

GENERAL NOTES

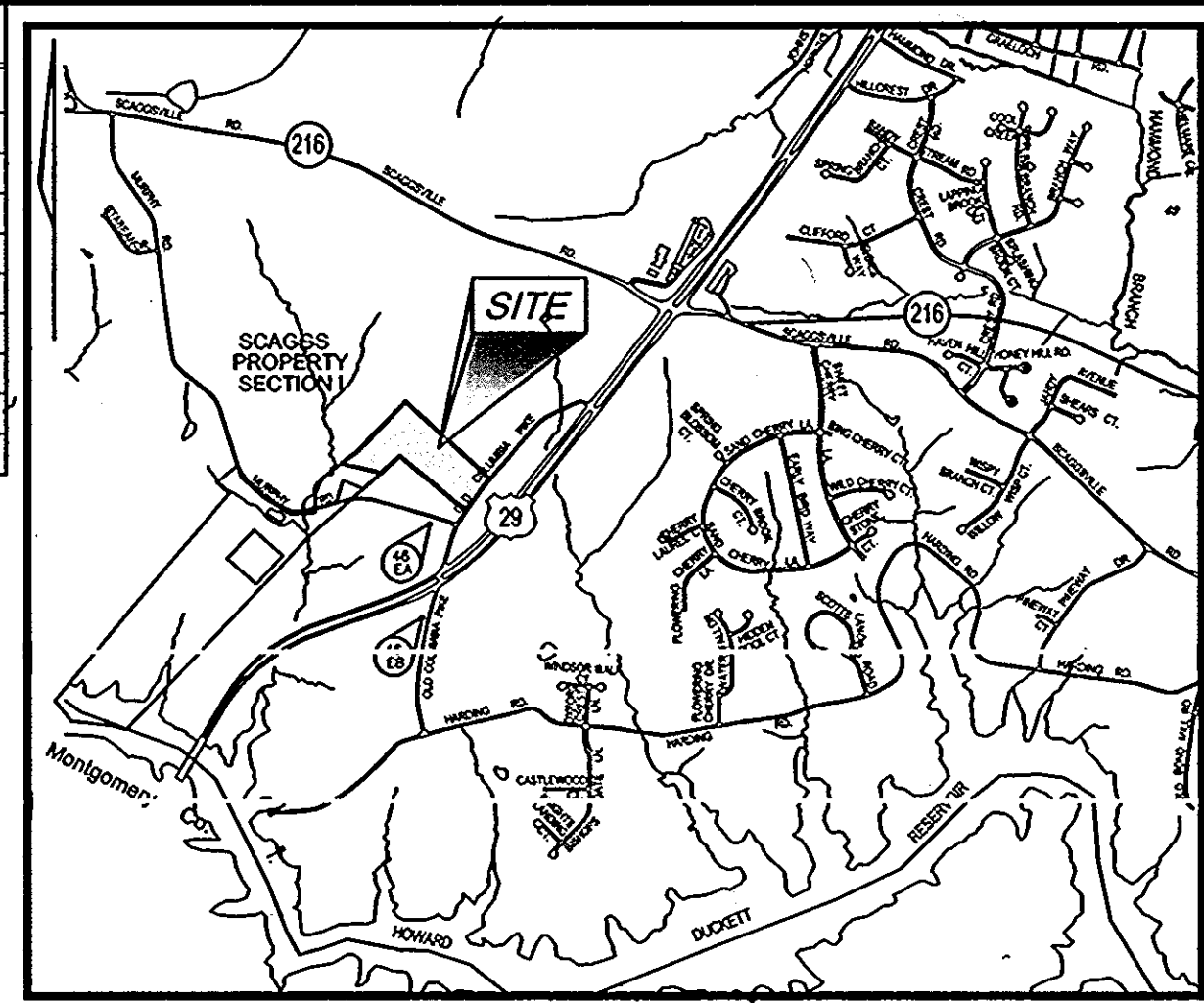
- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- DEED REFERENCE: 1874/157 PREVIOUS DPZ FILE NUMBER: SP-03-016
- DENSITY: $(17.11/2) = 8$ LOTS
NUMBER OF ENTITIES PERMITTED BY RIGHT: 17.11/4.25=4 LOTS
NUMBER OF BUILDABLE ENTITIES PROPOSED: 7 CLUSTER LOTS PLUS 1 BUILDABLE PRESERVATION PARCEL(TOTAL 8)
NUMBER OF DEO'S REQUIRED: 4
- THE PROJECT BOUNDARY IS BASED ON A SURVEY BY FREDERICK WARD & ASSOCIATES, INC. DATED MAY, 2001.
- THE TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL PHOTOGRAMMETRIC BY POTOMAC AERIAL SURVEYS, INC. IN DECEMBER, 2001.
- WATER AND SEWER FOR THIS PROJECT WILL BE PRIVATE.
- STORMWATER MANAGEMENT TO BE PROVIDED BY HOV AND REV FOR THE PROPOSED ROAD, AND LOTS TO BE PROVIDED BY A BORENTESSION FACILITY. THE FACILITY WILL BE LOCATED ON PRESERVATION PARCEL C. THE FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY H.O.A. THE FACILITY PLANTING WILL BE PROVIDED AT FINAL PLANT STAGE. GRADING MAY BE REQUIRED WITHIN THE RIGHT OF WAY TO PROVIDE AN ADEQUATE, ENGINEERED SWALE FROM THE BMP'S OUTFALL TO THE EXISTING CULVERT.
CPV IS NOT REQUIRED FOR THIS SITE SINCE THE 1 YEAR STORM RUNOFF IS LESS THAN 2 CFS.
A LEVEL SPREADER IS PROVIDED AT THE INLET OF THE FACILITY TO TAKE THE RUNOFF OFF LINE AND IS TO BE PRIVATELY OWNED BY THE HOA.
THERE ARE NO WETLANDS AND STREAMS ON SITE.
- NO FLOODPLAIN EXISTS ON SITE.
- FOREST STAND DELINEATION PLAN PREPARED BY FREDERICK WARD ASSOCIATES, INC. DATED 2002.
- APFO TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP DATED SEPTEMBER 2003. THE INTENT OF THE APFO IS FOR THE APPROVAL OF BOTH SECTION.
- THERE ARE NO STEEP SLOPES ON SITE WITH A CONTIGUOUS AREA OF 20,000 SF OR GREATER.
- A NOISE STUDY WAS PROVIDED BY FREDERICK WARD & ASSOCIATES, INC. DATED SEPTEMBER 2003. MITIGATION FOR LOT 7 WILL BE PROVIDED BY A NOISE WALL/BARRIER.
- ALL LANDSCAPING REQUIREMENTS AS SET FORTH IN THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH.
- STREET LIGHTING IS NOT REQUIRED.
- THIS PROPERTY IS NOT WITHIN THE METROPOLITAN DISTRICT.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS ON SITE.
- NON-BUILDABLE PRESERVATION PARCEL B AND C TO BE OWNED BY THE HOA WITH HOWARD COUNTY AS THE EASEMENT HOLDER. BUILDABLE PRESERVATION PARCEL A TO BE PRIVATELY OWNED WITH HOWARD COUNTY AND THE HOA AS EASEMENT HOLDERS. THE PURPOSE OF PARCEL C IS STORMWATER MANAGEMENT AND NON-BUILDABLE PRESERVATION PARCEL B IS TO PRESERVE FOREST CONSERVATION AREAS.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS OF THEIR BUFFERS AND THE FOREST CONSERVATION EASEMENTS, EXCEPT AS PERMITTED AS AN ESSENTIAL DISTURBANCE OR APPROVED BY A WAIVER PETITION.
- FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE, DPZ, AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE RETENTION OF EXISTING FOREST IN THE AMOUNT OF 0.34 AC, REFORESTATION/AFFORESTATION OF 3.06 AC, AND FEE-IN-LIEU FOR THE REMAINING 0.65 AC. FINANCIAL SURETY FOR THE REQUIRED FOREST CONSERVATION SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE TOTAL AMOUNT OF \$59,610.00 FOR THE RETENTION OF 0.34 AC (\$2,963.00) 3.06 AC OF AFFORESTATION (\$86,647.00) AND 0.65 AC OF REFORESTATION (\$14,157.00).
- STREET TREES ARE REQUIRED FOR THIS SUBDIVISION IN ACCORDANCE WITH SECTION 16.124(a)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL.
- THE 24' USE-IN COMMON ACCESS EASEMENT SHALL PROVIDE VEHICULAR AND PEDESTRIAN ACCESS TO LOTS 4, 5 AND HOA OWNED NON-BUILDABLE PRESERVATION PARCEL B AND BUILDABLE PRESERVATION PARCEL A.
- ALL WELLS SHALL BE DRILLED PRIOR TO FINAL PLAT RECORDEMENT. IT IS THE DEVELOPER'S RESPONSIBILITY TO SCHEDULE THE WELL DRILLING PRIOR TO FINAL PLAT SUBMISSION. IT WILL NOT BE CONSIDERED "GOVERNMENT DELAY" IF THE WELL DRILLING IMPEDES HEALTH DEPARTMENT SIGNATURE OF THE RECORD PLAT. IF A WELL SUCCESS RATE IS ACCOMPLISHED AT VARIOUS LOCATIONS WITHIN THE SITE, THE DEVELOPER SHALL HAVE THE OPTION TO REQUEST RELIEF FROM DRILLING THE REMAINING WELLS PRIOR TO THE PLAT RECORDEMENT.
- THE AREAS DESIGNATED AS A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SQUARE FEET (OR 10,000 SQUARE FEET PER LOT FOR SHARED DRAIN FIELDS ASSOCIATED WITH A SHARED SEWAGE DISPOSAL FACILITY) AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL (COMAR 26.04.03). IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECORDEMENT OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM WIDTH AND LOT AREA REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
- ISSUANCE OF A GROUND WATER APPROPRIATION PERMIT WILL BE REQUIRED PRIOR TO RECORD PLAT SUBMISSION AND/OR PRIOR TO DRILLING WELLS.
- EXISTING WELL SHALL BE PROPERLY ABANDONED AND SEALED BY LICENSED WELL DRILLER PRIOR TO SUBMITTAL OF RECORD PLAT FOR SIGNATURE ON LOT 1.
- EXISTING SEPTIC SYSTEM ON LOT 1 SHALL BE PROPERLY ABANDONED AND REPLACED IN PROP. SOA PRIOR TO SUBMITTAL OF RECORD PLAT.
- THE EXISTING HOUSE LOCATED ON LOT 1 IS TO BE REMOVED.
- THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY CB 75-2003. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS/PARCELS MUST COMPLY WITH SETBACK AND BUFFERS REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE BUILDING/GRADING PERMIT.
- 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 (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S), OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- RESERVATION OF PUBLIC UTILITY AND FOREST CONSERVATION EASEMENTS
DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, 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 OF THE AFORESAID 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 ACCEPTANCE THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS A PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$21,000.00 FOR 59 SHADE TREES AND 22 EVERGREEN TREES.

