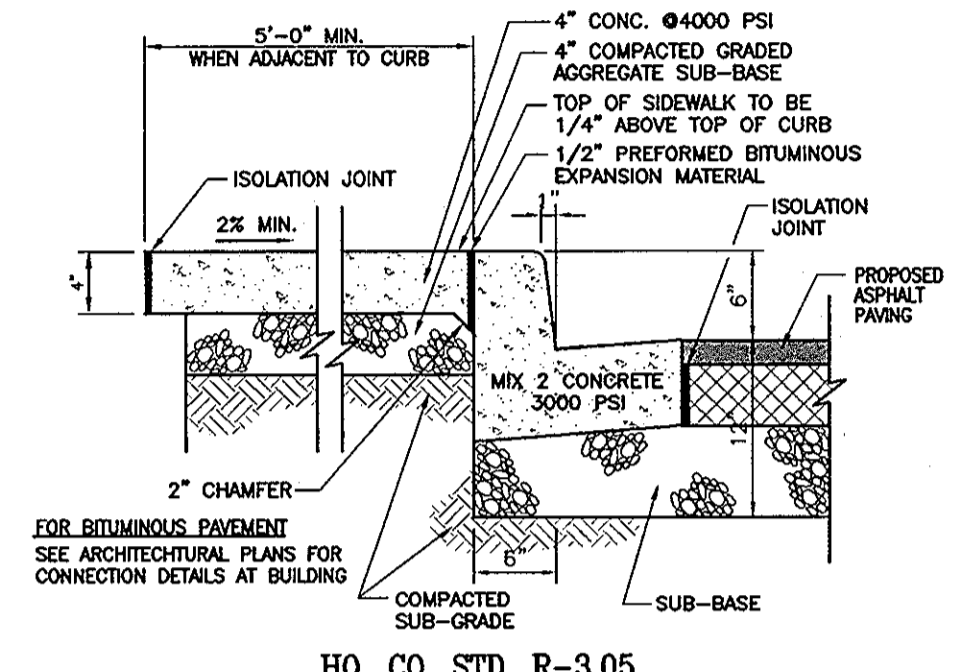


NOTE: DEPRESSED CURB IN HANDICAP ACCESSIBLE AREAS SHALL HAVE A 0.0417(1/24) RISE FROM PAVING TO CURB TOP.

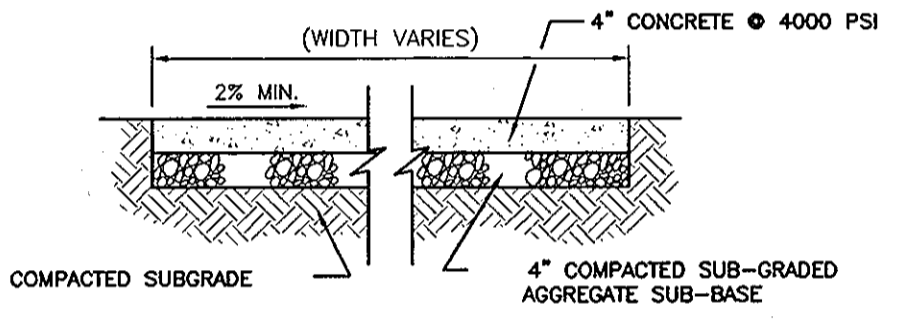
* OUTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIAL OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED TO THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT.

* DEPRESSED CURB SHALL BE LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTIONS AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR WOODED CURB AND GUTTER.

STANDARD COMBINATION CURB AND GUTTER HOWARD COUNTY STANDARD R-3.01 (NOT TO SCALE)



HO. CO. STD. R-3.05 TYPICAL SIDEWALK AT BUILDING (N.T.S.)



HO. CO. STD. R-3.05 TYPICAL SIDEWALK DETAIL (N.T.S.)

LEGEND:

	EXISTING CONTOUR
	PROPOSED CONTOUR
	PROPOSED SPOT ELEVATION
	EXISTING SPOT ELEVATION
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	PROPOSED LIGHT POLE
	PROPOSED STREET SIGN
	EXISTING TREES (FIELD LOCATED)
	EXISTING TREE LINE (FIELD LOCATED)
	EXISTING VEGETATION (APPROXIMATE LOCATION)
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	SILT FENCE
	SUPER SILT FENCE
	LIMIT OF DISTURBANCE
	AT GRADE INLET PROTECTION
	CURB INLET PROTECTION
	PROPOSED SIDEWALK
	EROSION CONTROL MATTING
	STABILIZED CONSTRUCTION ENTRANCE
	PROPOSED SIGHT DISTANCE EASEMENT
	PROPOSED TREE MAINTENANCE EASEMENT
	PROPOSED 20' DRAINAGE AND UTILITY EASEMENT

MATERIALS SPECIFICATIONS FOR BIO-RETENTION

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SPECIFICATION	N/A	PLANTINGS ARE SITE-SPECIFIC
PLANTING SOIL (2.5' TO 4' DEEP)	SAND 35-60% SILT 30-55% CLAY 10-25%	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM
PEA GRAVEL (DAPHRAGM AND CURTAIN DRAIN)	PEA GRAVEL ASTM-D-448 ORNAMENTAL STONE, WASHED COBBLES	PEA GRAVEL NO. 6 STOCK: 2" TO 5"	
GEOTEXTILE	CLASS "C" - APPARENT OPENING SIZE (ASTM-D-4751), GRAB TENSILE STRENGTH (ASTM-D-4632), PUNCTURE RESISTANCE (ASTM-D-4633)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	ASHFO M-43	0.375" TO 0.75"	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OOR ASHFO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SD335	3/8" PERF. @ 6" O.C., 4 HOLES PER ROW; MIN. OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES
POURED IN PLACE CONCRETE (IF REQUIRED)	MISHA MIX NO. 3, f=3500 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED, REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-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 MEETING ACI CODE 308.2R/89, VERTICAL LOADING (0-10 OR H-10); ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING.
SAND (1" DEEP)	ASHFO-M-6 OR ASTM-C-33	0.075" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DUNGE AND GRAVSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLICHITE SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

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 EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
- 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 STRAKES 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 OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

NOTE: CONTRACTOR SHALL ENSURE THAT THE S.W.M. FACILITY IS WATER-TIGHT.

- ALL PIPE CONNECTIONS AT STRUCTURES SHALL BE CEMENTED TO ENSURE WATER-TIGHT CONNECTION.
- ALL ACCP PIPE JOINTS SHALL USE 12" WIDE HUGGER BAND WITH "O" RING GASKETS.
- TEES AND ELBOWS TO BE FACTORY FABRICATED WELDS, ONE PIECE.
- TRENCH BEDDING TO BE IN ACCORDANCE WITH RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEER IN THE FIELD.
- PROVIDE WATER-TIGHT JOINTS AT ALL PIPE CONNECTIONS. (FOR REINFORCED CONCRETE PIPE, ASTM C-361, RUBBER GASKET PIPE).

Appendix B.3. Construction Specifications for Sand Filters, Bio-retention and Open Channels

Specifications for Bio-retention

- Material Specifications**
The allowable materials to be used in bio-retention area are detailed in Table B.3.2.
- 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 dumped within the bio-retention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under "Erosion Control".
The planting soil shall be tested and shall meet the following criteria:
pH range: 5.5 - 7.0
organic matter: 1.5 - 5% (by weight)
nitrogen: 25 lb/acre
phosphorus (phosphate): 100 to 150 lb/acre
potassium (potash): 50 to 75 lb/acre
soluble salts: nil to exceed 500 ppm
- All bio-retention 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 test of organic matter, and soluble salts. 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 modified (higher) with lime or (lower) with iron sulfate plus sulfur.
- Compaction**
It is very important to minimize compaction of both the base of the bio-retention area and the required backfill. When possible, use hose to remove original soil. If bio-retention areas are covered using loader, the contractor shall use wide tracks or snow tires equipment or light equipment with turf tires. Use of equipment with narrow tracks or sharp tires, rubber tires will tear up, or high pressure tires 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 bio-retention facility by using a primary tilling operation such as chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods may 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 bio-retention facility before backfilling the required sand layer. Pump any ponded water before operating (rototilling) base.
When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.
When backfilling the bio-retention facility, place soil in lifts 12" to 16". Do not use heavy equipment within the bio-retention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bio-retention with light equipment such as a compact loader or a dozer/loader with marsh tracks.
- Plant Material**
Recommended plant material for bio-retention areas can be found in Appendix A, Section A.2.3. of the 2000 Maryland Stormwater Design Manual.
- Plant Installation**
Mulch should be placed to a uniform thickness of 2" to 3". Shredded hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bio-retention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.
Main stock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted on 1/8th of the ball above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Soil sets maintain the plant straight during the entire planting process.
Trees shall be spaced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.
Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the bio-green ground cover planting specifications.
The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bio-retention structure is to improve water quality. Adding fertilizers, detritus, or at a minimum, imported top soil, only add fertilizer if wood chips or mulch are used to anchor the soil. Bio-retention area fertilizer at a rate of 2 pounds of nitrogen per 1000 square feet.
- Underdrains**
Underdrains are to be placed on a 3'-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 underdrains system 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).
- Massellations**
The bio-retention facility may not be constructed until all contributing drainage areas has been stabilized.

OWNER/DEVELOPER
GLENMAR UNITED METHODIST CHURCH
8430 GLENMAR RD
ELLCOTT CITY, MD 21043
AL HAMMER
(410) 465-4995

NO.	REVISION	DATE

ROAD CONSTRUCTION PLANS
SITE LAYOUT, GRADING, AND SEDIMENT AND EROSION CONTROL PLAN
RELOCATED NEW CUT ROAD
GLEN MAR UNITED METHODIST CHURCH
TAX MAP 31 BLOCK 1 & 8 PARCEL '10', LOTS 1-5
5TH ELECTION DISTRICT 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: DZ
CHECKED BY: RHV
DATE: DECEMBER 2004
SCALE: 1"=50'
W.O. NO.: 04-64

4 SHEET OF 8

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Walter Z. Whelan, Jr. 1-26-05
CHIEF, BUREAU OF HIGHWAYS