SITE DATA

EXISTING ZONING: RR-DEO
LOCATION: TAX MAP 46, GRIDS 3 & 9, PARCEL 118
5TH ELECTION DISTRICT
GROSS AREA OF PROJECT: 17.11 AC.
AREA OF STEEP SLOPES = 0 AC.
NET AREA OF PROJECT: 17.11 AC.
AREA OF PROPOSED BUILDABLE LOTS: 374,892.96 (8.61 AC.)
AREA OF PROPOSED NON-BUILDABLE PRESERVATION PARCELS: 168,708 SF (3.87 AC.)
AREA OF PROPOSED BUILDABLE PRESERVATION PARCEL: 161444.25 SF (3.71 AC.)
AREA OF PROPOSED RIGHT-OF-WAY: 40075.20SF (0.92AC.)
AREA OF OPEN SPACE REQUIRED: NONE
NUMBER OF BUILDABLE LOTS/PARCELS PROPOSED: 7 + 1 BUILDABLE PRESERVATION PARCELS (TOTAL 8)

SHEET INDEX	
SHEET NO.	TITLE
1	COVER SHEET
2	FINAL ROAD CONSTRUCTION PLAN & PROFILE
3	GRADING & SEDIMENT CONTROL PLAN
4	GRADING & SEDIMENT CONTROL DETAILS
5	STORM DRAIN DRAINAGE AREA MAP
6	STORMWATER MANAGEMENT DETAILS
7	STORMWATER MANAGEMENT BORING LOGS
8	LANDSCAPING PLAN
9	FOREST CONSERVATION PLAN & DETAILS

FINAL ROAD CONSTRUCTION PLAN
SCAGGSVILLE KNOLLS
SECTION I
HOWARD COUNTY, MARYLAND

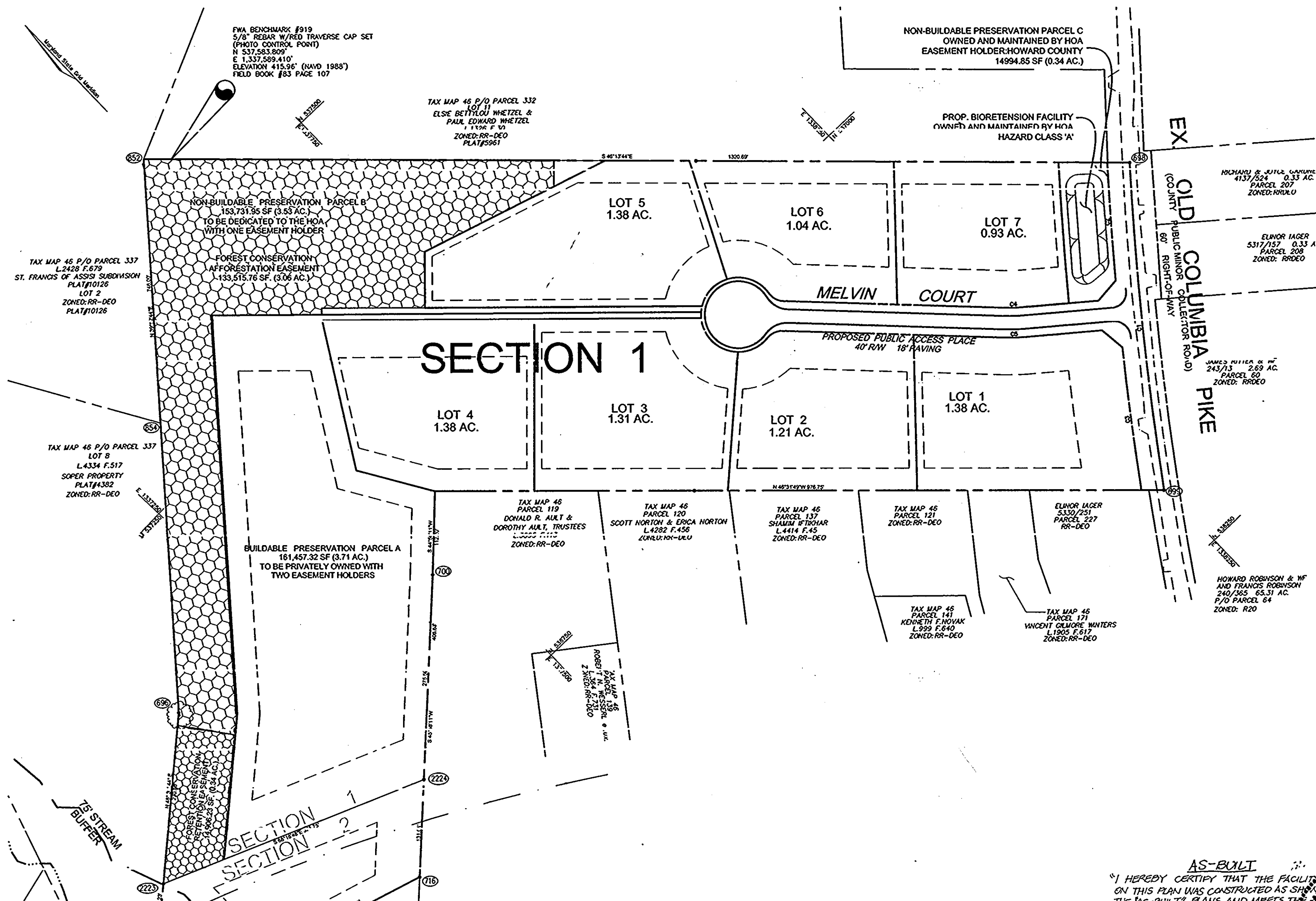


VICINITY MAP
SCALE: 1"=200'

BENCHMARKS				
NO.	NORTHING	EASTING	ELEVATION	TYPE
46 EA	536,165.423'	1,338,091.710	415.097	CONC. MONUMENT
46 EB	534,750.221'	1,337,742.796	413.235	CONC. MONUMENT

COORDINATE CHART		
POINT	NORTH	EAST
698	537037.3423	1337085.2111
698	536998.1947	1338817.0075
699	536344.9517	1338247.4748
700	536937.5473	1337459.3153
852	537608.9597	1337562.1363
854	537336.7189	1337335.3422
2223	536885.0595	1336912.1010
2224	536746.0043	1337261.1765

MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
1	1.38 AC.	0 AC.	1.38 AC.
2	1.21 AC.	0 AC.	1.21 AC.
3	1.31 AC.	0 AC.	1.31 AC.
4	1.38 AC.	0.04 AC.	1.34 AC.
5	1.38 AC.	0 AC.	1.38 AC.
6	1.04 AC.	0 AC.	1.04 AC.
7	0.93 AC.	0 AC.	0.93 AC.
BUILDABLE PRESERVATION PARCEL A	3.61 AC.	0.09 AC.	3.70 AC.
NON-BUILDABLE PRESERVATION PARCEL B	3.43 AC.	0.09 AC.	3.52 AC.



LOCATION PLAN
SCALE: 1"=200'

AS-BUILT
"I HEREBY CERTIFY THAT THIS FACILITY ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE PLANS AND SPECIFICATIONS"

ROBERT H. VOGEL, P.E. No. 16193

APPROVED: DEPARTMENT OF PUBLIC WORKS
William F. ... 8-18-06
Chief, Bureau of Highways

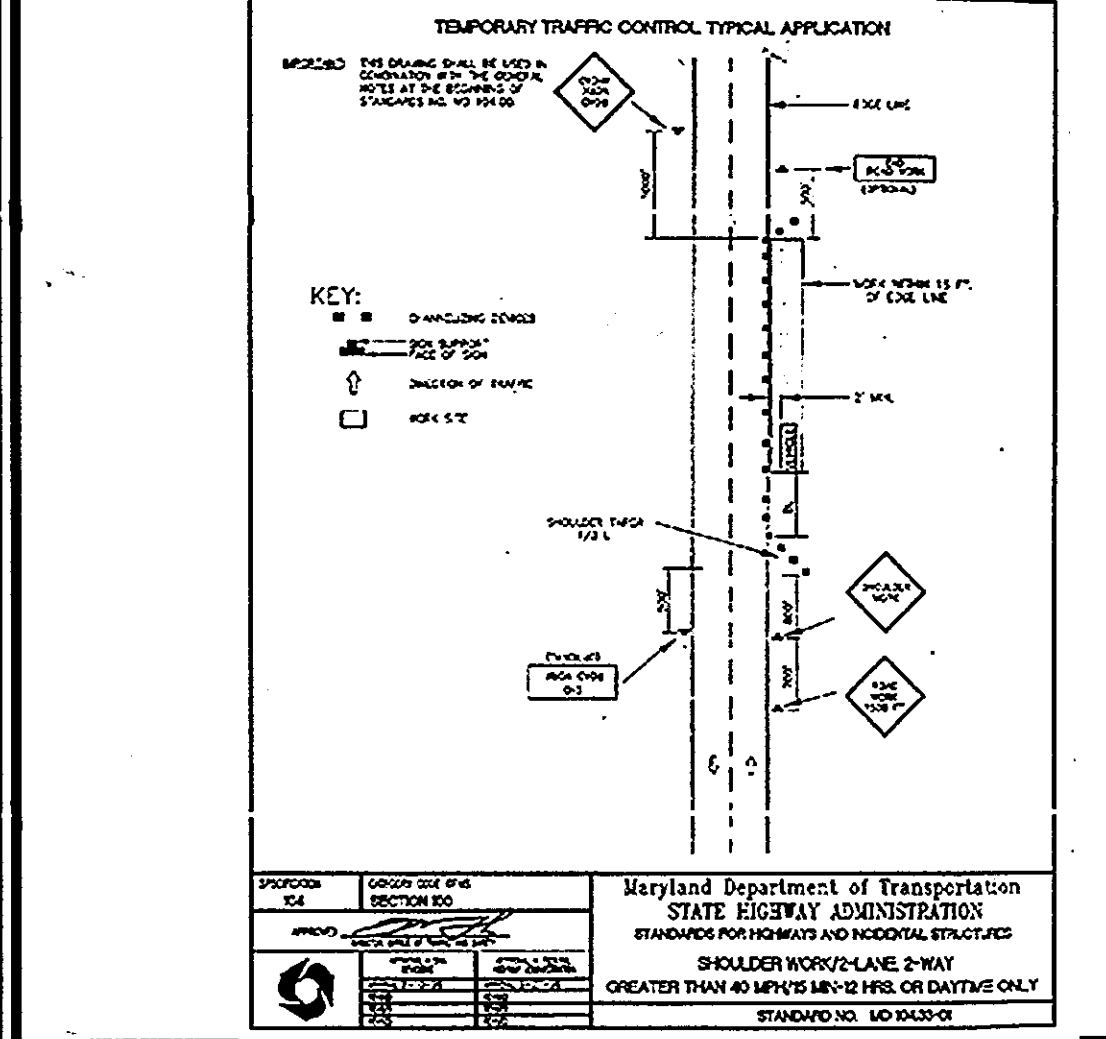
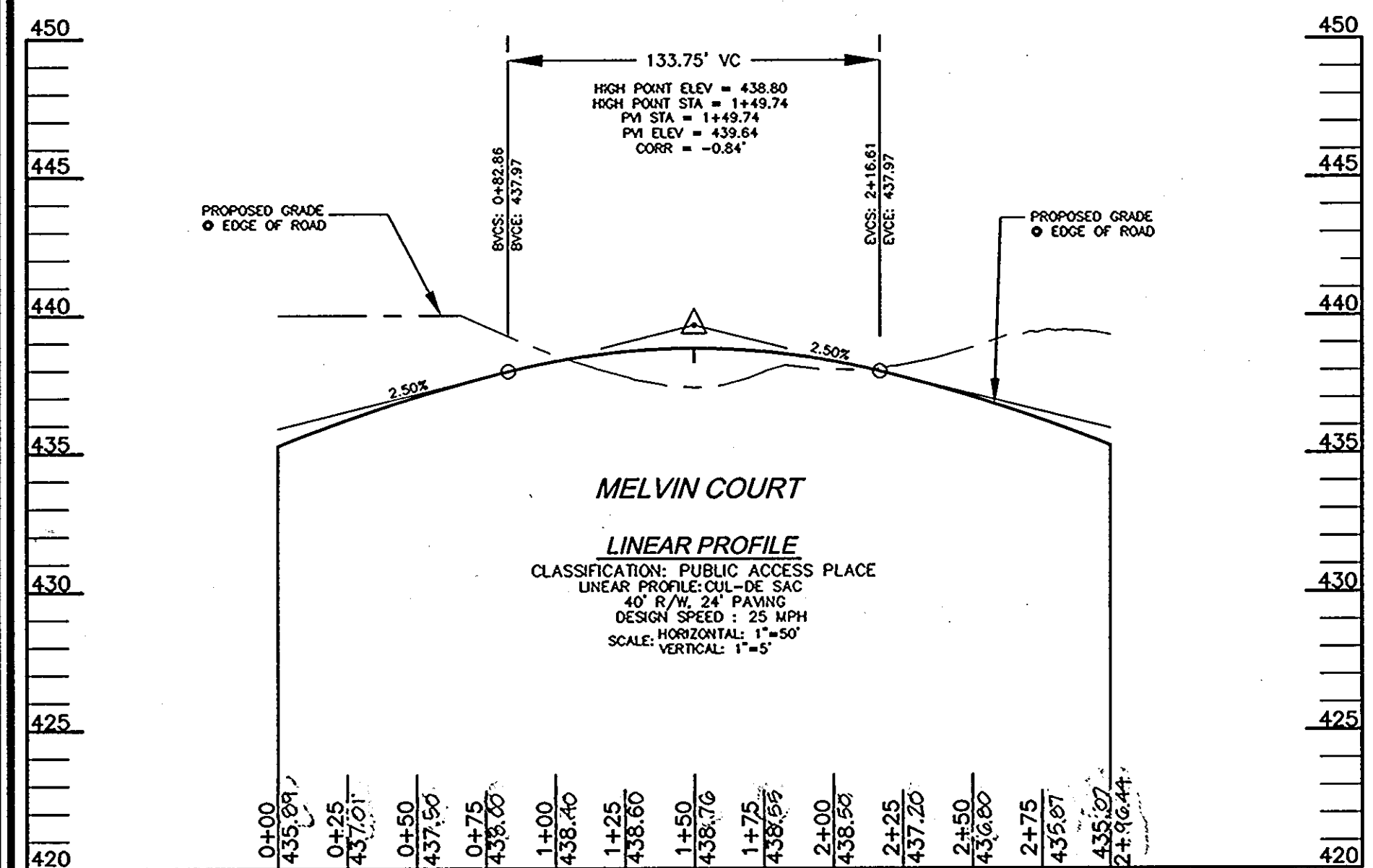
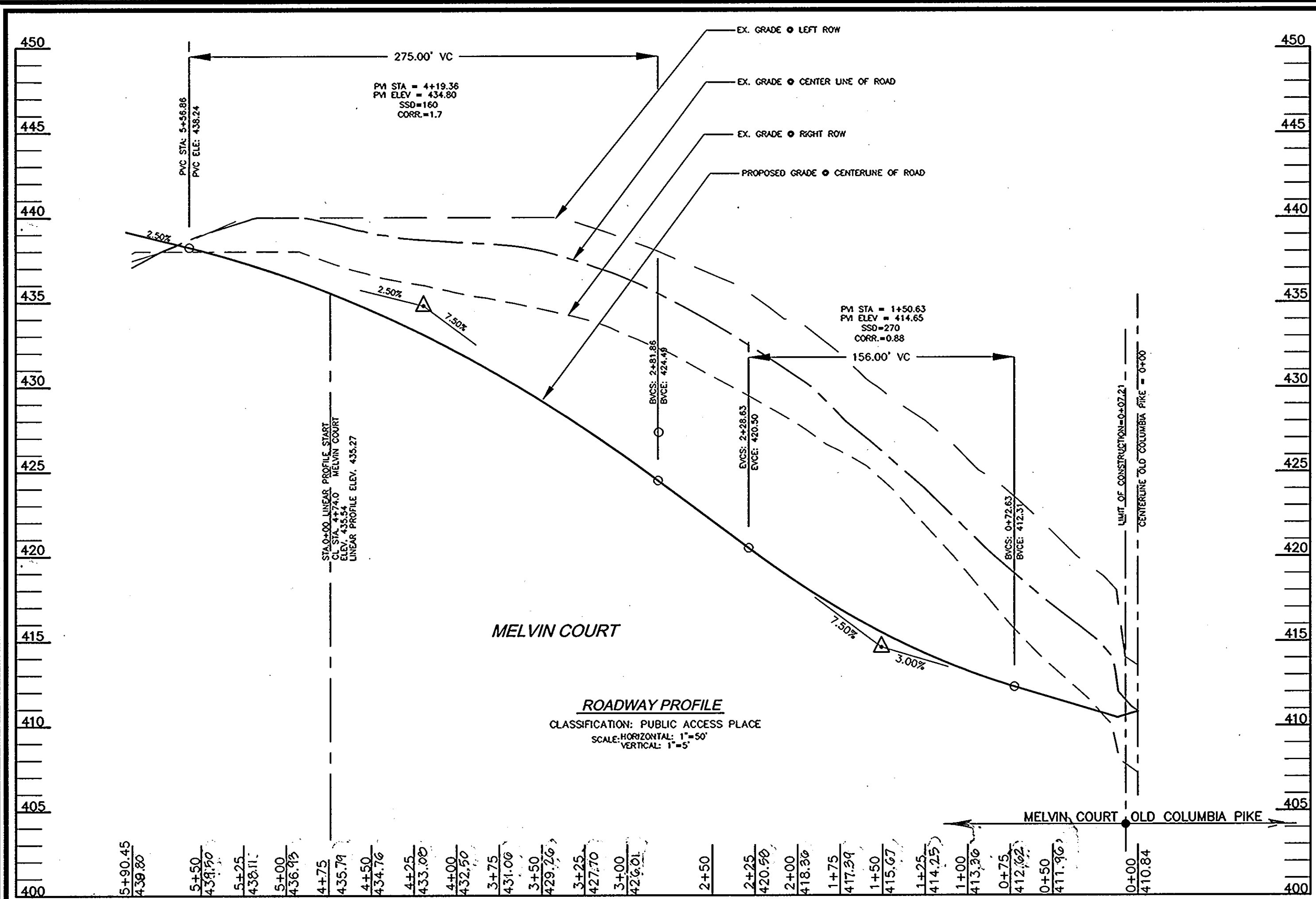
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cathy ... 9/5/06
Chief, Development Engineering Division

NO.	REVISION	DATE

COVER SHEET
FINAL ROAD CONSTRUCTION PLAN
SCAGGSVILLE KNOLLS
LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I
REFERENCE: SP-03-16
TAX MAP #46 GRID 3 & 9 PARCEL 118
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET TEL: 410.461.7866
ELLICOTT CITY, MD 21043 FAX: 410.461.8991

DESIGN BY: RJVCO
DRAWN BY: RJVCO
CHECKED BY: RJV
DATE: OCTOBER 2005
SCALE: AS SHOWN
W.O. NO.: 2014031.00
1 SHEET OF 9



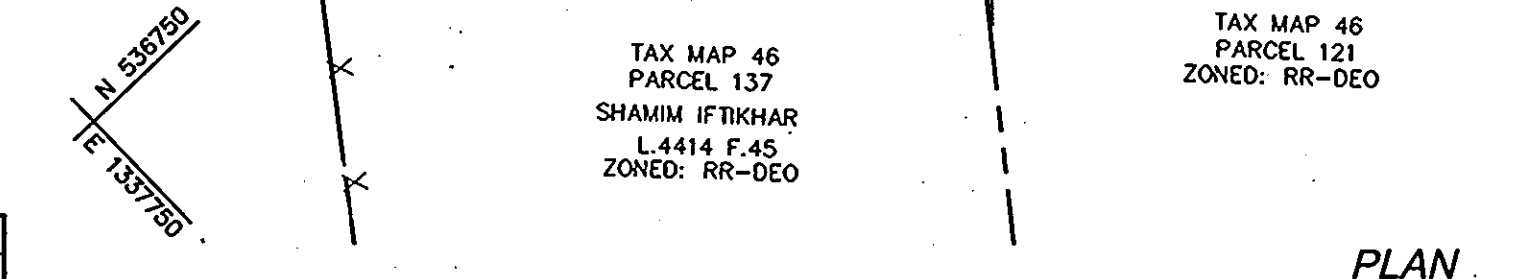
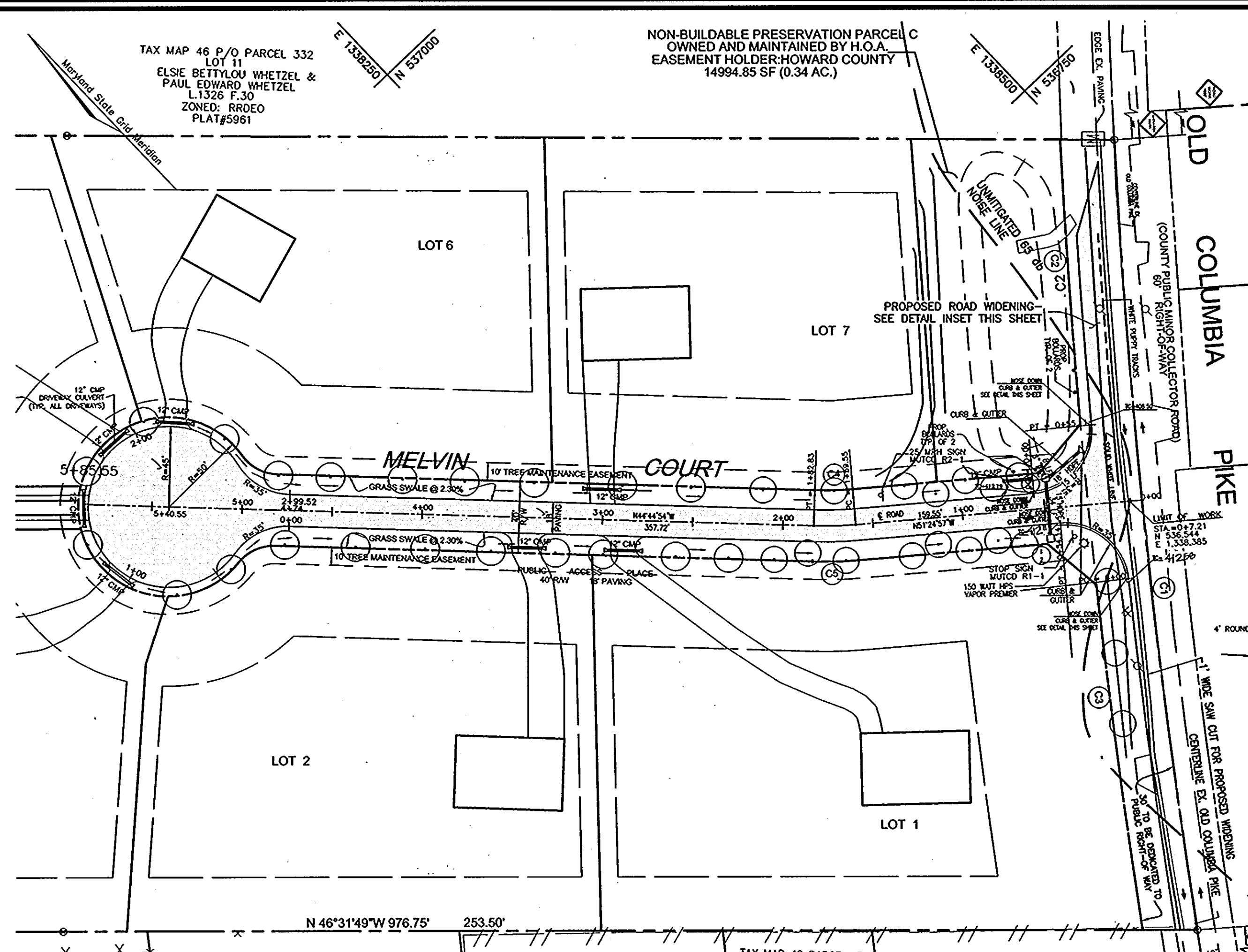
STREET LIGHT LOCATION CHART

STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE	COMMENTS
MELVIN COURT	0+35	20' LT.	150 WATT HPS VAPOR PREMIER POST-TOP MOUNTED ON A 14' BLACK FIBERGLASS POLE	AS SHOWN