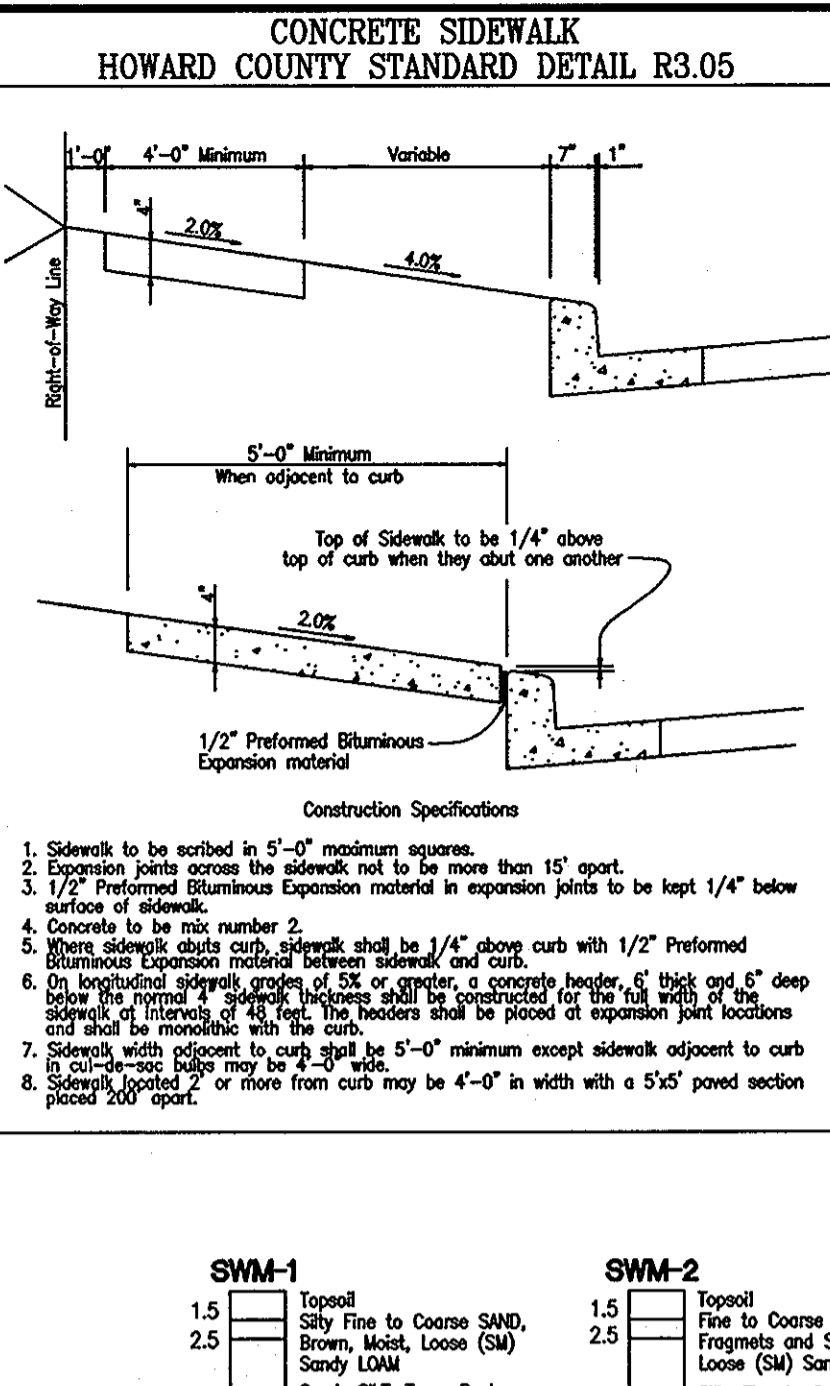
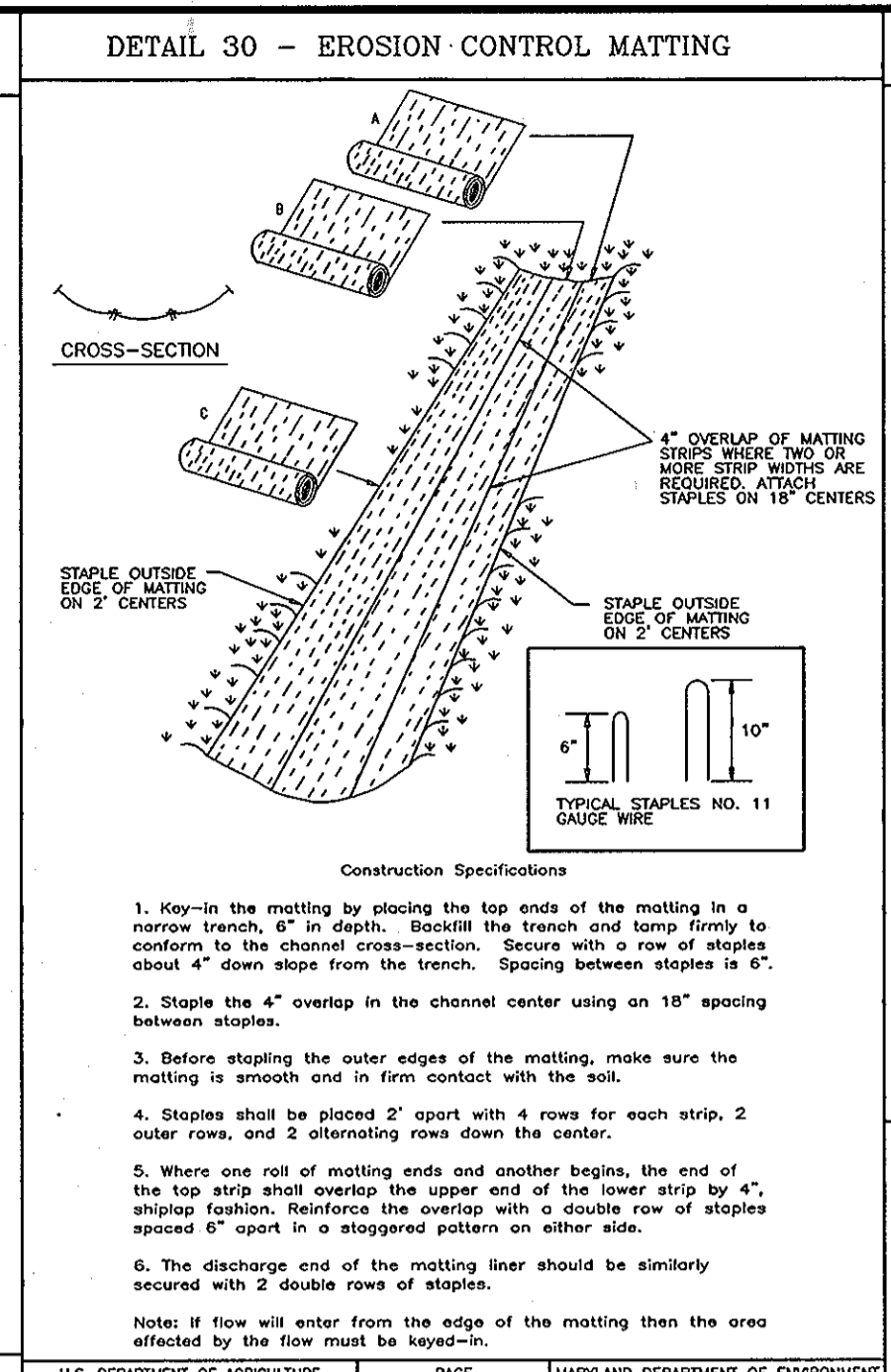
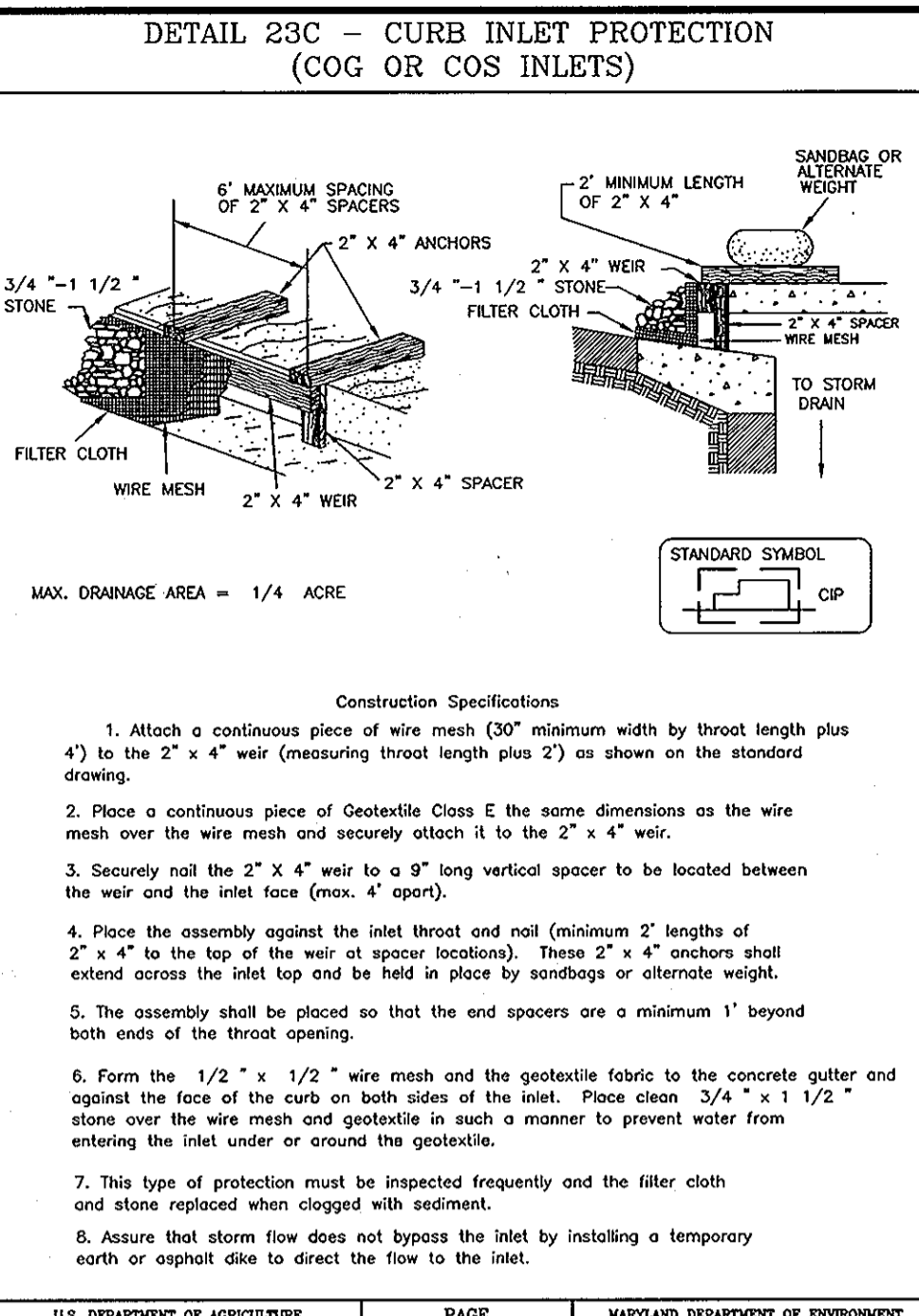
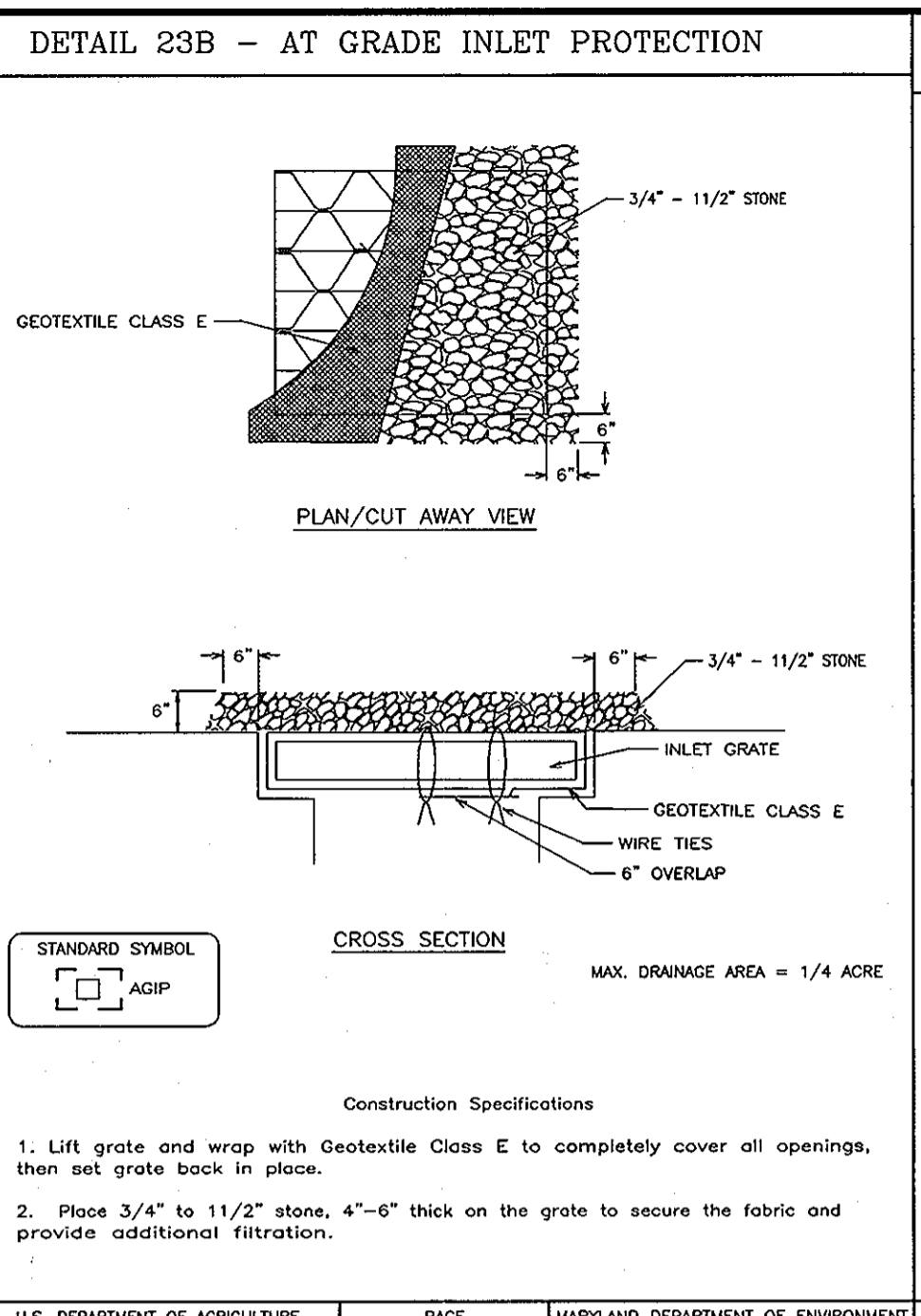
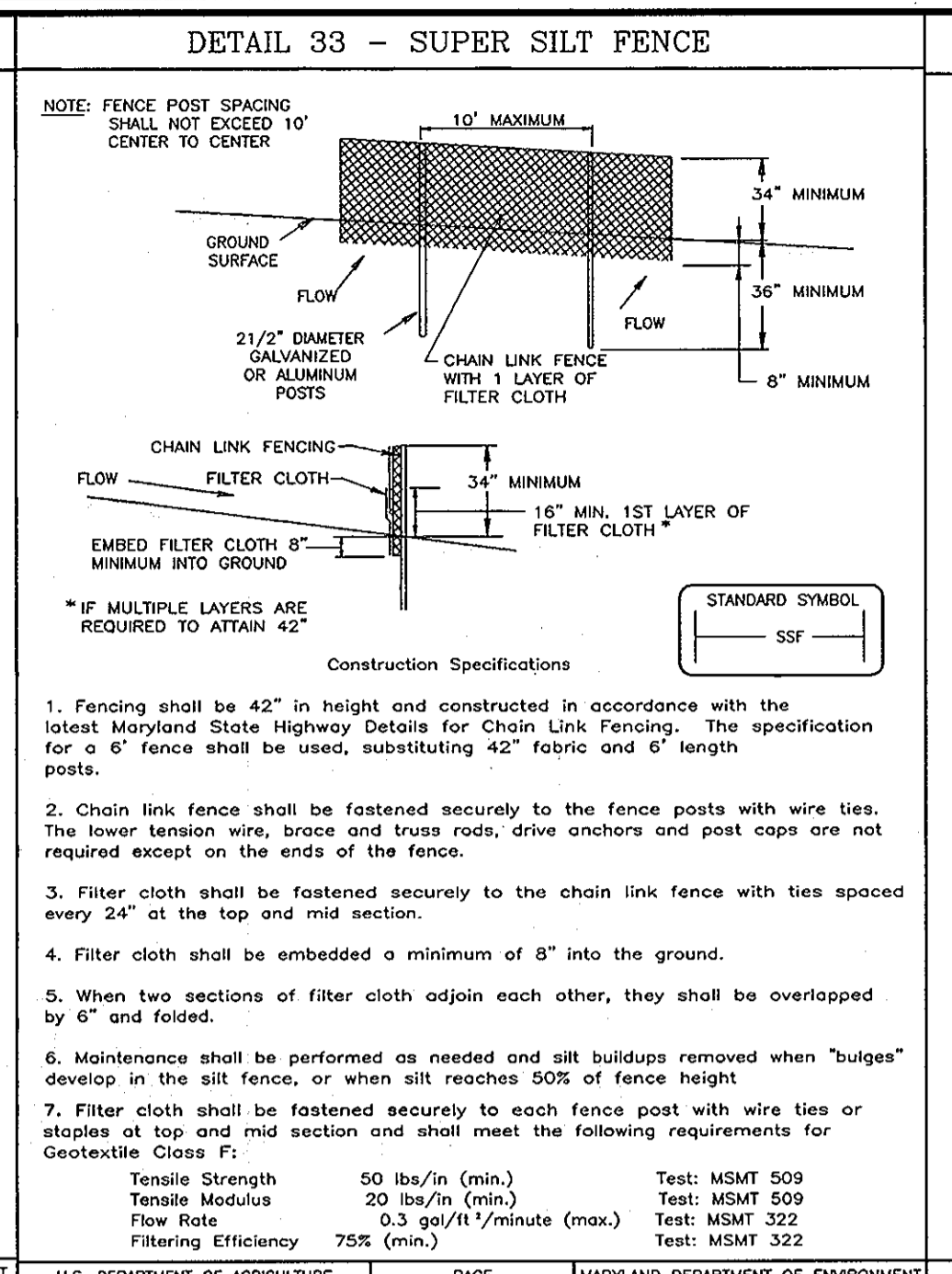
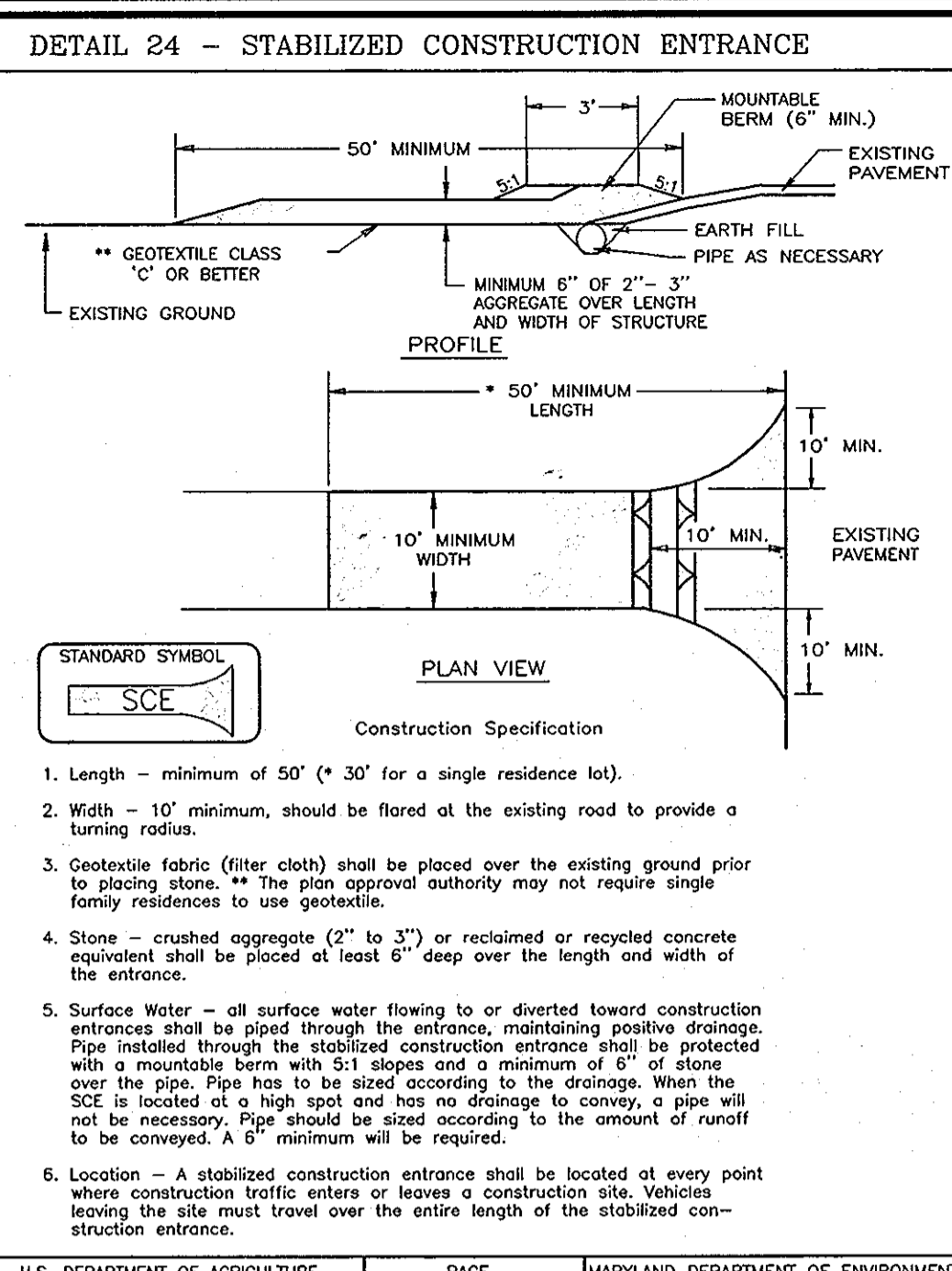
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John P. ... 1/21/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Ve ... 2/10/05
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF NATURAL RESOURCES CONSERVATION SERVICE
Jim ... 1/18/05
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION SERVICE.