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

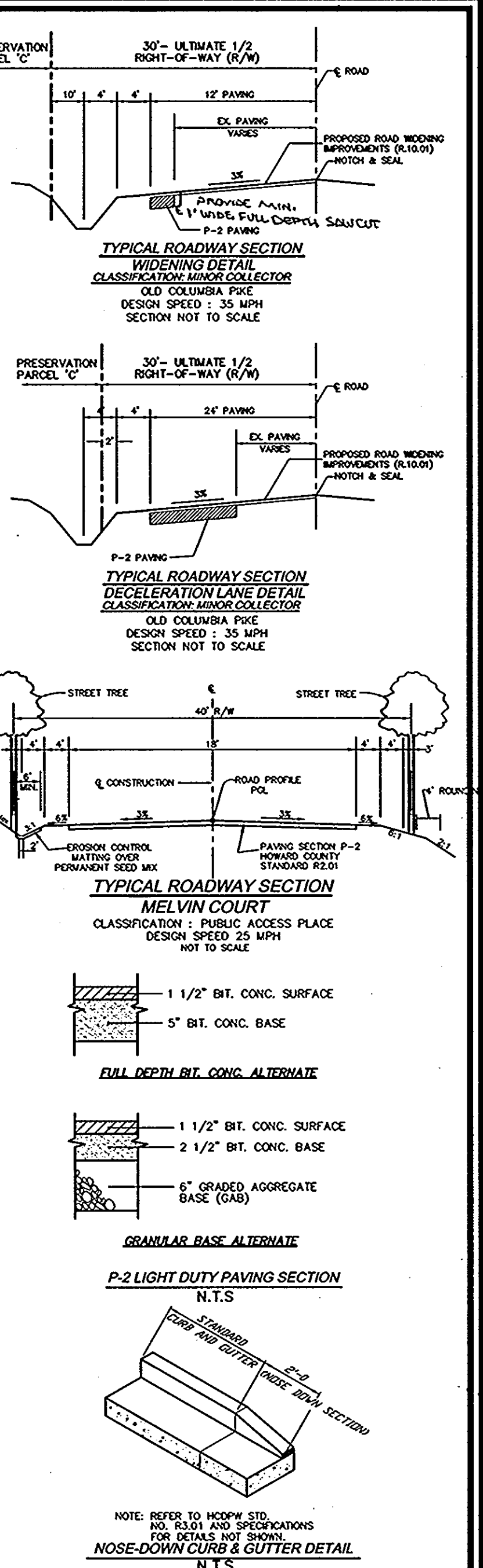
STREET TREE CALCULATIONS (IN PROGRESS)

STREET NAME	LINEAR FEET	REQUIRED TREES	PROVIDED TREES
PUBLIC ACCESS PLACE	1205	31	31
EX. RD IMPROVEMENTS	AS SHOWN	8	8

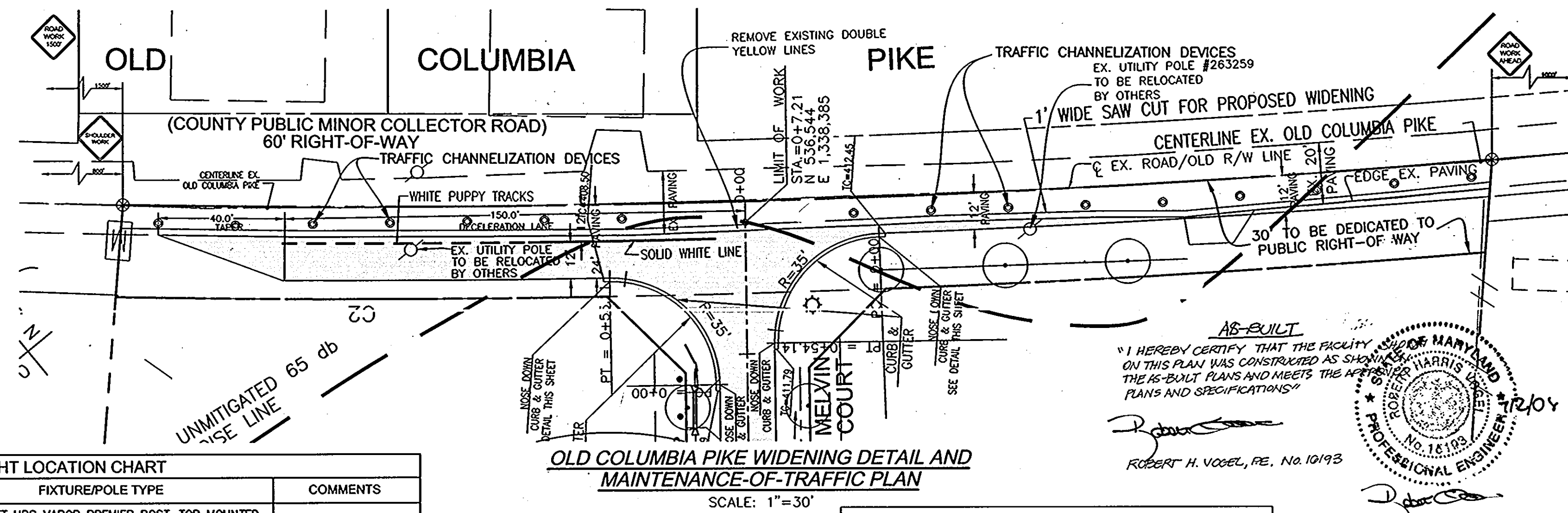


CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD
C1	443.06	4334.28	5°51'25"	221.72	S37°31'19"W	442.86
C2	158.92	4364.28	2°05'11"	79.47	S39°25'48"W	158.91
C3	194.11	4241.08	2°37'20"	97.07	S35°55'45"W	194.09
C4	20.95	180.00	6°40'04"	10.49	S48°04'56"E	20.94
C5	25.60	220.00	6°40'04"	12.82	S48°04'56"E	25.59



OWNER/DEVELOPER
MURRAY ROAD ESTATES, LLC
3258 BETHANY LANE
ELLCOTT CITY, MD 21042
(410) 465-8200



APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. Walsh 8-18-06
Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Conrad Hancock 7/5/06
Chief, Division of Land Development

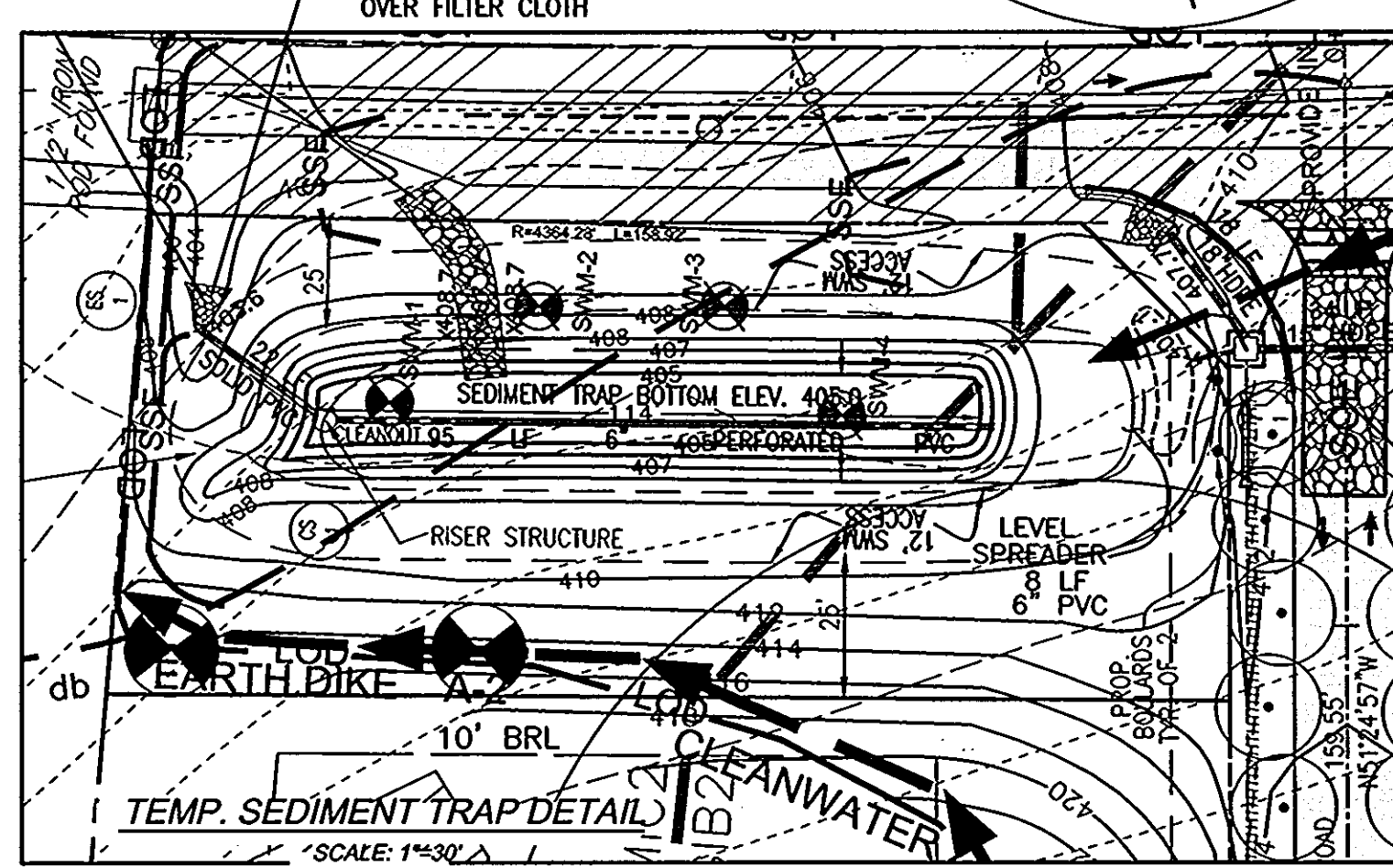
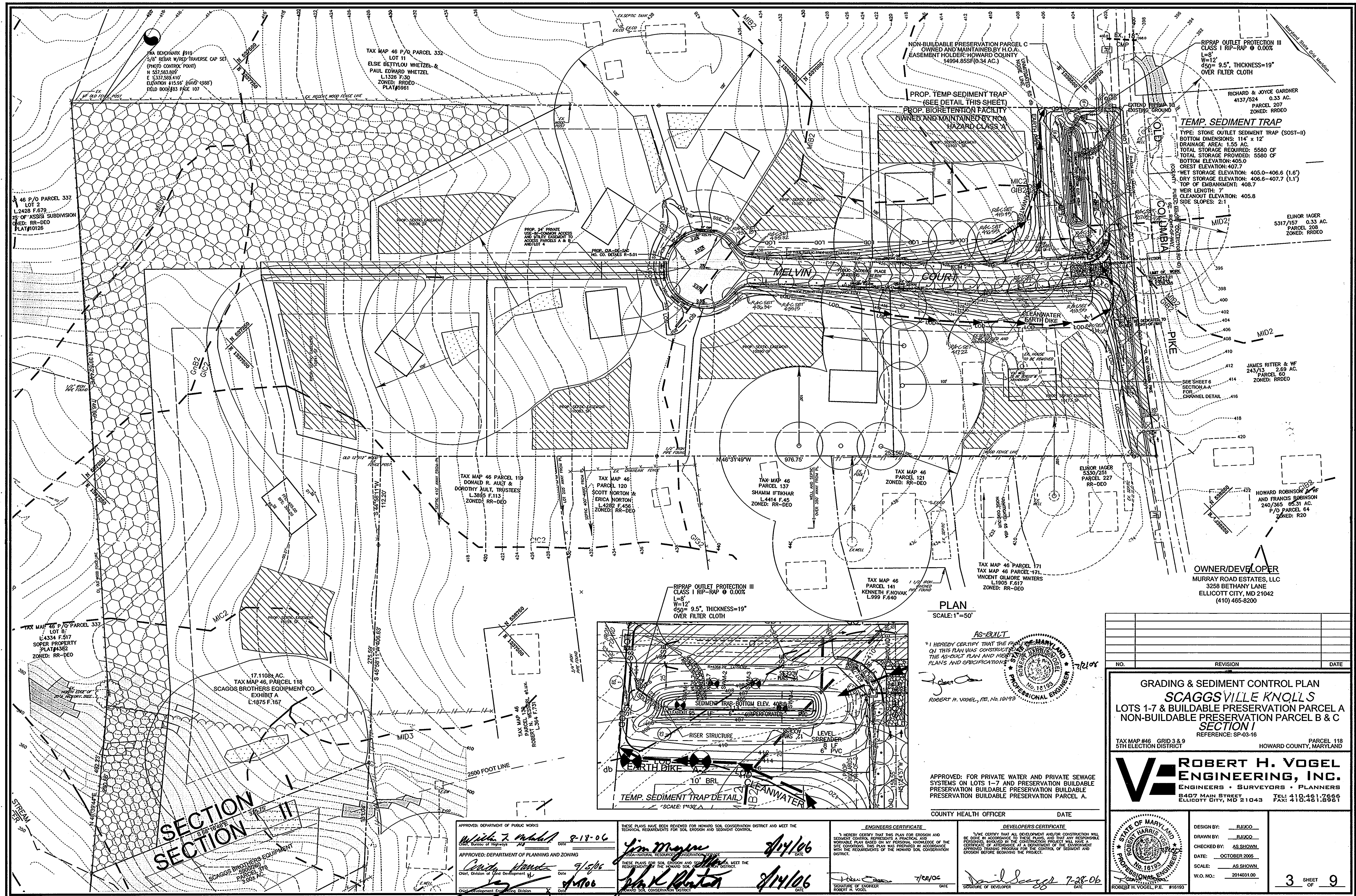
FINAL ROAD CONSTRUCTION PLAN AND PROFILE
SCAGGSVILLE KNOLLS
LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I
REFERENCE: SP-03-16

TAX MAP #46, GRID 3 & 9, PARCEL 118
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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8407 MAIN STREET, ELLICOTT CITY, MD 21043 FAX 410.461.2665

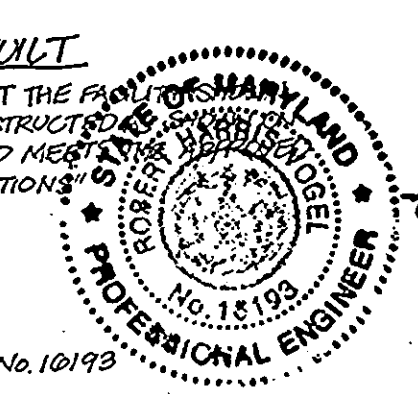
DESIGN BY: *RJUCO*
DRAWN BY: *RJUCO*
CHECKED BY: *JCD*
DATE: OCTOBER 2005
SCALE: AS SHOWN
W.O. NO.: 2014031.00

2 SHEET OF 9



PLAN
SCALE: 1"=50'

AS-BUILT
I HEREBY CERTIFY THAT THE PLAN SHOWN ON THIS PLAN WAS CONSTRUCTED IN ACCORDANCE WITH THE AS-BUILT PLAN AND MEETS ALL CITY PLANS AND SPECIFICATIONS.
ROBERT H. VOGEL, P.E., No. 101919



APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS ON LOTS 1-7 AND PRESERVATION BUILDABLE PRESERVATION BUILDABLE PRESERVATION BUILDABLE PRESERVATION BUILDABLE PRESERVATION PARCEL A.
COUNTY HEALTH OFFICER DATE

NO.	REVISION	DATE

GRADING & SEDIMENT CONTROL PLAN
SCAGGSVILLE KNOLLS
LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I
REFERENCE: SP-03-16
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5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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DESIGN BY: RJUCO
DRAWN BY: RJUCO
CHECKED BY: AS SHOWN
DATE: OCTOBER 2005
SCALE: AS SHOWN
W.O. NO.: 2014031.00
3 SHEET OF 9

APPROVED: DEPARTMENT OF PUBLIC WORKS
Michele Z. Mudd 8-18-06
Chief, Bureau of Highways
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candy Handman 9/25/06
Chief, Division of Land Development
APPROVED: SCAGGS BROTHERS EQUIPMENT
SCAGGS BROTHERS EQUIPMENT
PARCEL 118
L-1875 F.157

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Jim Meyer 8/14/06
Robert H. Vogel
8/14/06

ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Robert H. Vogel 7/28/06

DEVELOPER'S CERTIFICATE
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS AND THAT ANY 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.
Robert H. Vogel 7-28-06

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... LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES... 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 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... III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

A. ON SOIL MEETING TOPSOIL SPECIFICATION, OBTAIN TEST RESULTS DICTIONARY FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

1. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5... 2. ORGANIC CONTENT OF TOPSOIL SHALL NOT BE LESS THAN 1.5 PERCENT BY WEIGHT.

3. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.

4. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PREVENT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

B. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION:

A. WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

B. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.

C. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE... D. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION... *TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT.

TEMPORARY SEEDING NOTES

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

SOIL AMENDMENTS: APPLY 600 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SF).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BUSHEL/ACRE ANNUAL RYE (3.2 LBS/1000 SF)... FOR PERIOD NOVEMBER 15 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/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/ACRE (70 TO 90 LBS/1000 SF) OF UNROTTED SMALL-GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS/ACRE (5 GAL/1000 SF) OF EMULSIFIED ASPHALT ON FLAT AREAS... REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

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, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

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

1. PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/100 SF) AND 800 LBS/ACRE 10-10-10 FERTILIZER (14 LBS/1000 SF) BEFORE SEEDING... 2. ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SF) AND APPLY 1000 LBS/ACRE 10-10-10 FERTILIZER (23 LBS/1000 SF) BEFORE SEEDING... SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS/ACRE (1.4 LBS/1000 SF) OF KENTUCKY 31 TALL FESCUE... MULCHING: APPLY 1 1/2 TO 2 TONS/ACRE (70 TO 90 LBS/1000 SF) OF UNROTTED SMALL-GRAIN STRAW IMMEDIATELY AFTER SEEDING... MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

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 (410) 313-1855.

2. 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.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, 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.

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 WITH THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC C). TEMPORARY STABILIZATION WITH MULCH ALLOW 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 PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:

TOTAL AREA 17.14 AC. AREA DISTURBED 2.10 AC. AREA TO BE ROOFED OR PAVED 0.42 AC. AREA TO BE VEGETATIVELY STABILIZED 1.68 AC.

TOTAL CUT 5,000 CY. TOTAL FILL 5,000 CY. OFFSITE WASTE/BORROW AREA LOCATION N/A.

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-DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS 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 AND ACTIVE GRADING PERMIT.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.

2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410.313.1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.

3. INSTALL PERIMETER SEDIMENT CONTROL MEASURES AS SHOWN ON PLAN AND IN ACCORDANCE WITH DETAILS. (5 DAYS)

4. INSTALL SEDIMENT TRAP AND DIVERSION DIKES. (1 WEEK)

5. AFTER OBTAINING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED, ROUGH GRADE SITE. (2 WEEKS)

6. CONSTRUCT ROAD AND OLD COLUMBIA PIKE WIDENING (5 WEEKS)

7. STABILIZE DISTURBED AREAS AND CONSTRUCT BIORETENTION FACILITY. (6 DAYS)

8. INSTALL PERIMETER LANDSCAPING AND BIORETENTION PLANTINGS (4 DAYS)

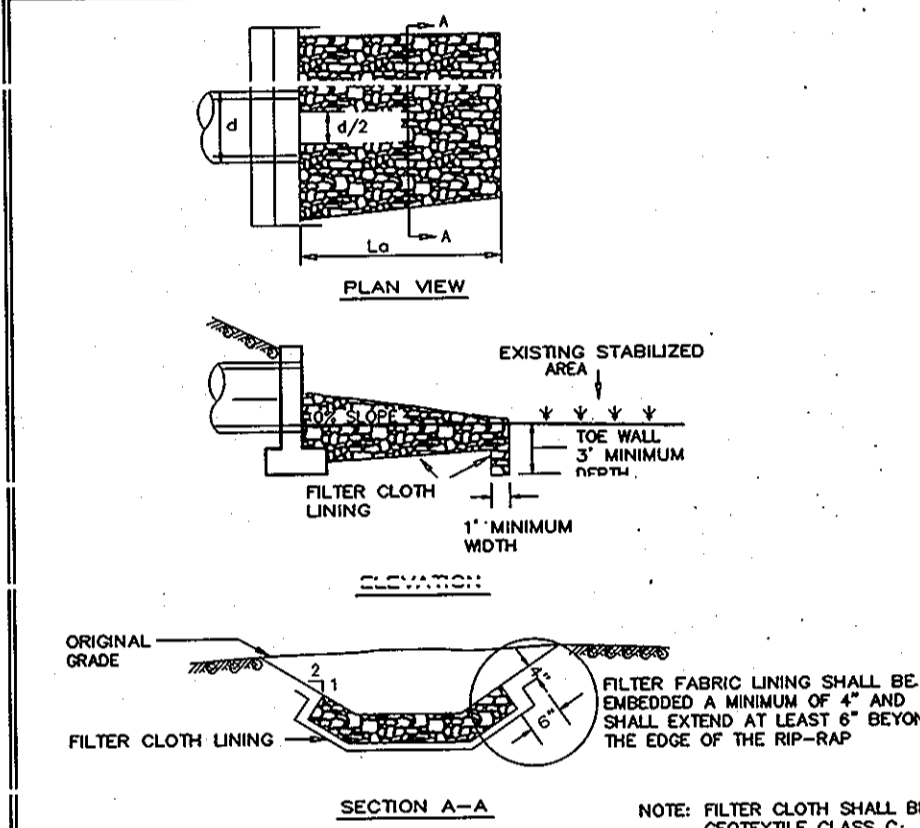
9. UPON STABILIZATION OF ALL DISTURBED AREAS AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES. (2 DAYS)

NOTES

1. DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN HEREOF.

2. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLIED WITH.

DETAIL 27 - ROCK OUTLET PROTECTION III



U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.

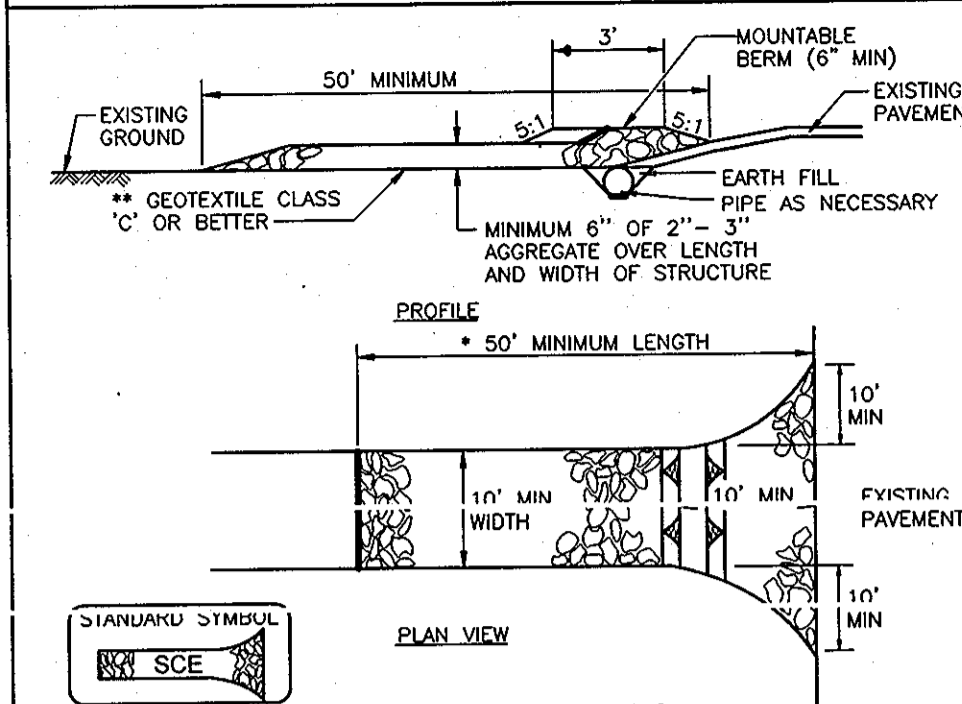
3. GEOTEXTILE SHALL BE PROTECTED FROM PUNCHED, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE SHALL BE A MINIMUM OF ONE FOOT.

4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.

5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

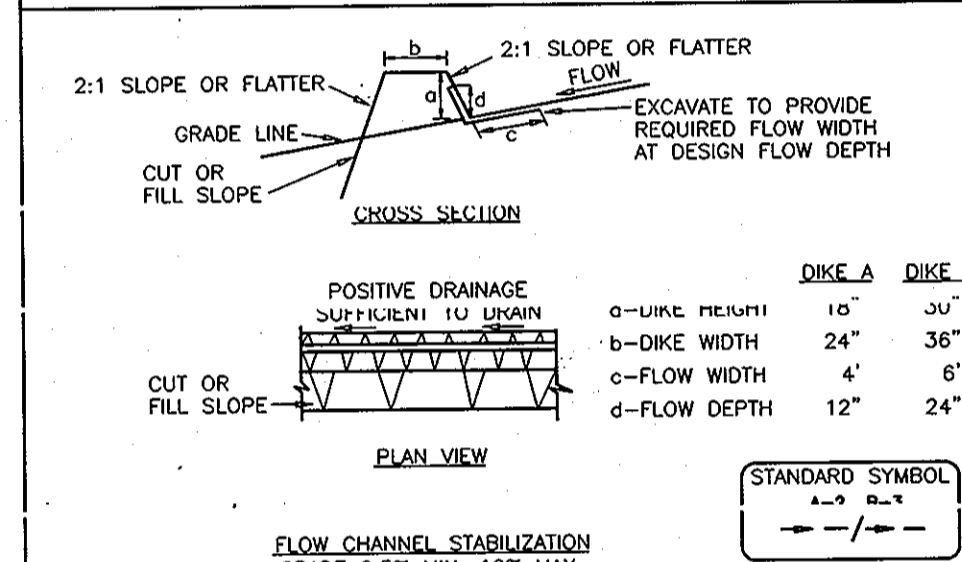


CONSTRUCTION SPECIFICATIONS

1. Length - Minimum of 50' (* 30' for a single residence lot). Width - 10' minimum. Should be flared at the existing road to provide a turning radius. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. ** The plan approval authority may not require single family residences to use geotextile. Stone - Crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" over the length and width of the entrance. Surface Water - All surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the Stabilized Construction Entrance shall be protected with a mounded berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey, a pipe will not be conveyed. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required. Location - A Stabilized Construction Entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the "Stabilized Construction Entrance."