Al Hammer - Administrator 1/7/05
SIGNATURE OF DEVELOPER

Robert H. Vogel, P.E. 1/7/05
SIGNATURE OF ENGINEER



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F-17-3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H-28-3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E-16-5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B-16-5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G-22-2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G-22-2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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PERMANENT SEEDING NOTES

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

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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

- Preferred—Apply 2 tons per acre dolomitic limestone (92 lbs./100 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.).
- Acceptable—Apply 2 tons per acre dolomitic limestone (92 lbs./100 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 the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs./1000 sq.ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.5 lbs./1000 sq.ft.) of weeping lovegrass. During the period of October 15 thru February 28, protect site by Option (1) 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs./acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq.ft.) of unrotted 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 (8 gal/1000 sq.ft.) for anchoring.

MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseeds.

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 toxic to plants, and/or unacceptable soil gradation.

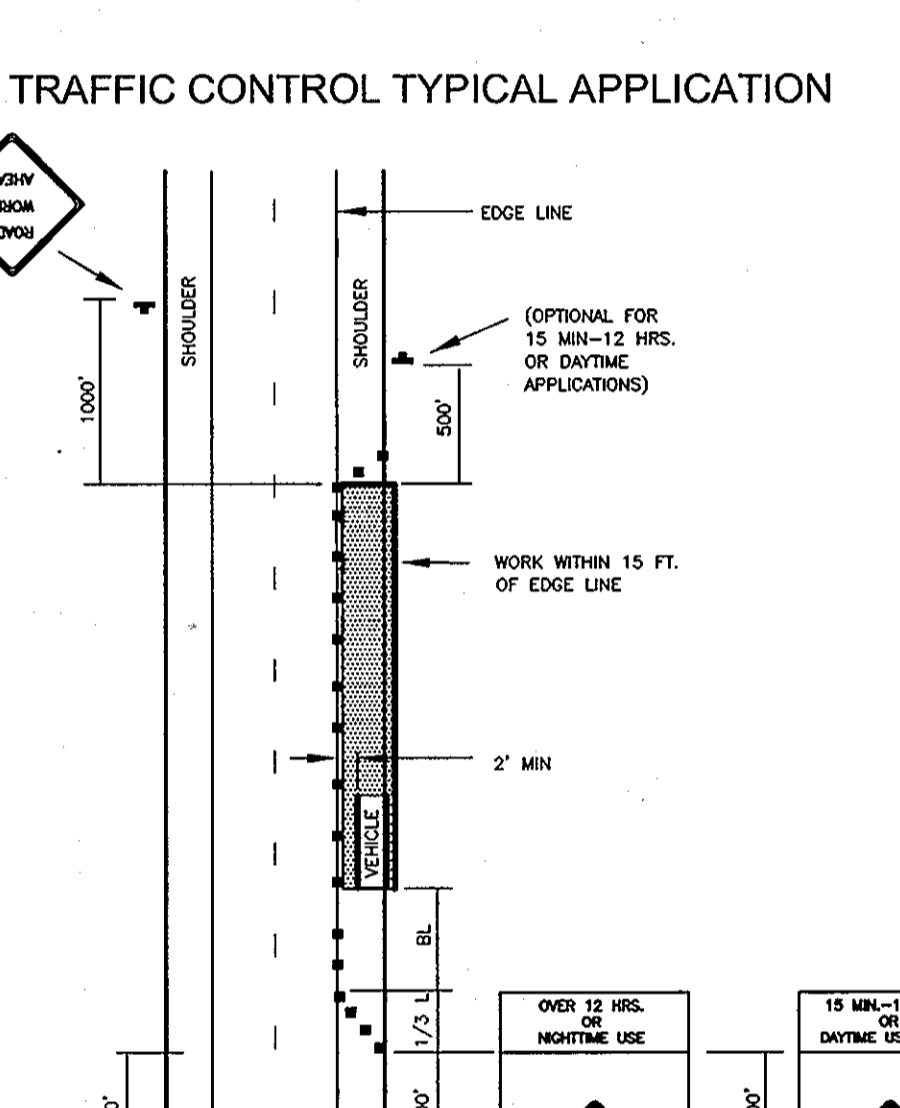
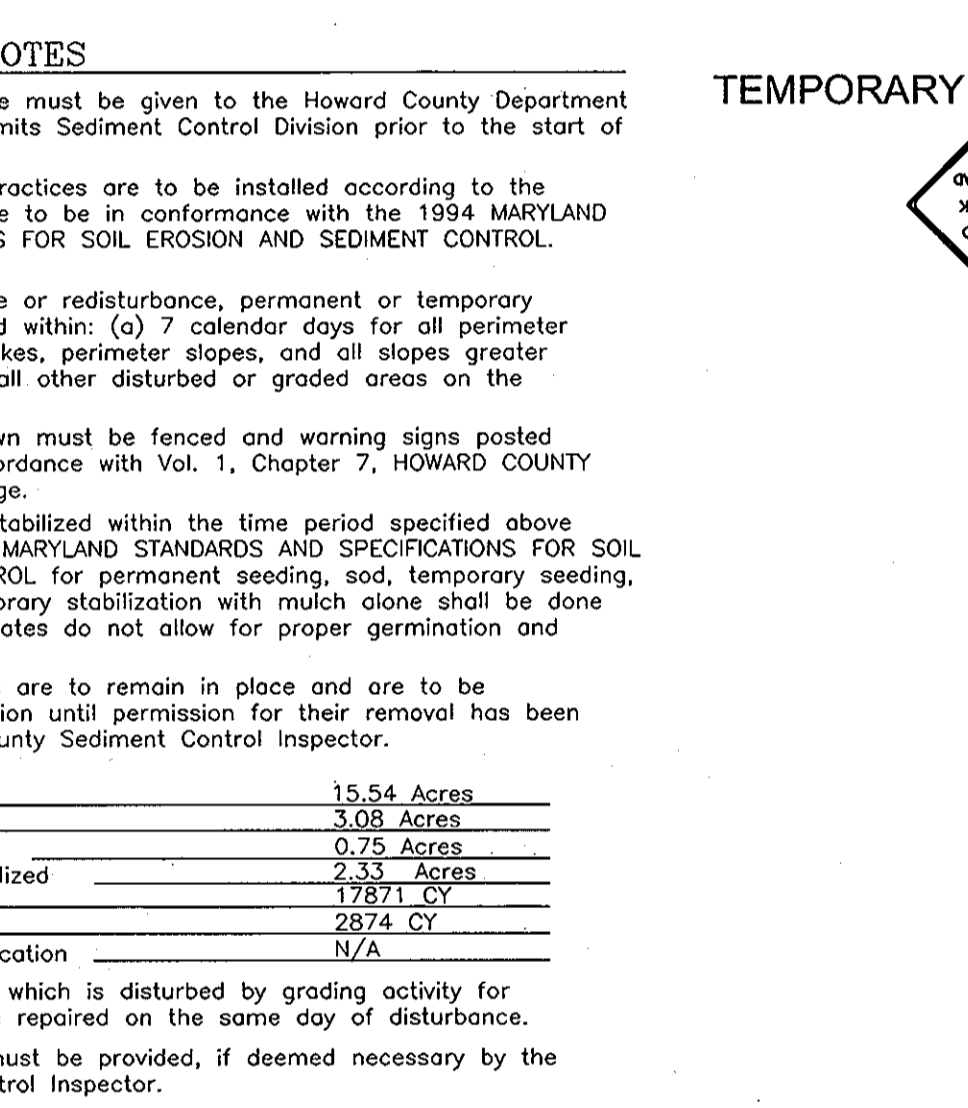
Conditions Where Practice Applies
1. This practice is limited to areas having 2:1 or flatter slopes where:
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.

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

Construction and Material Specifications
1. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA—SCS in cooperation with Maryland Agricultural Experiment Station.
ii. Topsoil Specifications - Soil to be used as topsoil must meet the following:
a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or 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 cinders, stones, slag, coarse fragments, gravel, sticks, 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, nutgrass, poison ivy, thistle, or others of similar kind.
c. Where the topsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
d. For sites having disturbed areas under 5 acres:
i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization—Section 1 - Vegetative Stabilization Methods and Materials.

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 (313-1855).
- 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 redistribution, 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 as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 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 seeding, sod, temporary seeding, and mulching (Sec. C). 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 permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:
Total Area: 15.54 Acres
Area Disturbed: 3.08 Acres
Area to be roofed or paved: 0.75 Acres
Area to be vegetatively stabilized: 2.33 Acres
Total Cut: 1.78 CY
Total Fill: 2874 CY
Offsite waste/borrow area location: N/A
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.
- To be determined by contractor, with pre-approval of the Sediment Control Inspector with an approved and active grading permit.



SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	HYDRIC	DEPTH IN FT.
BR2	BRANDYWINE LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	-	30+*
BR3	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	-	30+*
LuB	LUKA LOAM, LOCAL ALLUVIUM, 1-5 PERCENT SLOPES	-	1.5-3*
KeB2	KELLY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	-	11-3*
LeB2	LEORE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	-	20+*
LeC2	LEORE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	-	20+*
Me	MONTALTO AND RELAY SOILS, 15 TO 45 PERCENT SLOPES	-	20+*
NeB2	NESHAMINY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	-	20+*
NeC2	NESHAMINY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	-	20+*
SiC2	SASSAFRAS GRAVELLY SANDY LOAM, 5-10% SLOPES, MODERATELY ERODED	-	5+*
WbB	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	X	0-1*

X=INCLUSIONAL SOIL

TEMPORARY SEEDING NOTES

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

SOIL AMENDMENTS: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq.ft.).

SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual ryegrass (3.2 lbs./1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.7 lbs./1000 sq.ft.). For the period November 28 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq.ft.) of unrotted 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 (8 gal/1000 sq.ft.) for anchoring.

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

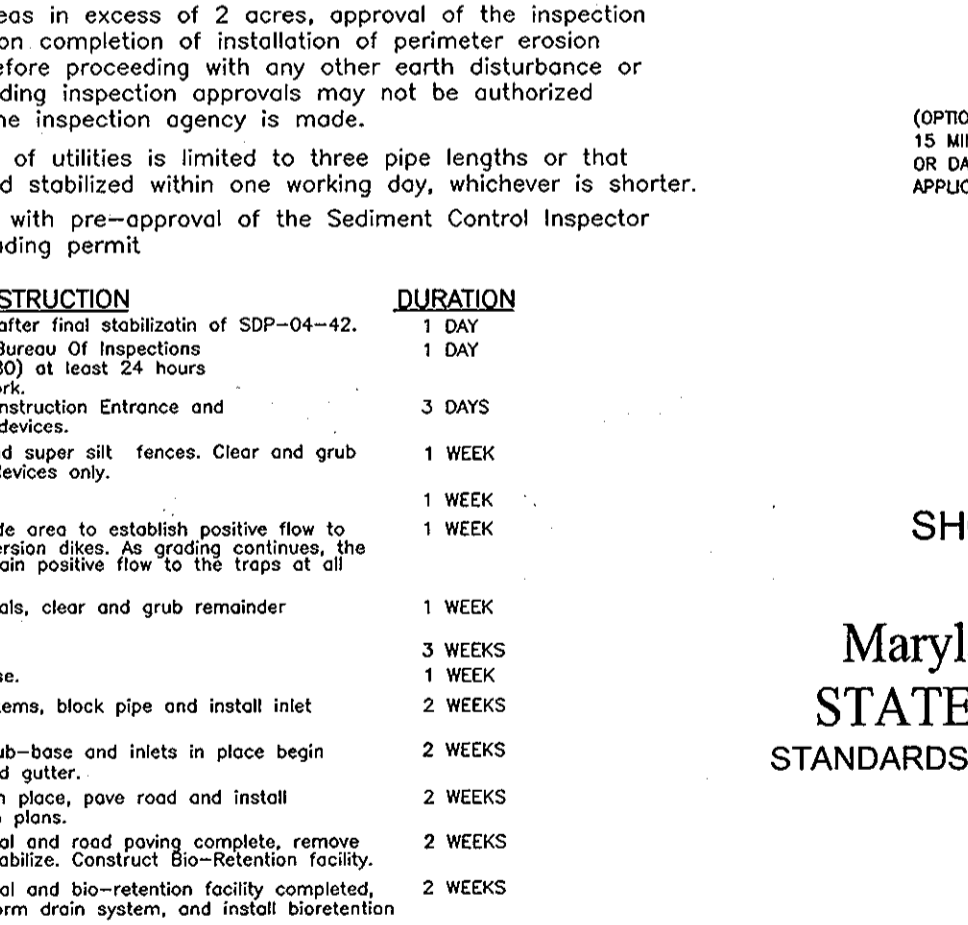
CARE OF WATER DURING CONSTRUCTION

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

SEQUENCE OF CONSTRUCTION

NO.	DESCRIPTION	DURATION
1.	Obtain grading permit after final stabilization of SDP-04-42.	1 DAY
2.	Notify Howard County Bureau of Inspections and Permits (313-1880) at least 24 hours before starting any work.	1 DAY
3.	Construct Stabilized Construction Entrances and install tree protection devices.	3 DAYS
4.	Install perimeter silt and silt trap fences. Clear and grub for sediment control devices only.	1 WEEK
5.	Install sediment traps.	1 WEEK
6.	Contractor to first grade area to establish positive flow to traps by installing and stabilizing within one working day, whichever is shorter. The contractor is to maintain positive flow to the traps of all times.	1 WEEK
7.	With Inspector's approval, clear and grub remainder of site to LGO.	1 WEEK
8.	Begin mass grading.	3 WEEKS
9.	Grade road to sub-base.	1 WEEK
10.	Install storm drain systems, block pipe and install inlet protection.	2 WEEKS
11.	With road graded to sub-base and inlets in place begin installation of curb and gutter.	2 WEEKS
12.	With curb and gutter in place, pave road and install sidewalks as shown on plans.	2 WEEKS
13.	With Inspector's approval and road paving complete, remove sediment traps and stabilize. Conduct Bio-Retention Facility.	2 WEEKS
14.	With Inspector's approval and bio-retention facility completed, install in storm drain system, and install bio-retention landscaping.	2 WEEKS
15.	Install street trees.	1 WEEK
16.	During grading and after each rainfall, the contractor shall inspect and provide the necessary maintenance on the sediment and erosion control measures shown herein.	

NOTES:
During grading and after each rainfall, contractor will inspect and provide necessary maintenance to the Sediment Control measures on this plan.
Following initial soil disturbance or redistribution permanent or temporary stabilization shall be completed within:
A. 7 calendar days for all perimeter Sediment Control Structures, Dikes, Slopes and all slopes greater than 3:1.
B. 14 calendar days for all other disturbed areas.



Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARD NO. MD 104.02-01

RELOCATED NEW CUT ROAD GLEN MAR UNITED METHODIST CHURCH

TAX MAP 31 BLOCK 1 & 8 PARCEL '10', LOTS 1-5
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OWNER/DEVELOPER

GLENMAR UNITED METHODIST CHURCH
8430 GLENMAR RD
ELLICOTT CITY, MD 21043
AL HAMMER
(410) 465-4995

ROAD CONSTRUCTION PLANS SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

DESIGN BY: RHW
DRAWN BY: DZ
CHECKED BY: RHW
DATE: DECEMBER 2004
SCALE: AS SHOWN
W.O. NO.: 04-64

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William J. White 1-26-05
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John M. Lee 1/31/05
CHIEF, ENGINEERING DIVISION DATE

Scott A. Lewis 2/10/05
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

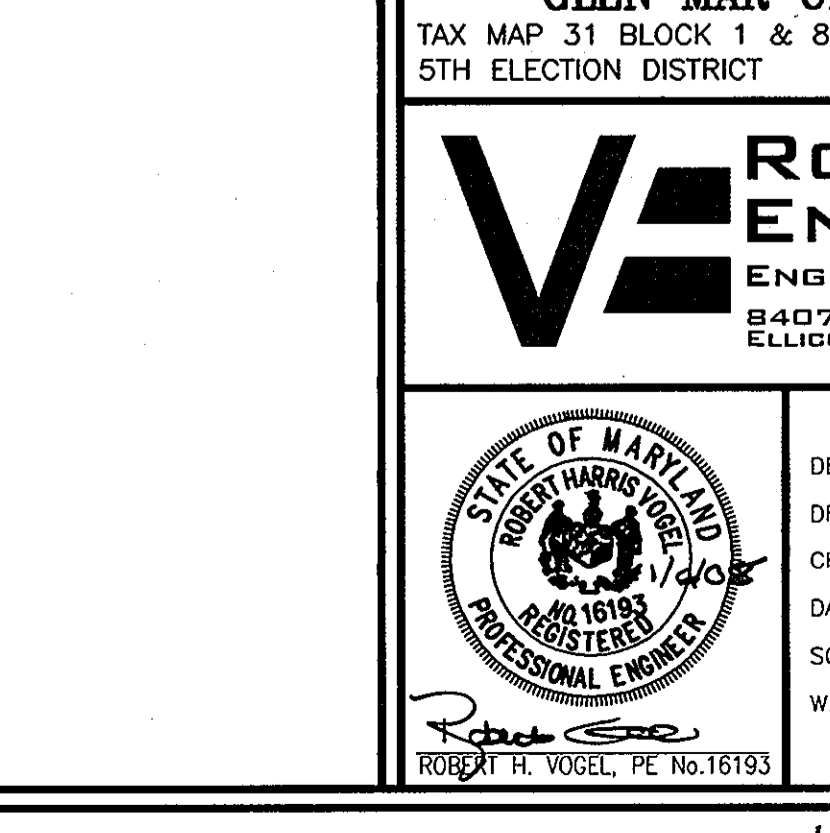
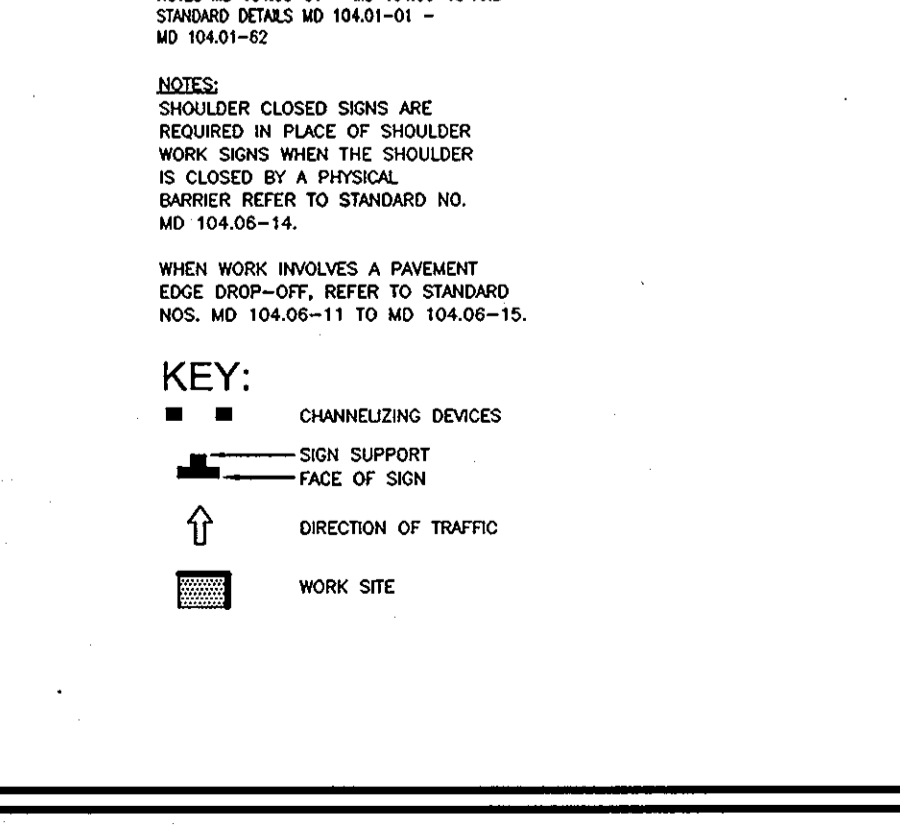
REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.
John M. Lee 1/31/05
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John M. Lee 1/31/05
DATE

BY THE DEVELOPER:
Al Hammer 1/7/05
SIGNATURE OF DEVELOPER DATE

BY THE ENGINEER:
Robert H. Vogel 1/7/05
SIGNATURE OF ENGINEER DATE

I 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 REPRESENTATIVE OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO CERTIFY THAT I AM AN ON-SITE INSPECTOR BY THE HOWARD SOIL CONSERVATION DISTRICT.



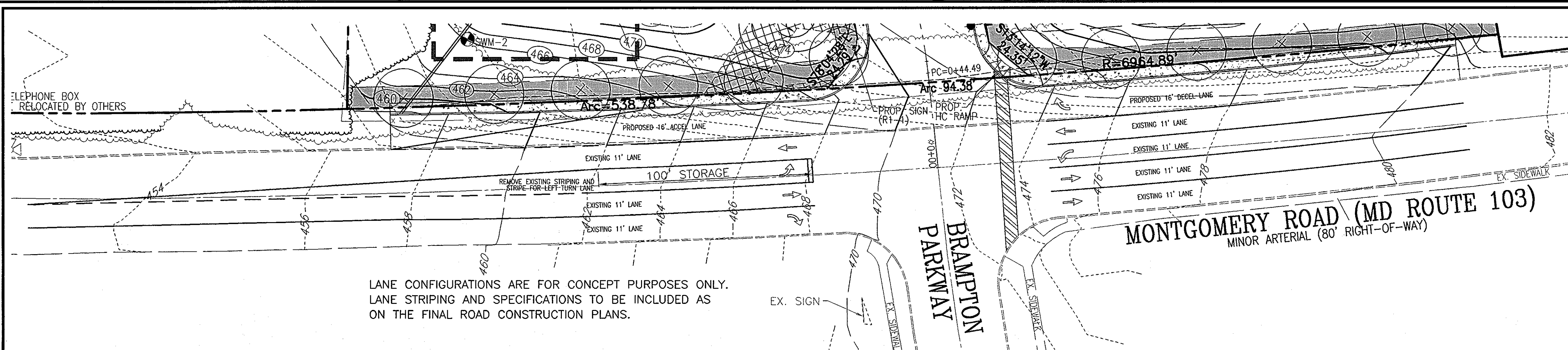
ROBERT H. VOGEL ENGINEERING, INC.

ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET, ELLICOTT CITY, MD 21043 TEL: 410-461-7666 FAX: 410-461-8961

DESIGN BY: RHW
DRAWN BY: DZ
CHECKED BY: RHW
DATE: DECEMBER 2004
SCALE: AS SHOWN
W.O. NO.: 04-64

5 SHEET OF 8

AS-BUILT 4-7-2010



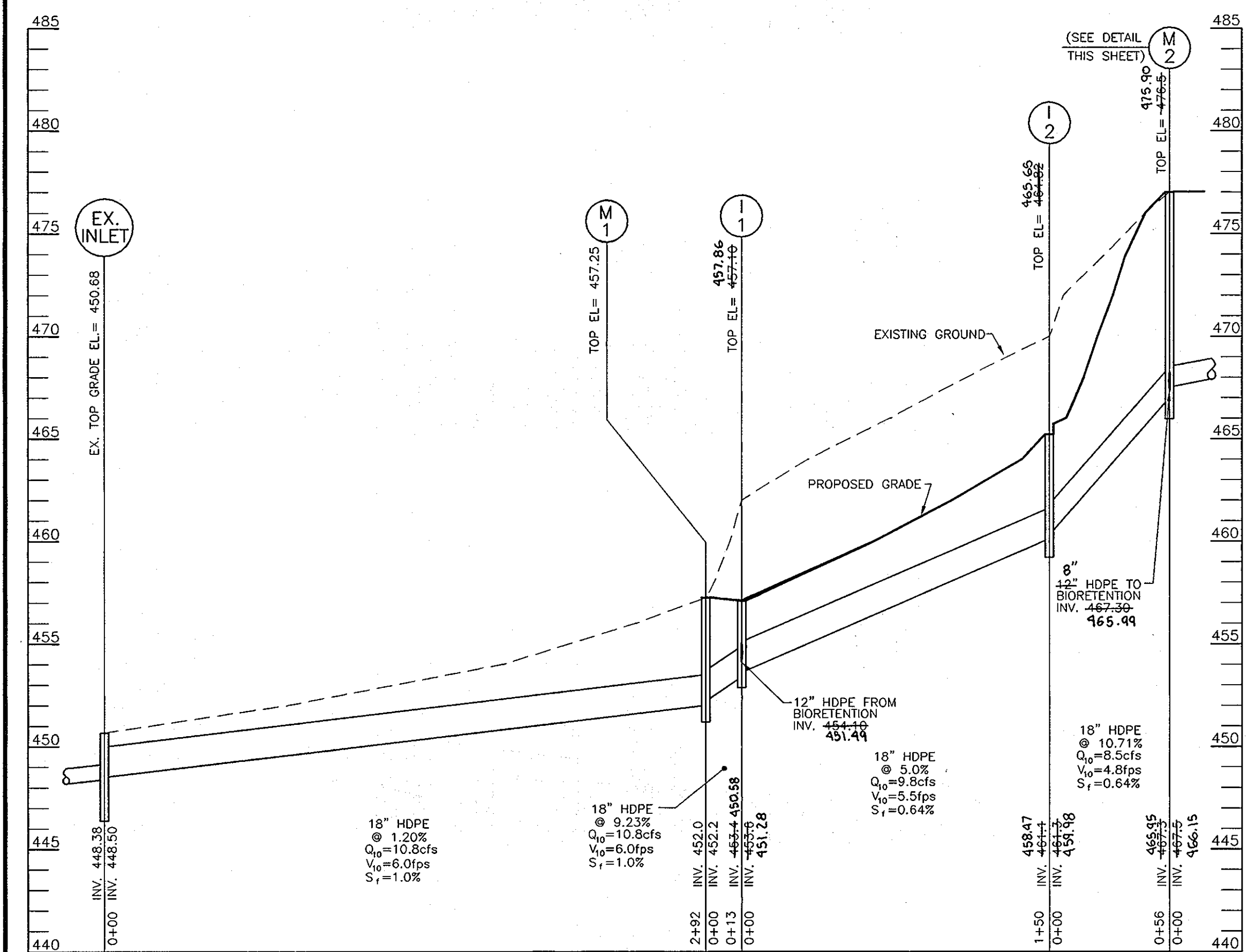
LANE CONFIGURATIONS ARE FOR CONCEPT PURPOSES ONLY. LANE STRIPING AND SPECIFICATIONS TO BE INCLUDED AS ON THE FINAL ROAD CONSTRUCTION PLANS.

LANE CONFIGURATION PLAN - MONTGOMERY ROAD
SCALE: 1"=30'

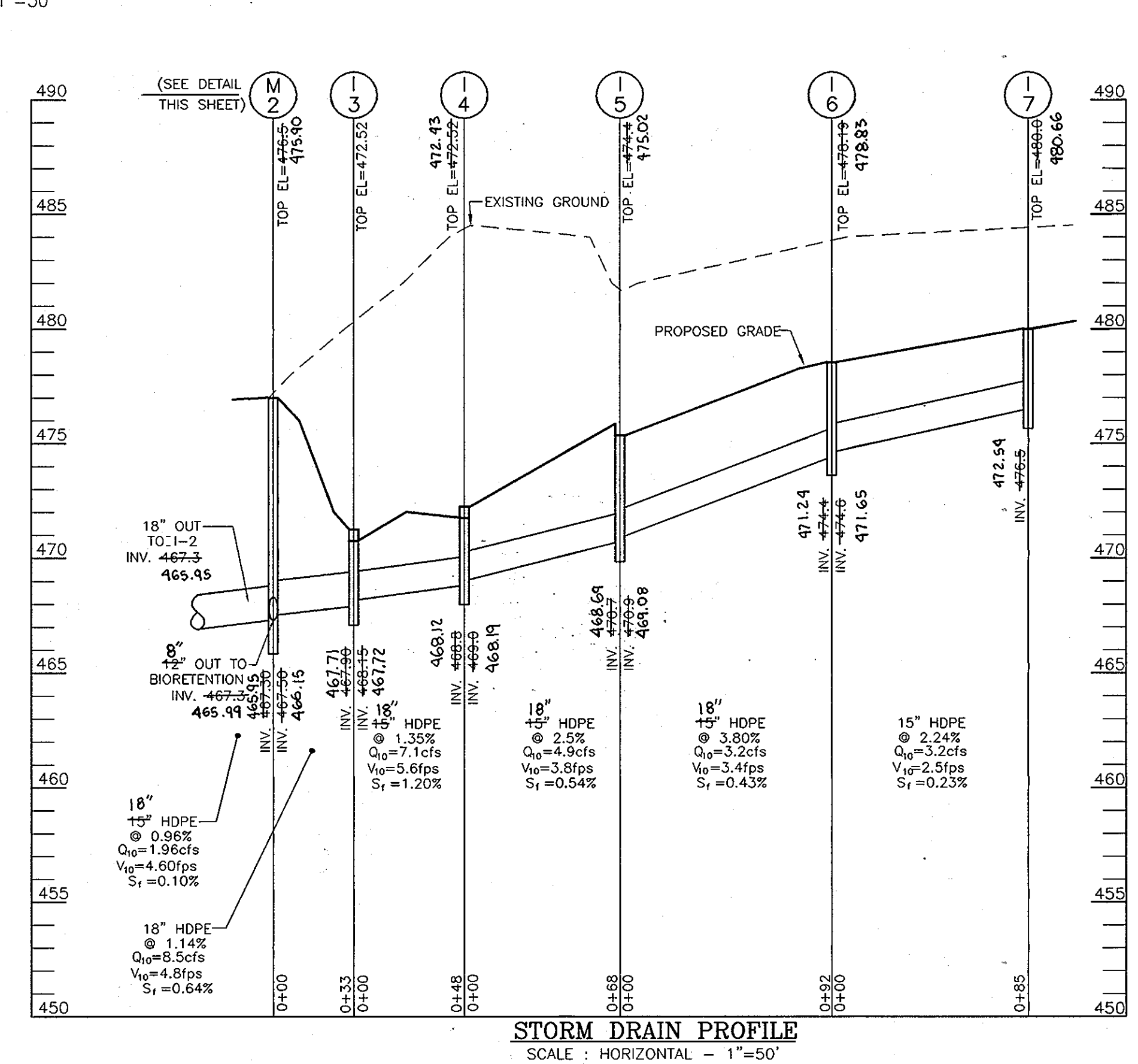
STRUCTURE SCHEDULE						
NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENT
MH-1	4' STANDARD PRECAST MANHOLE	N 573956.94 E 1367831.02	457.25	452.2	452.0	HO. CO. STD. DETAIL. G 5.12
MH-2	48" SQUARE SHALLOW MANHOLE	N 573826.43 E 1367975.07	476.5	467.5	467.3	SHA STD. DETAIL. NO. MD-383.00
I-1	STANDARD WR INLET	7+50 ± 34' LT	457.10	453.6	453.4	SHA STD. DETAIL. NO. MD-374.04
I-2	STANDARD WR INLET	9+00 ± 34' LT	464.82	461.3	461.1	SHA STD. DETAIL. NO. MD-374.04
I-3	STANDARD A-10 INLET	0+80.5 ± 24' LT	472.52	468.15	467.9	HO. CO. DETAIL. NO. SD4.02
I-4	STANDARD A-10 INLET	0+80.5 ± 24' RT	472.52	468.15	467.9	HO. CO. DETAIL. NO. SD4.02
I-5	STANDARD WR INLET	10+64 ± 34' LT	474.4	470.9	470.7	SHA STD. DETAIL. NO. MD-374.04
I-6	STANDARD WR INLET	11+56 ± 34' LT	478.19	474.6	474.4	SHA STD. DETAIL. NO. MD-374.04
I-7	STANDARD WR INLET	12+41 ± 34' LT	480.00	476.5	476.3	SHA STD. DETAIL. NO. MD-374.04
ES-1	CONCRETE END SECTION	N 573858.62 E 1367966.08	468.00	467.00	467.00	HO. CO. STD. DETAIL. SD-5.52

NOTE: 1. Top elevations are to the center of the structure at top of curb for Double Type 'S' Comb. Inlets, center top of grate for Double Type 'S' Inlet and top of Manhole cover for Precast Manholes.
2. For top slopes see grading plan.
3. See Architectural plans for roof drain details.