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 - EARTH DIKE



U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

CONSTRUCTION SPECIFICATIONS

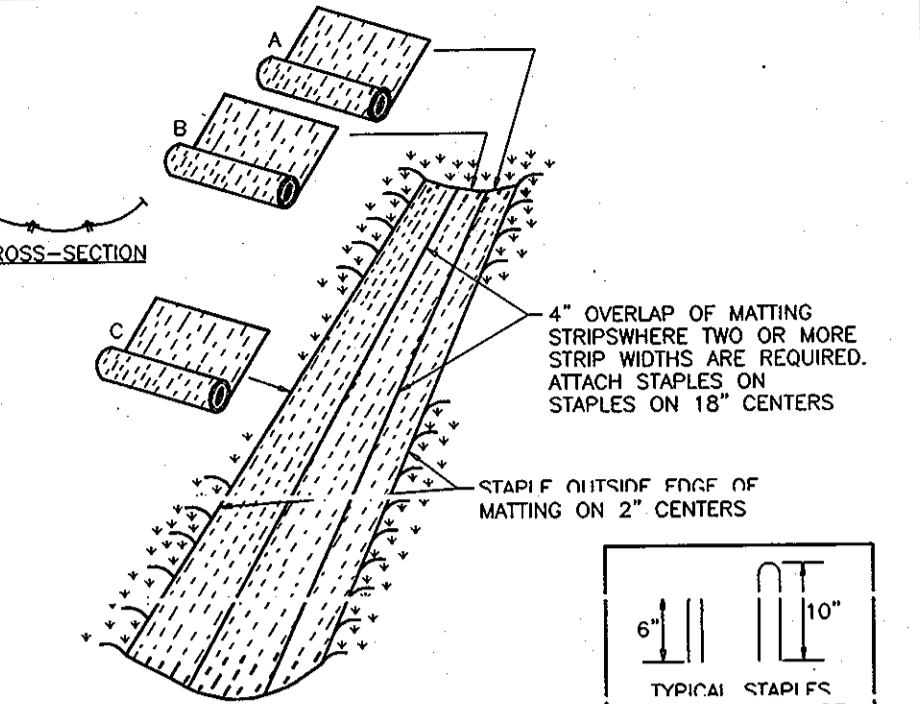
1. Temporary earth dikes shall have uninterrupted positive grade to an outlet. Spoil elevations may be necessary for grades less than 1%. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area on a non-erosive velocity. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow. Fill shall be compacted by earth moving equipment. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike. Inspection and maintenance must be provided periodically and after each rain event.

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

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

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING

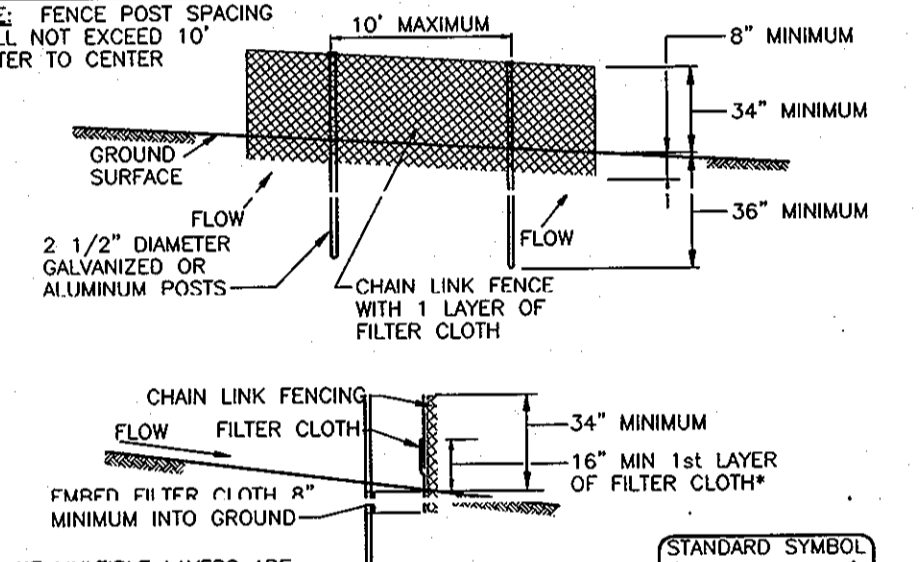


CONSTRUCTION SPECIFICATIONS

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and trim firmly to conform to the channel cross-section. Secure with row of staples, about 4" down from the trench. Spacing between staples is 6". Staple the 4" overlap in the channel center using an 18" spacing between staples. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer row, and 2 alternating rows down the center. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4" shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side. The discharge end of the matting liner should be similarly secured with 2 double rows of staples. Note: If flow will enter from the edge of the matting then the area affected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE



CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and midsection. Filter cloth shall be embedded a minimum of 8" into the ground. When two sections of filter cloth adjoin each other, they shall be overlapped by 8" and folded. Maintenance shall be performed as needed and all bulges removed when bulges develop in the silt fence, or when silt reaches 50% of fence height. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and midsection and shall meet the following requirements for Geotextile Class F:

Tensile Strength 50 lbs/in (min) Test: MSMT 509

Tensile Modulus 20 lbs/in (min) Test: MSMT 509

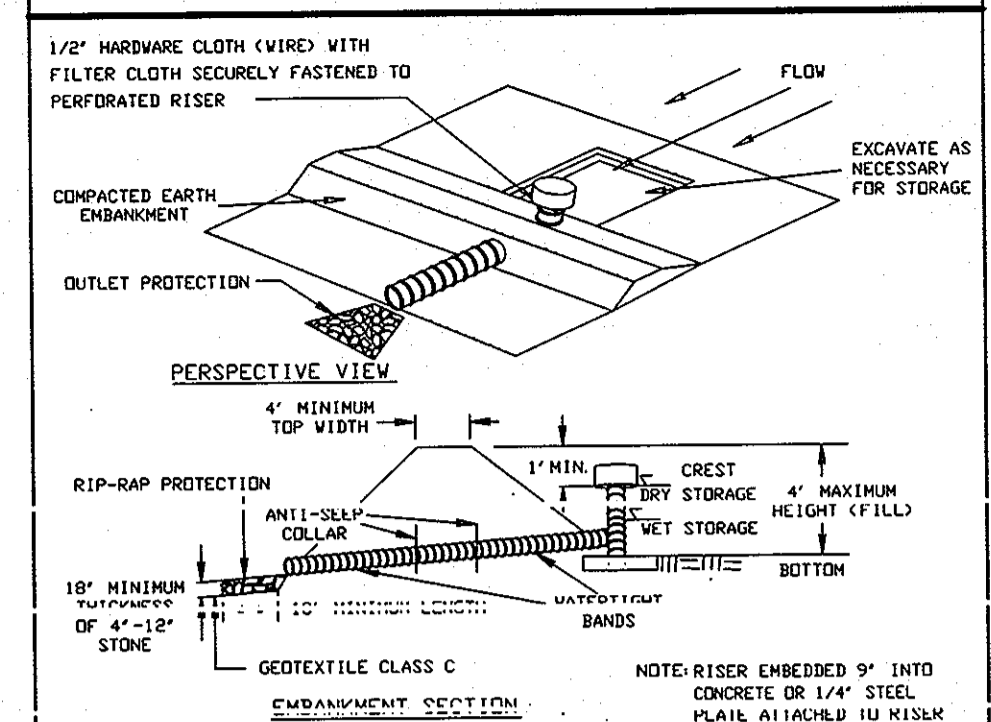
Flow Rate 0.3 gal/ft^2/minute (max) Test: MSMT 322

Filtration Efficiency 75% (min) Test: MSMT 322

*IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN 42"

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 8 - PIPE OUTLET SEDIMENT TRAP - ST I



CONSTRUCTION SPECIFICATIONS

1. The area under the embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. The total trap volume as measured from the bottom to riser crest elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be 24" above the riser crest elevation. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (COE/C&D). The sediment shall be deposited in a suitable area and in such a manner that it will not erode. The discharge end of the matting liner should be similarly secured with 2 double rows of staples. Note: If flow will enter from the edge of the matting then the area affected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

OWNER/DEVELOPER MURRAY ROAD ESTATES, LLC 3258 BETHANY LANE ELLICOTT CITY, MD 21042 (410) 465-8200

APPROVED: DEPARTMENT OF PUBLIC WORKS... W. J. ... 8-18-06... APPROVED: DEPARTMENT OF PLANNING AND ZONING... Cindy Hamner... DATE 9/5/06

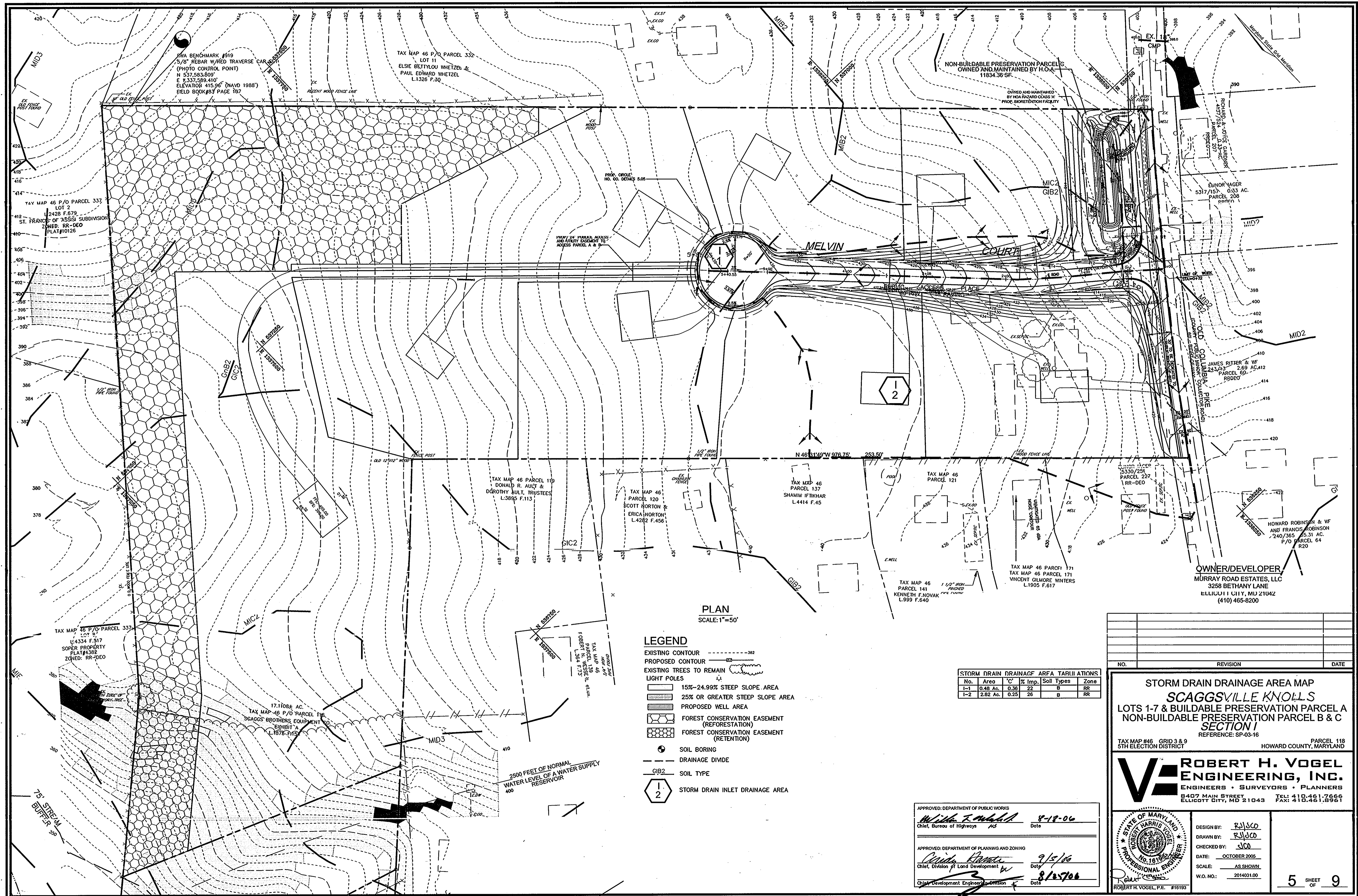
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING... ENGINEERS CERTIFICATE... DEVELOPERS CERTIFICATE... THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE... MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DESIGN BY: JCO... DRAWN BY: DBN... CHECKED BY: JCO... DATE: OCTOBER 2005... SCALE: AS SHOWN... W.O. NO.: 2014031.00... SHEET 4 OF 9