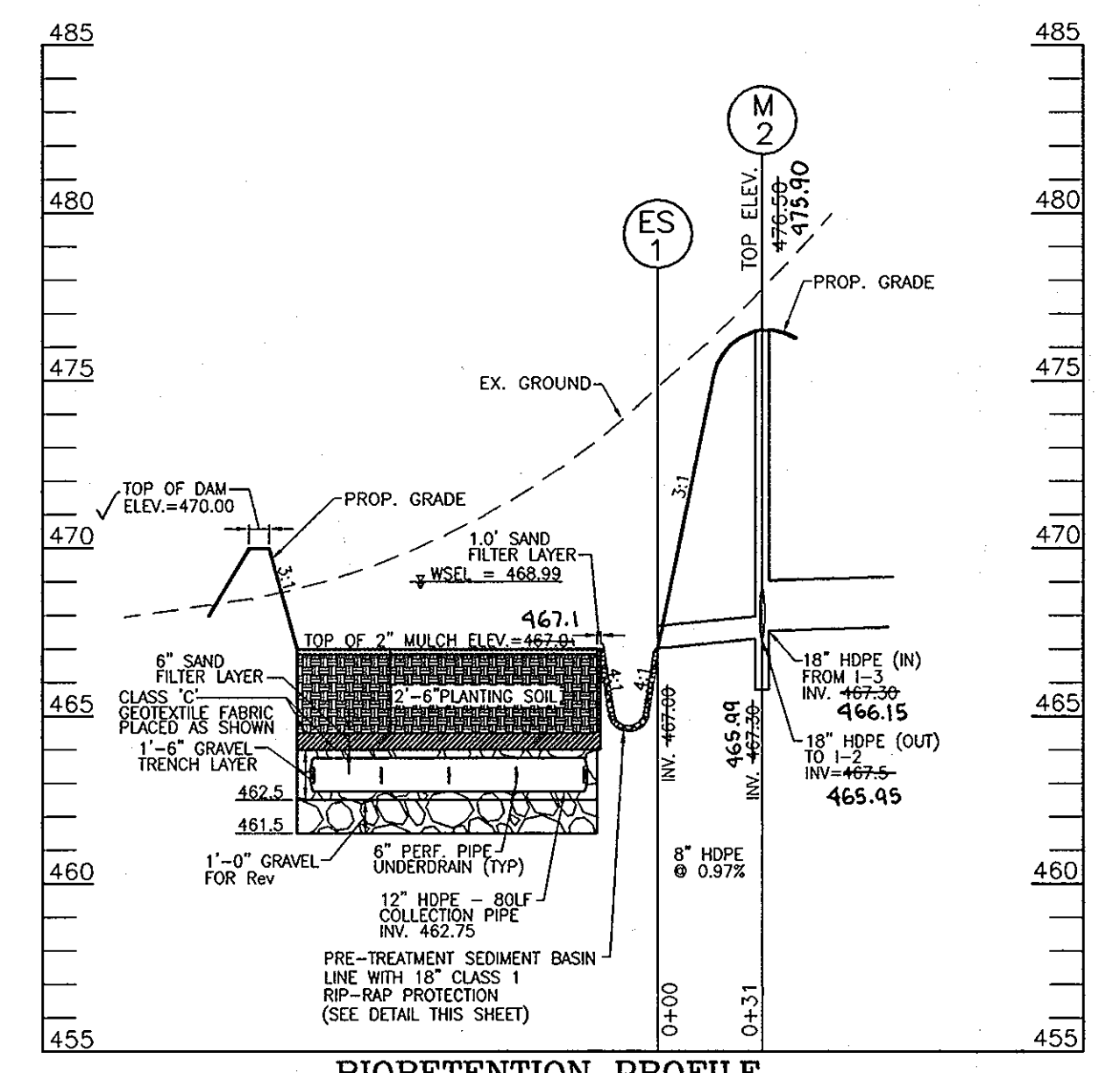
PIPE SCHEDULE		
SIZE	TYPE	LENGTH
12"	HDPE	31 LF
15"	HDPE	297 LF
18"	HDPE	531 LF



STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

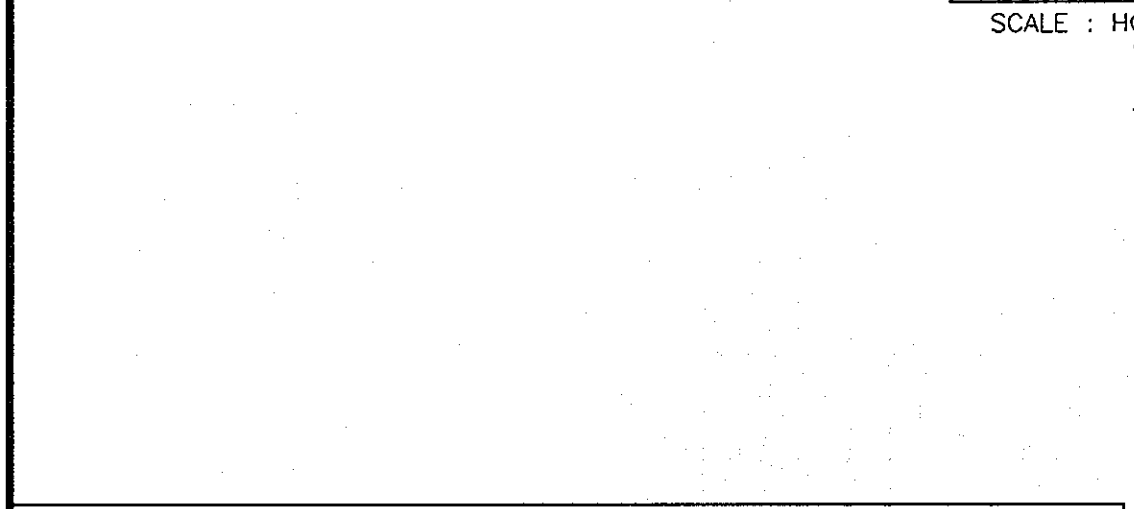


BIORETENTION PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

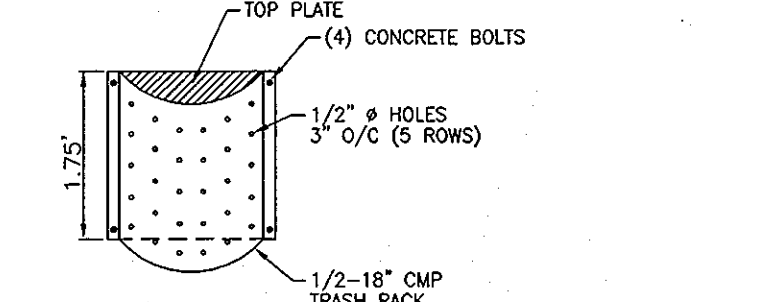
SUMMARY TABLE		
Q _{pv} = N/A (Q ₁ < 2.0 CFS)	Q ₁₀	Q ₁₀₀
N _{dy} = 3171 CF	0.22 CFS	4.89 CFS
Rev = 823 CF	8.89 CFS	10.82 CFS
EXISTING CONDITIONS		
Q ₁	Q ₁₀	Q ₁₀₀
1.70 CFS	8.54 CFS	15.61 CFS
PROPOSED CONDITIONS		
Q ₁	Q ₁₀	Q ₁₀₀
1.70 CFS	8.54 CFS	15.61 CFS

STATE OF MARYLAND
AL HAMMER
PROFESSIONAL ENGINEER
AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE RELEVANT PLANS AND SPECIFICATIONS.
16/93
PE No.

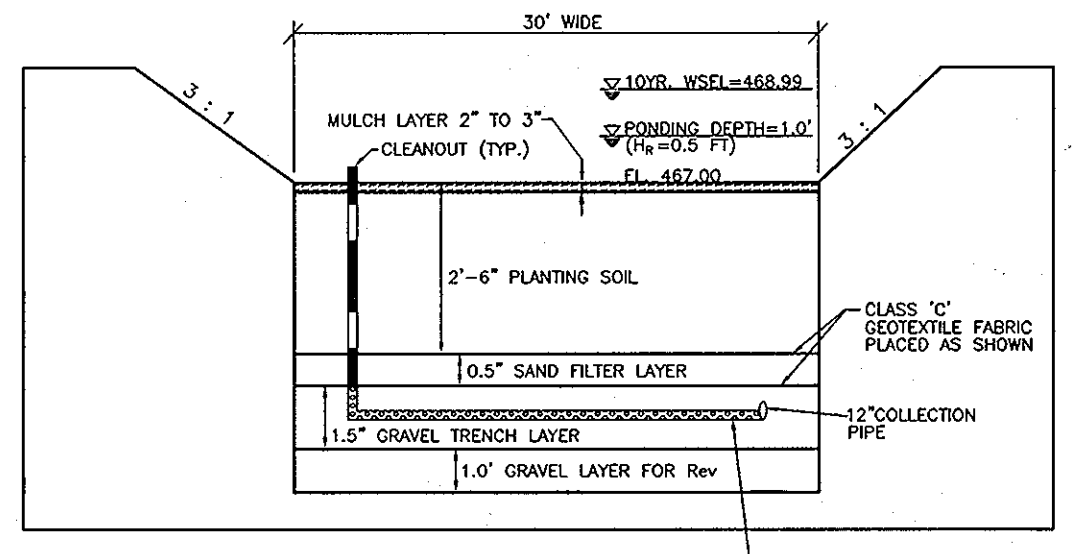
OWNER/DEVELOPER
GLENMAR UNITED METHODIST CHURCH
8430 GLENMAR RD
ELLCOTT CITY, MD 21043
AL HAMMER
(410) 465-4995



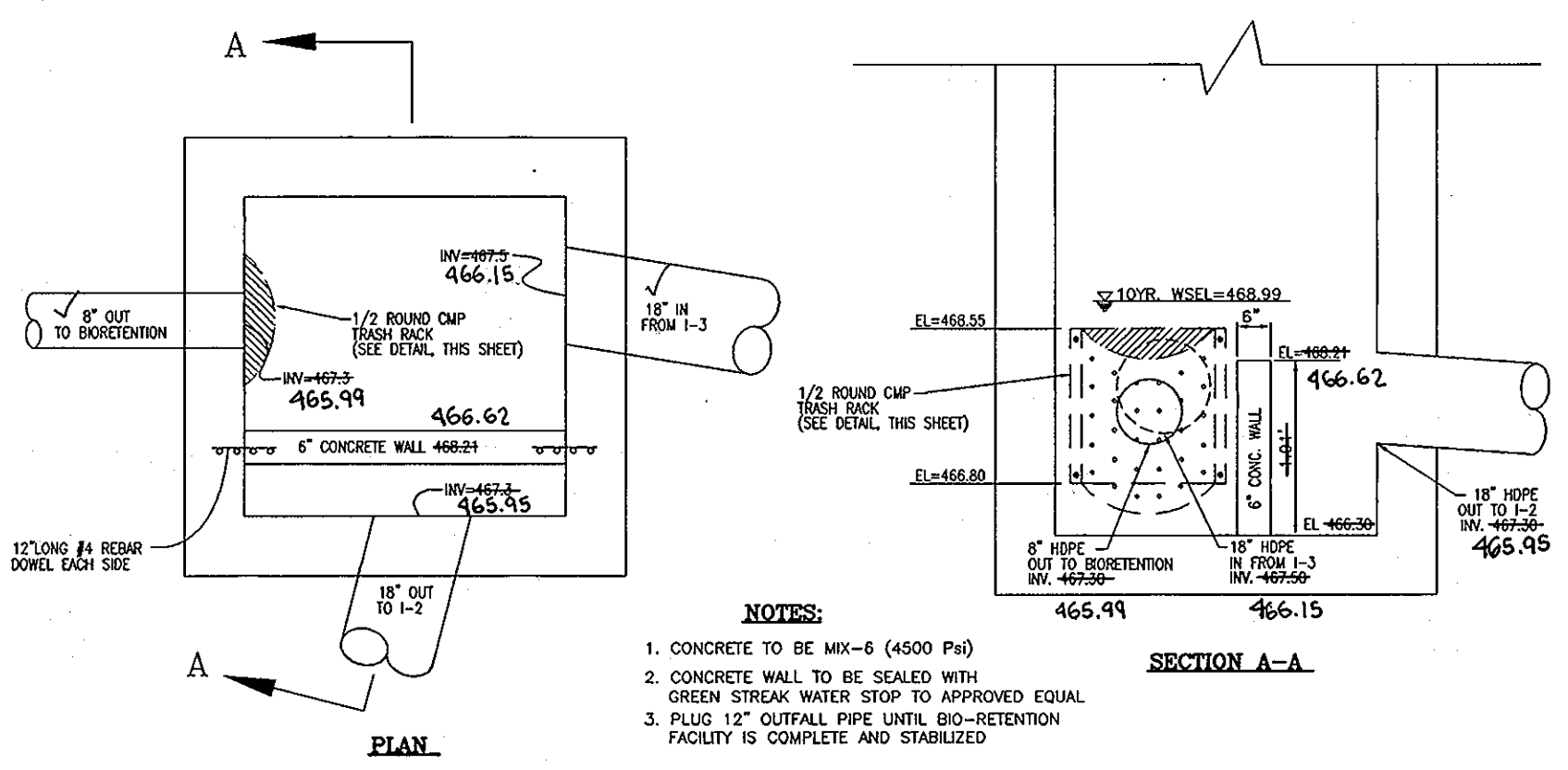
PRE-TREATMENT SEDIMENT BASIN
SCALE: NTS



1/2 ROUND CMP TRASH RACK DETAIL
SCALE: 1/2"=1'



TYPICAL BIORETENTION CROSS SECTION
SCALE: NTS



NOTES:
1. CONCRETE TO BE MIX-6 (4500 PSI)
2. CONCRETE WALL TO BE SEALED WITH GREEN STREAK WATER STOP TO APPROVED EQUAL
3. PLACE 12" OUTFALL PIPE UNTIL BIO-RETENTION FACILITY IS COMPLETE AND STABILIZED

M-2 DETAIL
48" SQUARE MANHOLE
MSHA STANDARD NO. 383.00
SCALE: NTS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William F. Mahan II 1-26-05
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Robert H. Vogel 1/21/05
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Robert H. Vogel 2/10/05
CHIEF, DIVISION OF LAND DEVELOPMENT

DIRECTOR NIP

NO.	REVISION	DATE

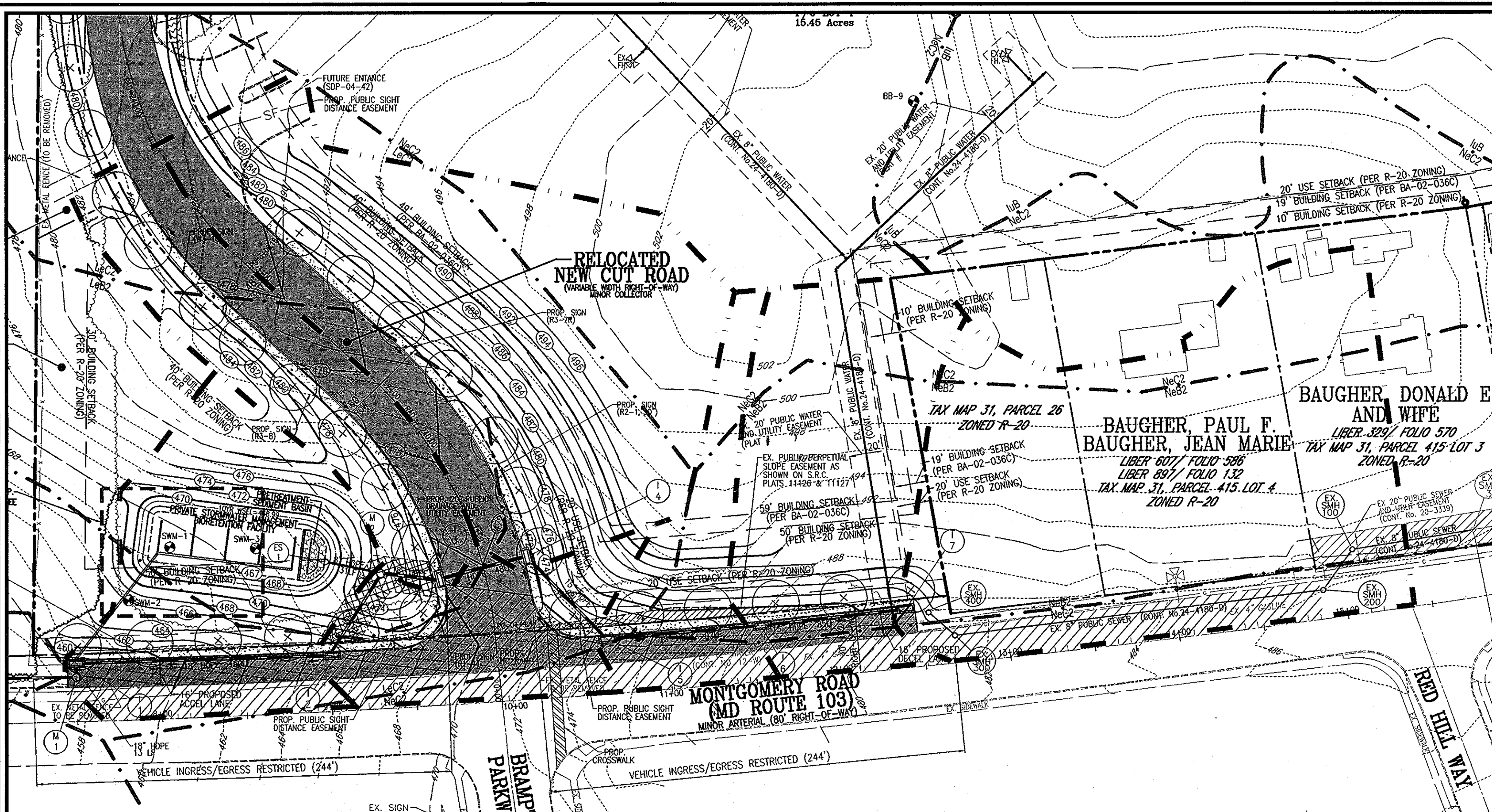
ROAD CONSTRUCTION PLANS
STORMDRAIN PROFILES AND SWM DETAILS
RELOCATED NEW CUT ROAD
GLEN MAR UNITED METHODIST CHURCH
TAX MAP 31 BLOCK 1 & 8 PARCEL '10', LOTS 1-5
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