PLAN
SCALE: 1"=50'

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREES TO REMAIN
- LIGHT POLES
- 15%-24.99% STEEP SLOPE AREA
- 25% OR GREATER STEEP SLOPE AREA
- PROPOSED WELL AREA
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- FOREST CONSERVATION EASEMENT (RETENTION)
- SOIL BORING
- DRAINAGE DIVIDE
- SOIL TYPE
- STORM DRAIN INLET DRAINAGE AREA

STORM DRAIN	DRAINAGE	AREA	TERRAIN	SOIL TYPES	ZONE
No.	Area	'C'	% Imp.	Soil Types	Zone
I-1	0.48 Ac.	0.36	22	B	RR
I-2	2.82 Ac.	0.25	26	B	RR

APPROVED: DEPARTMENT OF PUBLIC WORKS
William F. ... 8-18-06
 Chief, Bureau of Highways MS Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Condy ... 9/15/06
 Chief, Division of Land Development MS Date

APPROVED: DEPARTMENT OF PROFESSIONAL ENGINEERS
Robert H. Vogel 8/18/06
 Chief, Development Engineering Division MS Date

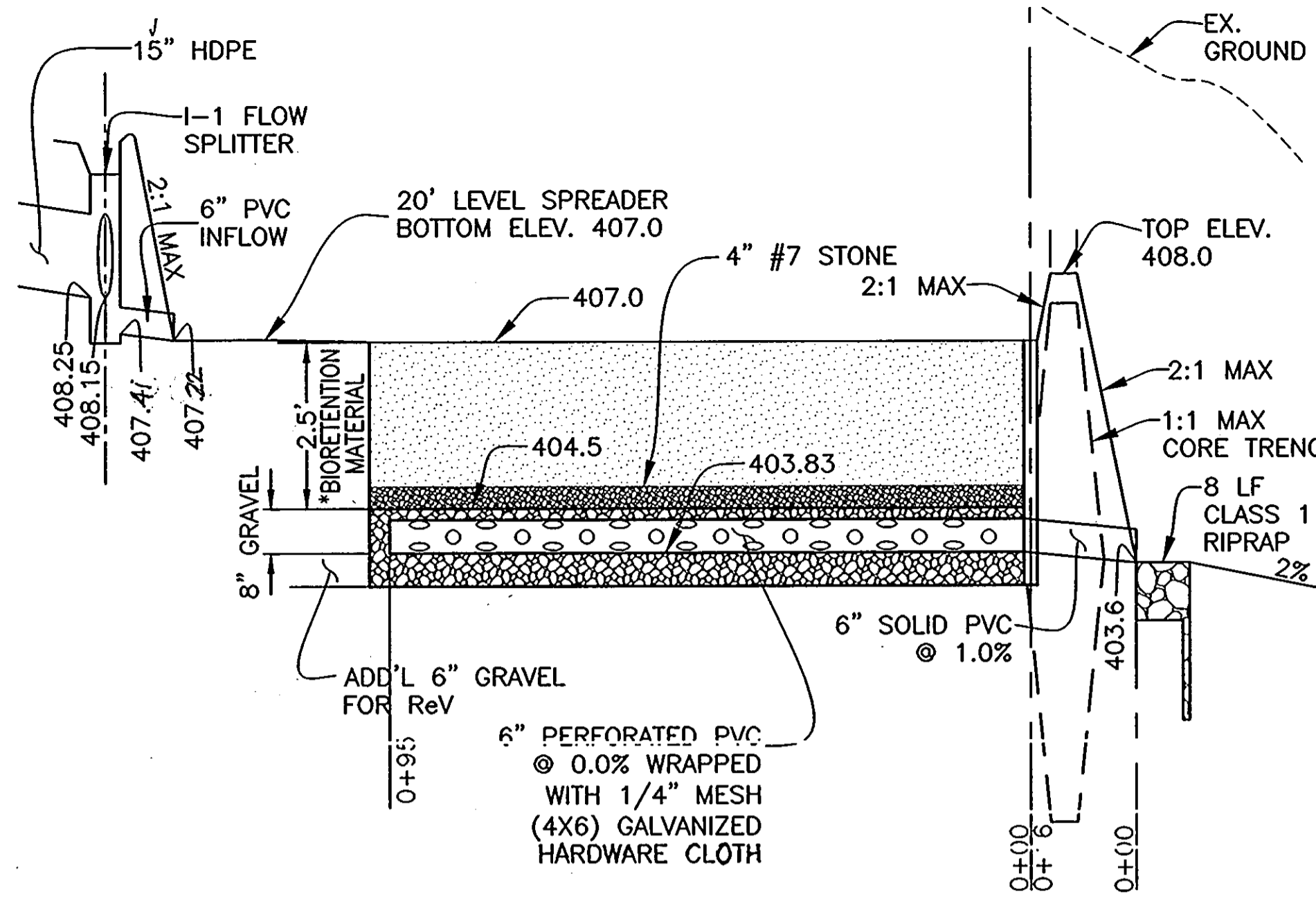
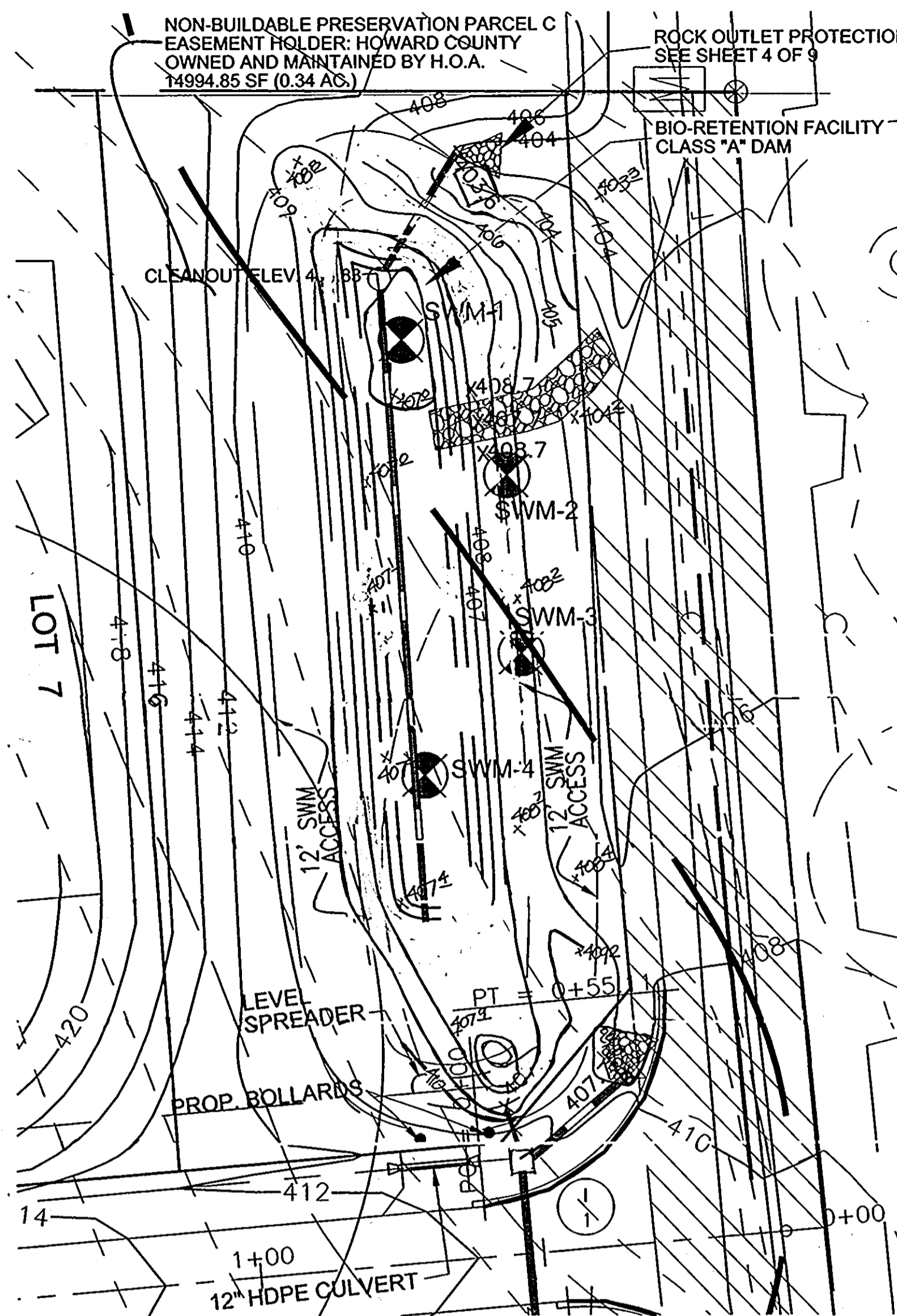
NO.	REVISION	DATE

STORM DRAIN DRAINAGE AREA MAP
SCAGGSVILLE KNOLLS
 LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
 NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I
 REFERENCE: SP-03-16
 TAX MAP #46 GRID 3 & 9 PARCEL 118
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 3407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: *RJS/CO*
 DRAWN BY: *RJS/CO*
 CHECKED BY: *S/CO*
 DATE: OCTOBER 2005
 SCALE: AS SHOWN
 W.O. NO.: 2014031.00