DESIGN BY: RHV
DRAWN BY: DZ
CHECKED BY: RHV
DATE: DECEMBER 2004
SCALE: 1"=30'
W.O. NO.: 04-64

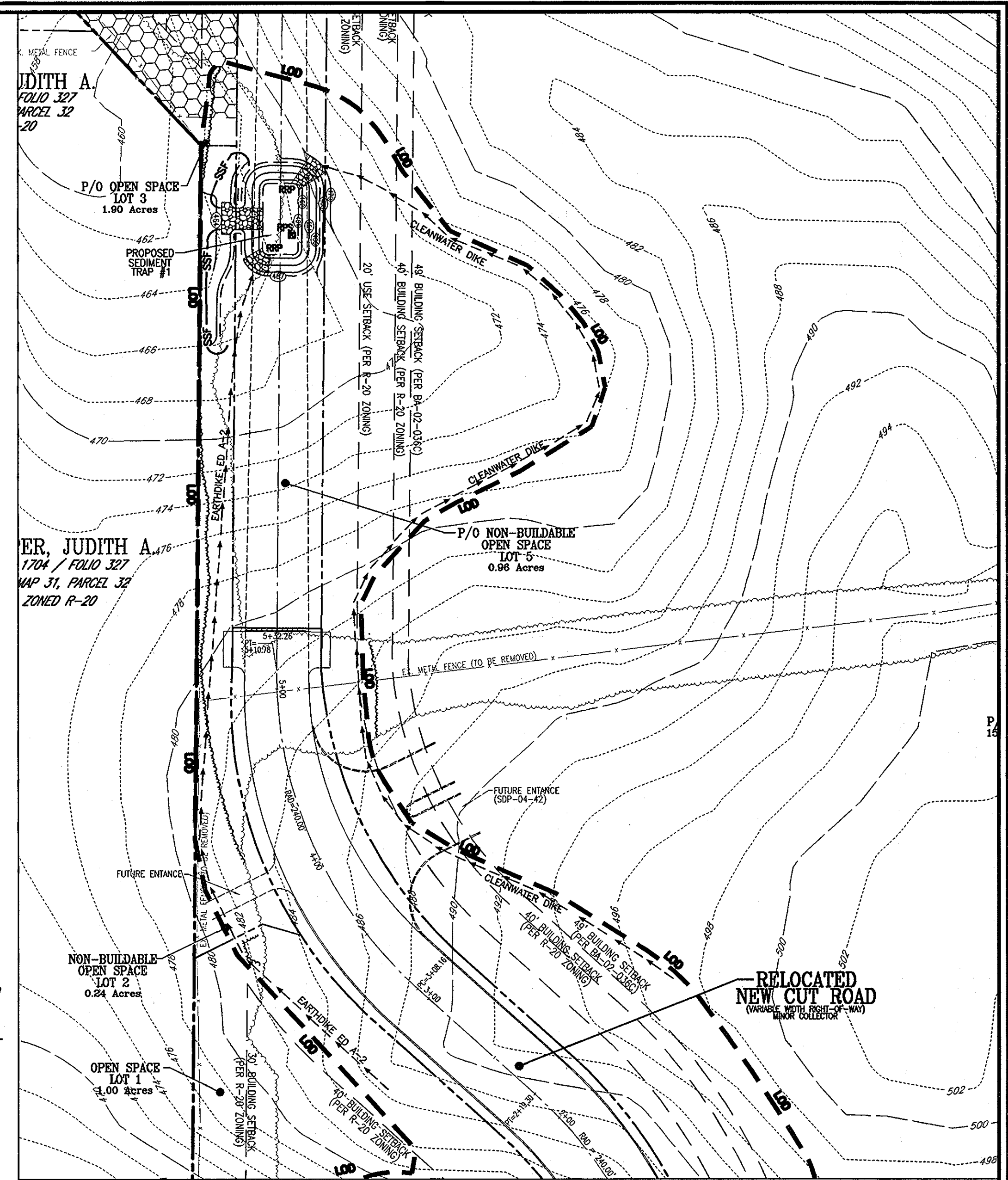
6 SHEET OF 8

AS-BUILT 4-7-2010



STORM DRAIN DRAINAGE AREA
SCALE 1" = 50'

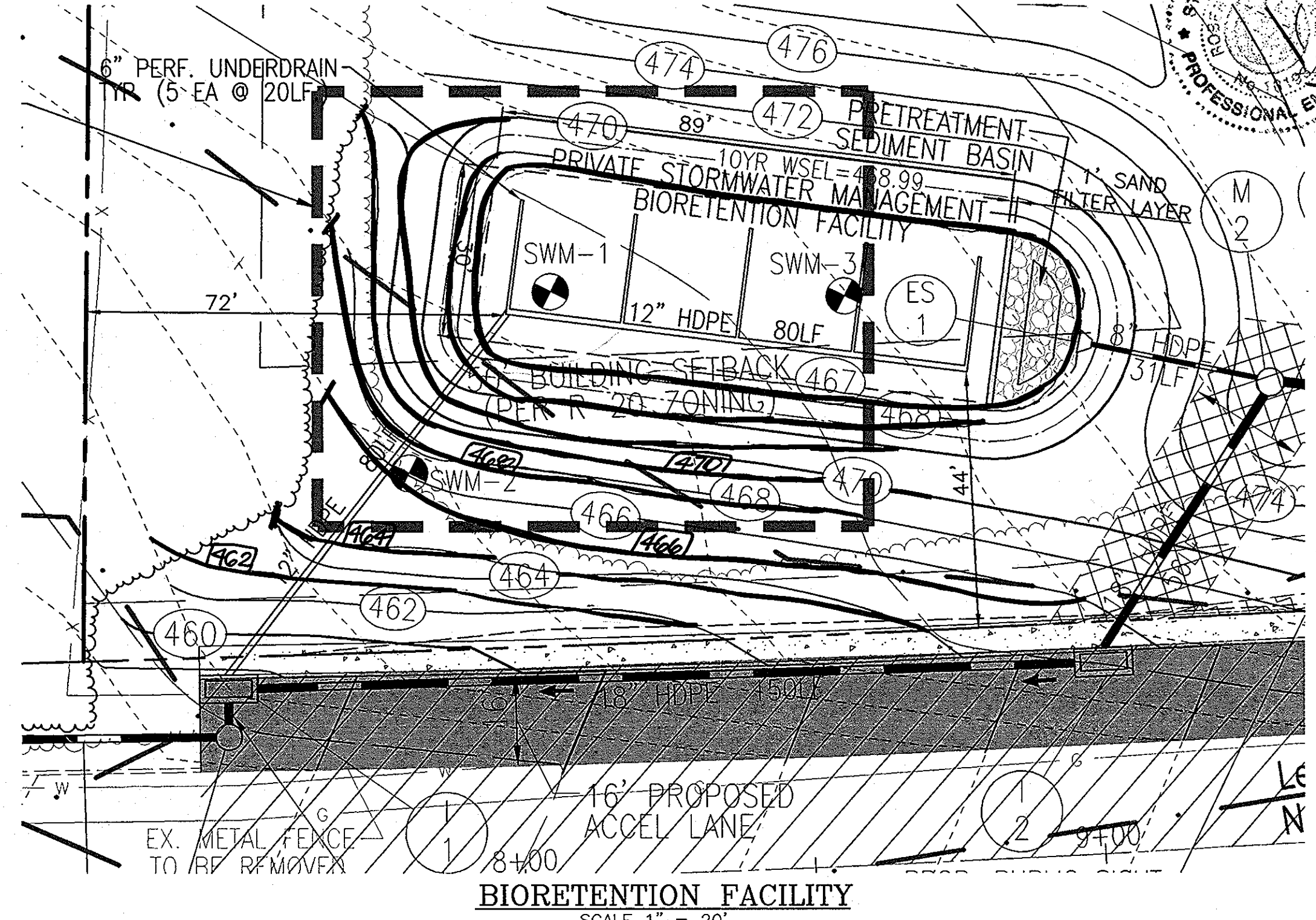
TEMP. SEDIMENT TRAP #1
 TYPE: SOST - ST II
 DEVELOPED DRAINAGE AREA: 1.5 AC.
 TOTAL STORAGE REQUIRED: 5400 CF
 TOTAL STORAGE PROVIDED: 5400 CF
 BOTTOM ELEVATION: 461.00
 CREST ELEVATION: 465.00
 WET STORAGE ELEVATION: 461.00 - 463.50 (2.5')
 DRY STORAGE ELEVATION: 463.50 - 466.00 (2.5')
 TOTAL STORAGE DEPTH: 3'
 TOP OF EMBANKMENT: 467.00
 CLEANOUT ELEVATION: 462.20
 SIDE SLOPES: 2:1



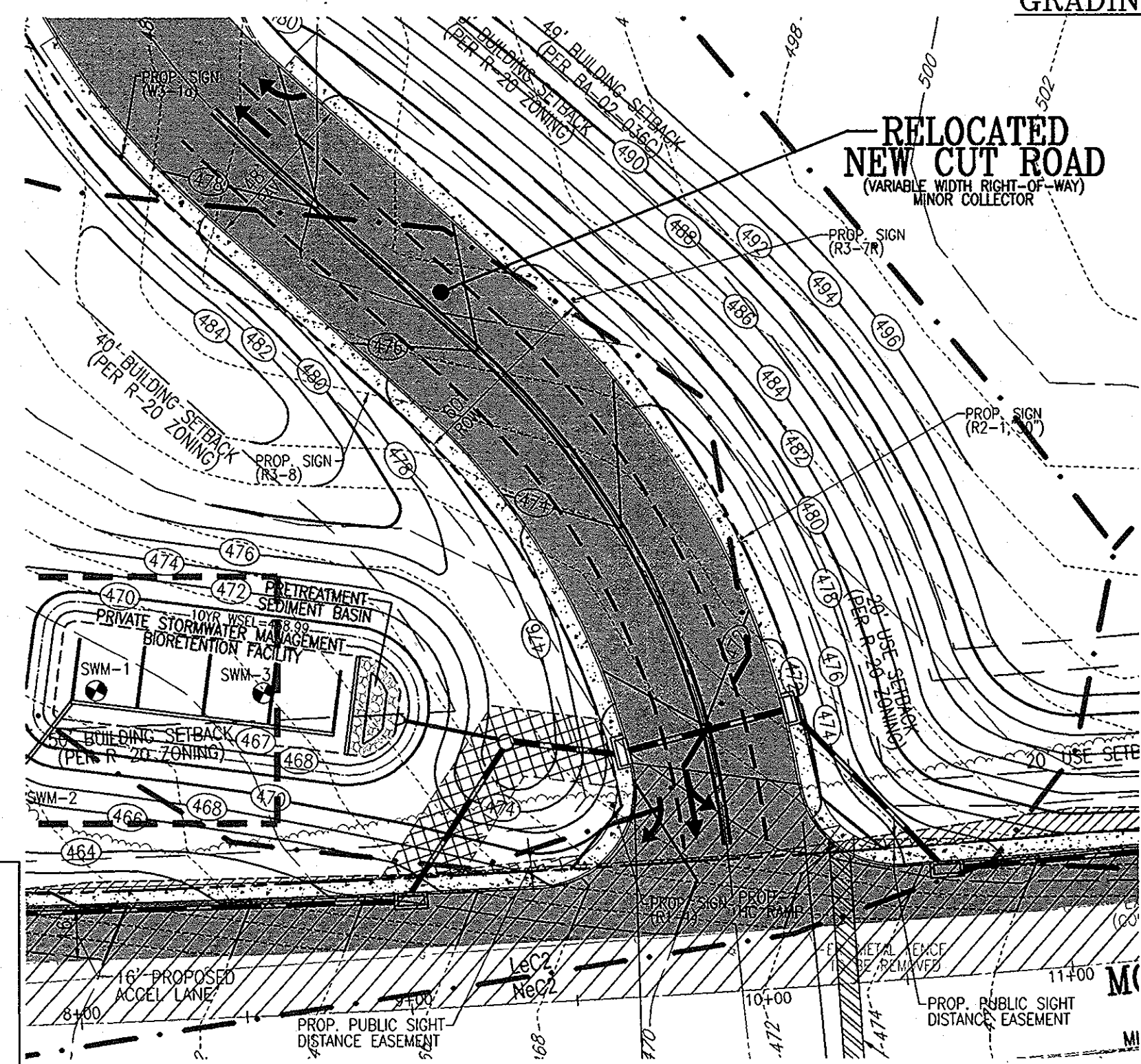
GRADING FOR TEMP. SEDIMENT TRAP #1
SCALE: 1"=50' (REF: SOC #5)

THE SWMF TO BE PRIVATELY OWNED AND MAINTAINED BY GLEN MAR UNITED METHODIST CHURCH.

STORM DRAIN DRAINAGE AREA MAP					
NO.	AREA	'C'	% IMP	SOIL TYPE	ZONE
I-1	0.49 AC	0.41	28%	B	R-20
I-2	0.29 AC	0.69	65%	B	R-20
I-3	0.40 AC	0.59	52%	B	R-20
I-4	1.03 AC	0.37	23%	B	R-20
I-5	0.23 AC	0.48	36%	B	R-20
I-6	0.58 AC	0.31	15%	B	R-20
I-7	1.29 AC	0.38	24%	B	R-20



AS-BUILT CERTIFICATION
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.
 10/19/05
 R.E. No.



OWNER/DEVELOPER
 GLENMAR UNITED METHODIST CHURCH
 8430 GLENMAR RD
 ELLICOTT CITY, MD 21043
 AL HAMMER
 (410) 465-4995

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 [Signature] 1-26-05
 CHIEF, BUREAU OF HIGHWAYS HS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 1/21/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ DATE
 [Signature] 2/10/05
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 DIRECTOR NTP DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.
 [Signature] 1/10/05
 OSMA-NATURAL RESOURCES CONSERVATION SERVICE DATE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 1/10/05
 HOWARD S.C.D. DATE

BY THE DEVELOPER:
 I/WE CERTIFY THAT ALL DEVELOPEMENT 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] 1/17/05
 SIGNATURE OF DEVELOPER DATE

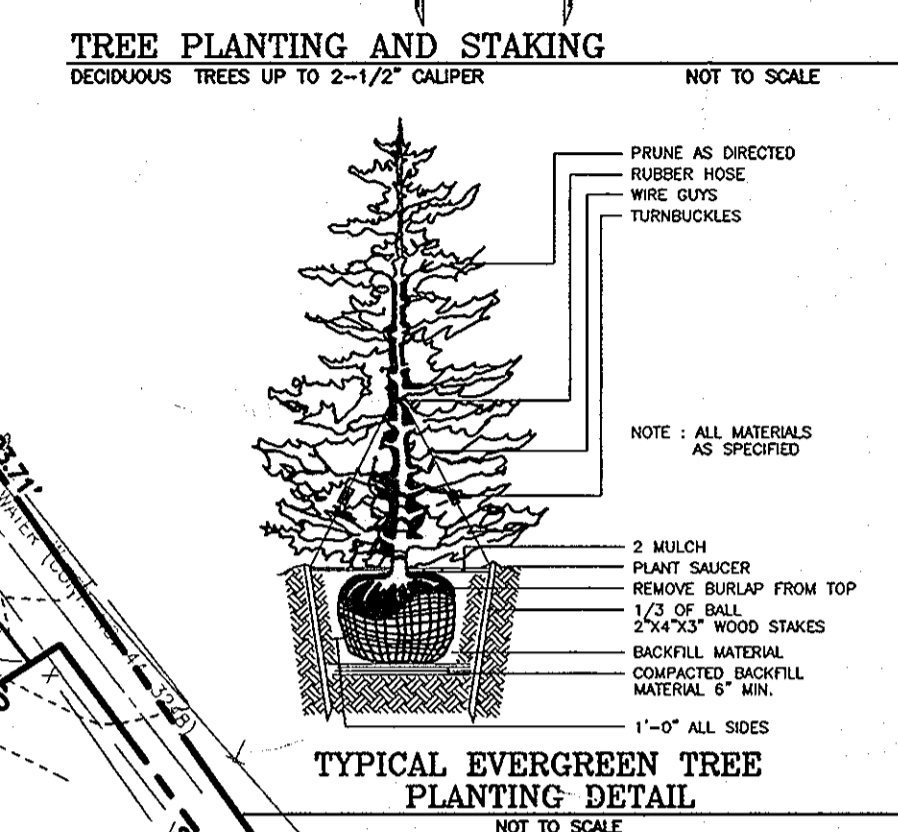
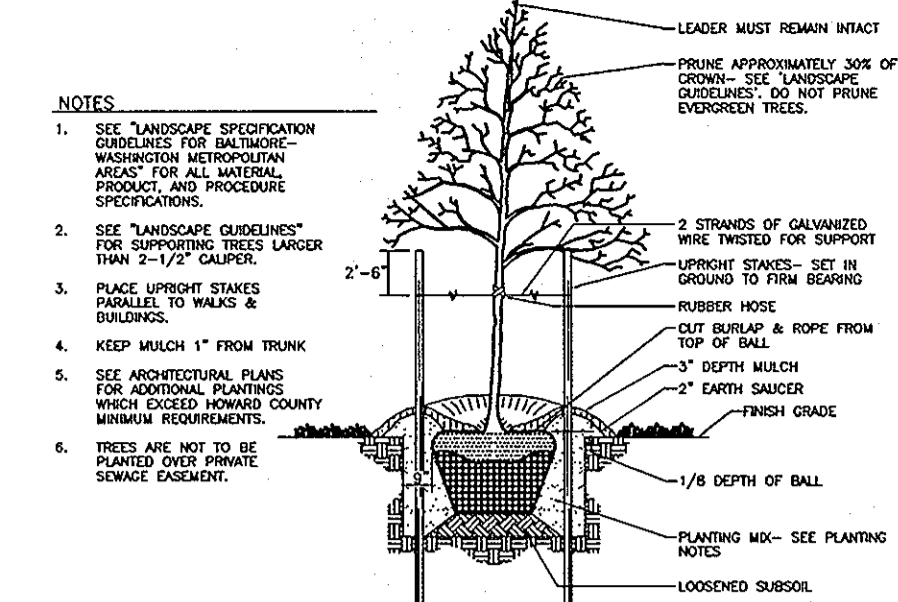
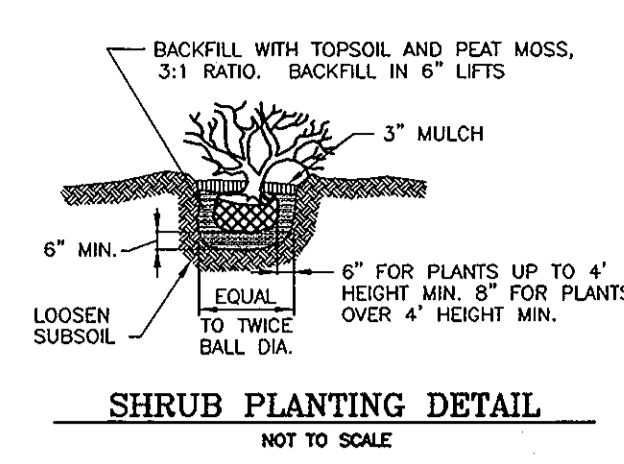
BY THE ENGINEER:
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature] 1/17/05
 SIGNATURE OF ENGINEER DATE
 ROBERT H. VOGEL, P.E.

NO.	REVISION	DATE

ROAD CONSTRUCTION PLANS
STORM DRAIN DRAINAGE AREA MAP AND BIOPRETENTION PLAN
RELOCATED NEW CUT ROAD
GLEN MAR UNITED METHODIST CHURCH
 TAX MAP 31 BLOCK 1 & 8 PARCEL '10', LOTS 1-5
 5TH ELECTION DISTRICT 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

DESIGN BY: RHV
 DRAWN BY: DZ
 CHECKED BY: RHV
 DATE: DECEMBER 2004
 SCALE: AS SHOWN
 W.O. NO.: 04-64
 7 SHEET OF 8



GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED PER THIS SUBMISSION.
2. REQUIREMENT FOR PERIMETER LANDSCAPING TO BE PROVIDED WITH SUBSEQUENT SITE DEVELOPMENT ON A FUTURE SITE DEVELOPMENT PLAN.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
William F. White, Jr. 1-26-05
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Robert H. Vogel 1/26/05
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
Paul S. ... 2/10/05
 CHIEF, DIVISION OF LAND DEVELOPMENT

PLANTING SCHEDULE NOTE:

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCGM 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. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM PLANT SCHEDULE, THE PLAN SHALL GOVERN.
5. FINANCIAL SURETY FOR THE REQUIRED PUBLIC ROAD STREET TREES AND BIO-RETENTION SWMF PLANTING SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT, IN THE AMOUNT OF \$7,800 FOR 26 SHADE TREES.

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Ol Hammer, Administrator 1/7/05
 SIGNATURE OF DEVELOPER DATE

PLANT SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	CAT
QA	26	QUERCUS COCCINEA	2 1/2" - 3" Col.	B & B
CO	26	CORYLUS CORNUTA	2 1/2" - 3" Col.	B & B

BIORETENTION PLANTING REQUIREMENTS

NBR	AREA	STEMS REQUIRED	STEMS PROVIDED
1	5316 SF	122	124

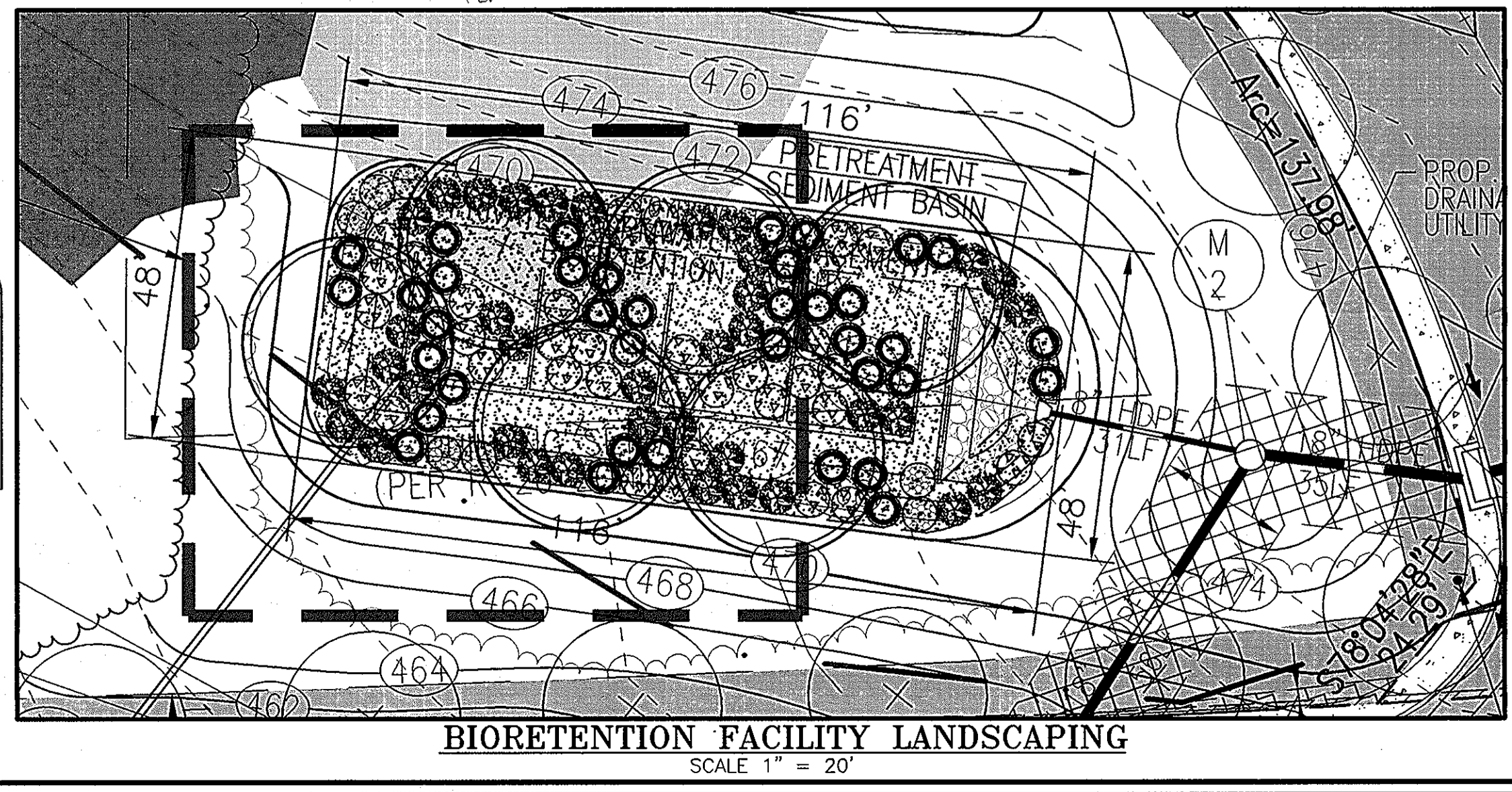
SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	300 LF
CREDIT FOR EXISTING VEGETATION (NO. YES AND LINEAR FEET)	NO
CREDIT FOR OTHER LANDSCAPING (NO. YES AND %)	YES, 100%
NUMBER OF TREES REQUIRED (0 BUFFER)	0 SHADE TREES 0 EVERGREEN TREES
NUMBER OF TREES PROVIDED (SHADE TREES)	SEE BIORETENTION PLANT LIST*
NUMBER OF TREES PROVIDED (EVERGREEN TREES)	SEE BIORETENTION PLANT LIST*

*SURETY FOR BIORETENTION PROVIDED IN THE BID COST STATEMENT

BIORETENTION PLANTING SCHEDULE

ITEM	QTY	BIORETENTION PLANTING SCHEDULE	SIZE	REMARKS
1	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
2	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
3	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
4	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
5	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
6	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
7	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
8	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
9	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
10	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
11	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
12	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
13	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
14	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
15	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
16	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
17	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
18	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
19	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
20	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
21	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
22	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
23	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
24	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
25	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
26	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
27	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
28	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
29	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
30	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
31	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
32	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
33	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
34	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
35	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
36	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
37	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
38	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
39	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
40	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
41	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
42	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
43	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
44	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
45	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
46	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
47	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
48	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
49	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
50	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
51	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
52	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
53	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
54	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
55	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
56	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
57	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
58	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
59	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
60	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
61	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
62	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
63	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
64	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
65	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
66	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
67	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
68	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
69	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
70	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
71	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
72	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
73	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
74	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
75	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
76	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
77	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
78	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
79	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
80	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
81	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
82	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
83	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
84	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
85	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
86	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
87	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
88	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
89	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
90	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
91	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
92	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
93	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
94	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
95	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
96	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
97	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
98	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
99	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B
100	1	QUERCUS COCCINEA	1 1/2" - 2" Col.	B & B



THE SWMF TO BE PRIVATELY OWNED AND MAINTAINED BY GLEN MAR UNITED METHODIST CHURCH.

OWNER/DEVELOPER
 GLENMAR UNITED METHODIST CHURCH
 8430 GLENMAR RD
 ELLICOTT CITY, MD 21043
 AL HAMMER
 (410) 465-4995

NO.	REVISION	DATE

ROAD CONSTRUCTION PLANS

PLANTING PLAN

RELOCATED NEW CUT ROAD
GLEN MAR UNITED METHODIST CHURCH
 TAX MAP 31 BLOCK 1 & 8 PARCEL 10, LOTS 1-5
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

DESIGN BY: RHV
 DRAWN BY: DZ
 CHECKED BY: RHV
 DATE: DECEMBER 2004
 SCALE: AS SHOWN
 W.O. NO.: 04-64

8 SHEET OF 8

AS-BUILT 4-7-2010