5 SHEET OF 9



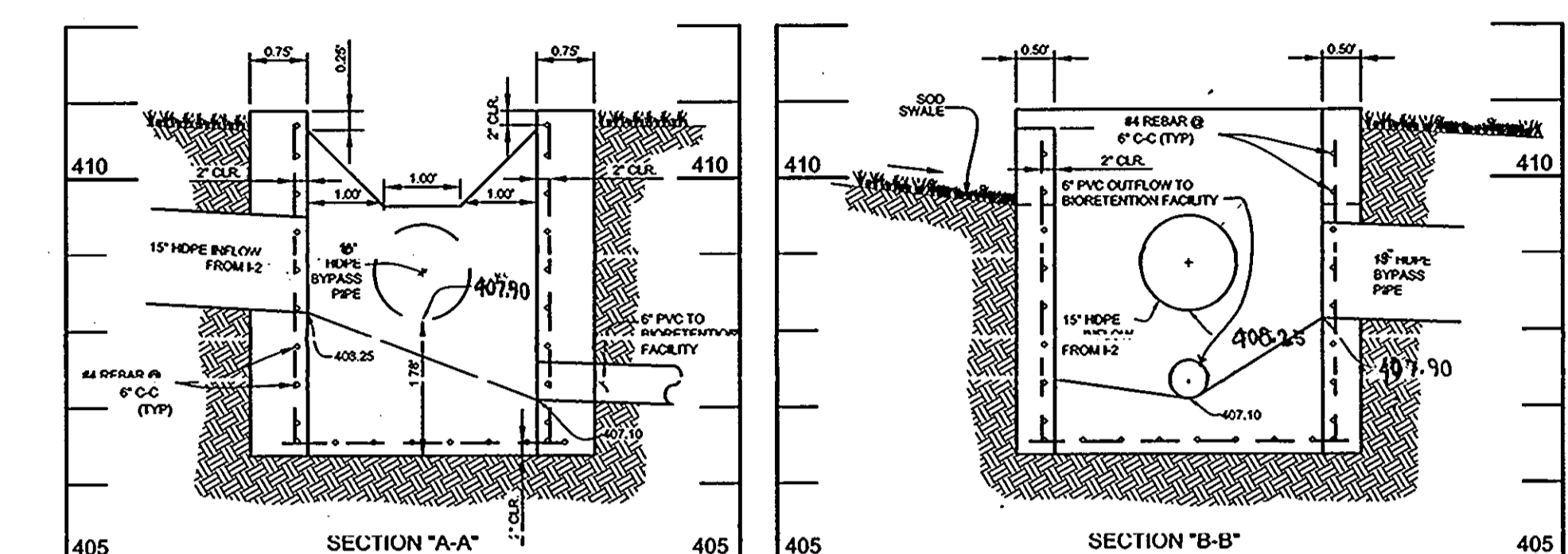
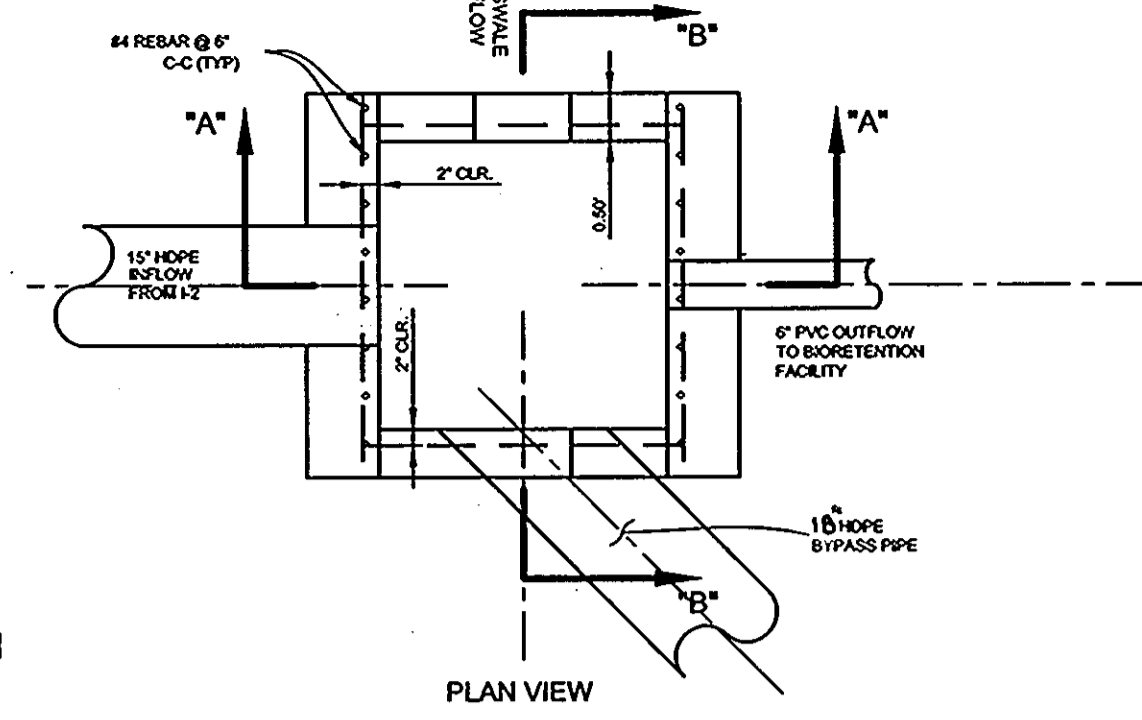
BIORETENTION FACILITY DETAIL
NOT TO SCALE

PIPE SCHEDULE		
PIPE SIZE	TYPE	TOTAL LENGTH
15"	HDPE	56
6"	PERF. PVC	95
6"	SOLID PVC	30

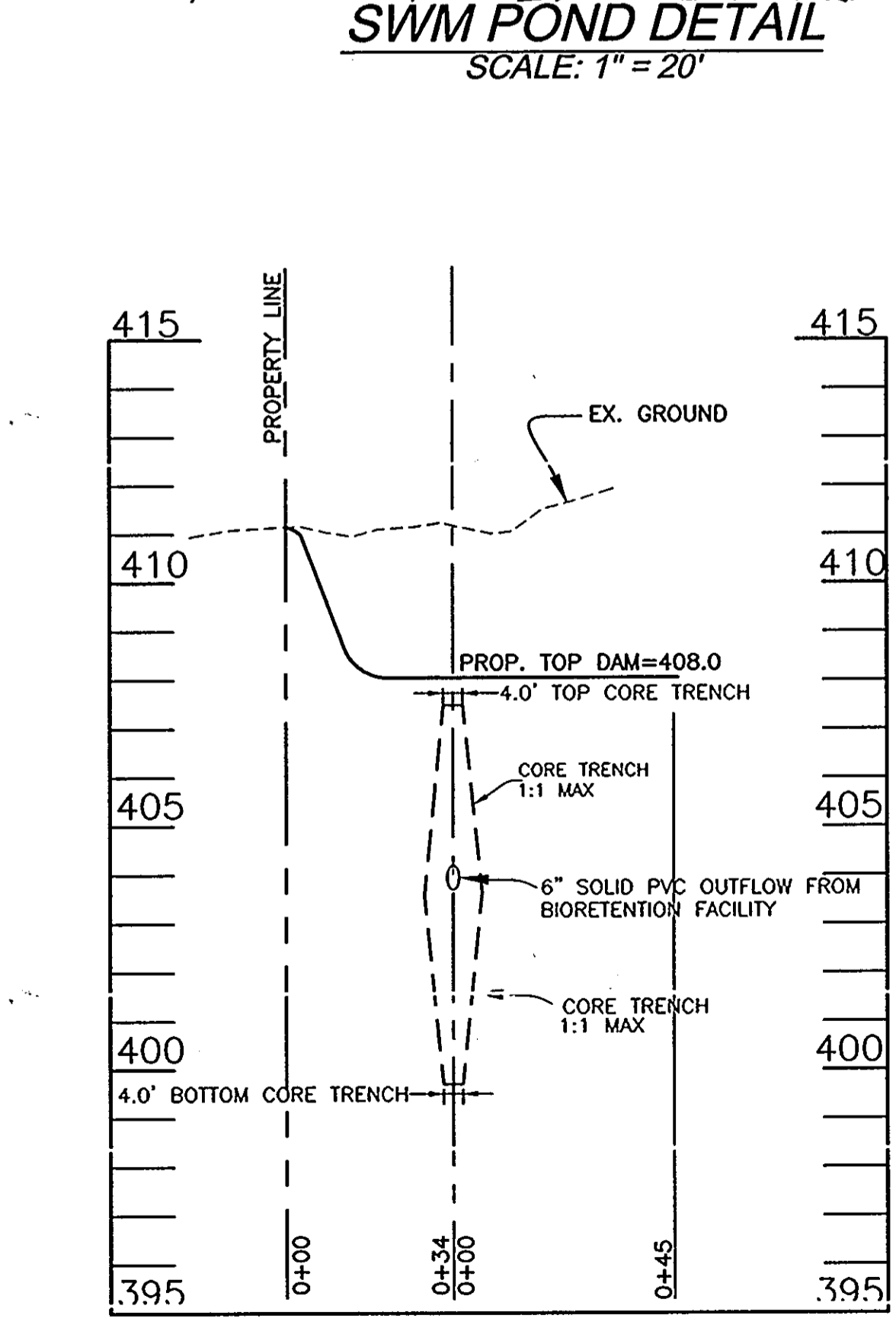
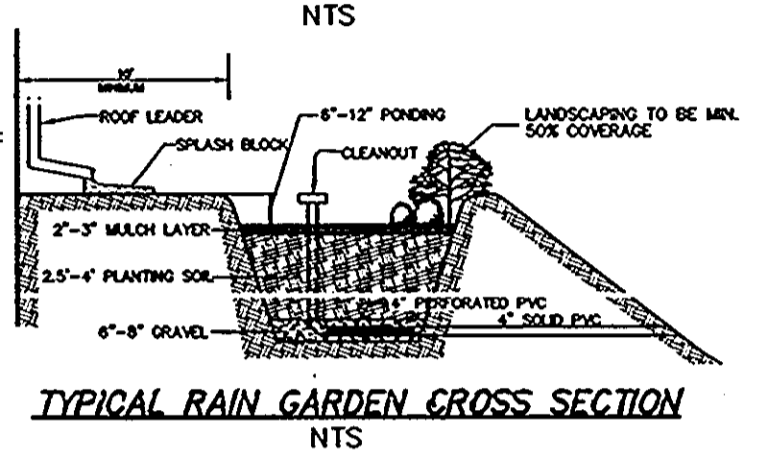
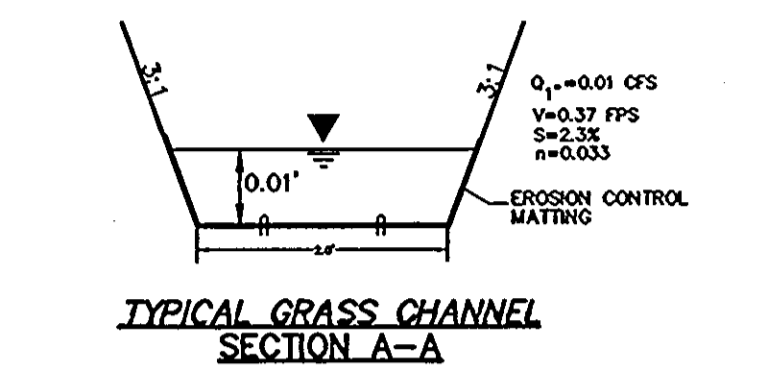
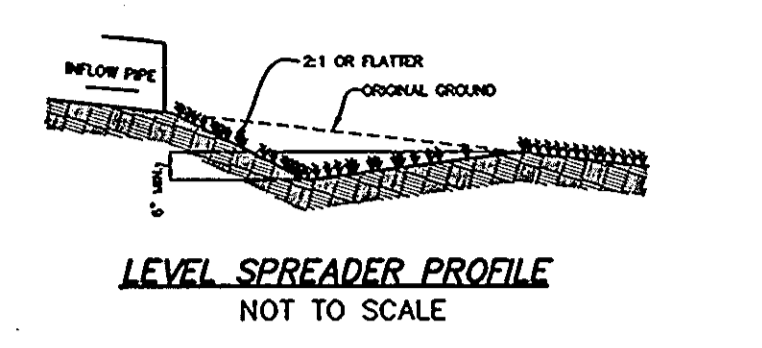
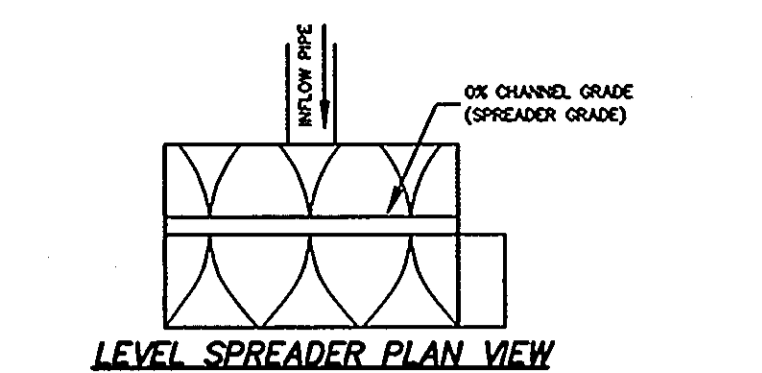
*SEE "MATERIALS FOR BIORETENTION CHART" ON SHEET 9 OF 9

INLET SCHEDULE							
NO.	TYPE	LOCATION		TOP ELEV.*	INV. IN	INV. OUT	REMARKS
		NORTHING	EASTING				
I-1	MODIFIED TYPE 'K'	536,585.86	1,338,360.09	410.82	408.83	408.82	FLOW SPLITTER
I-2	MODIFIED TYPE 'K'	578,213	1,364,041	410.49	-	408.81	SD-4.12

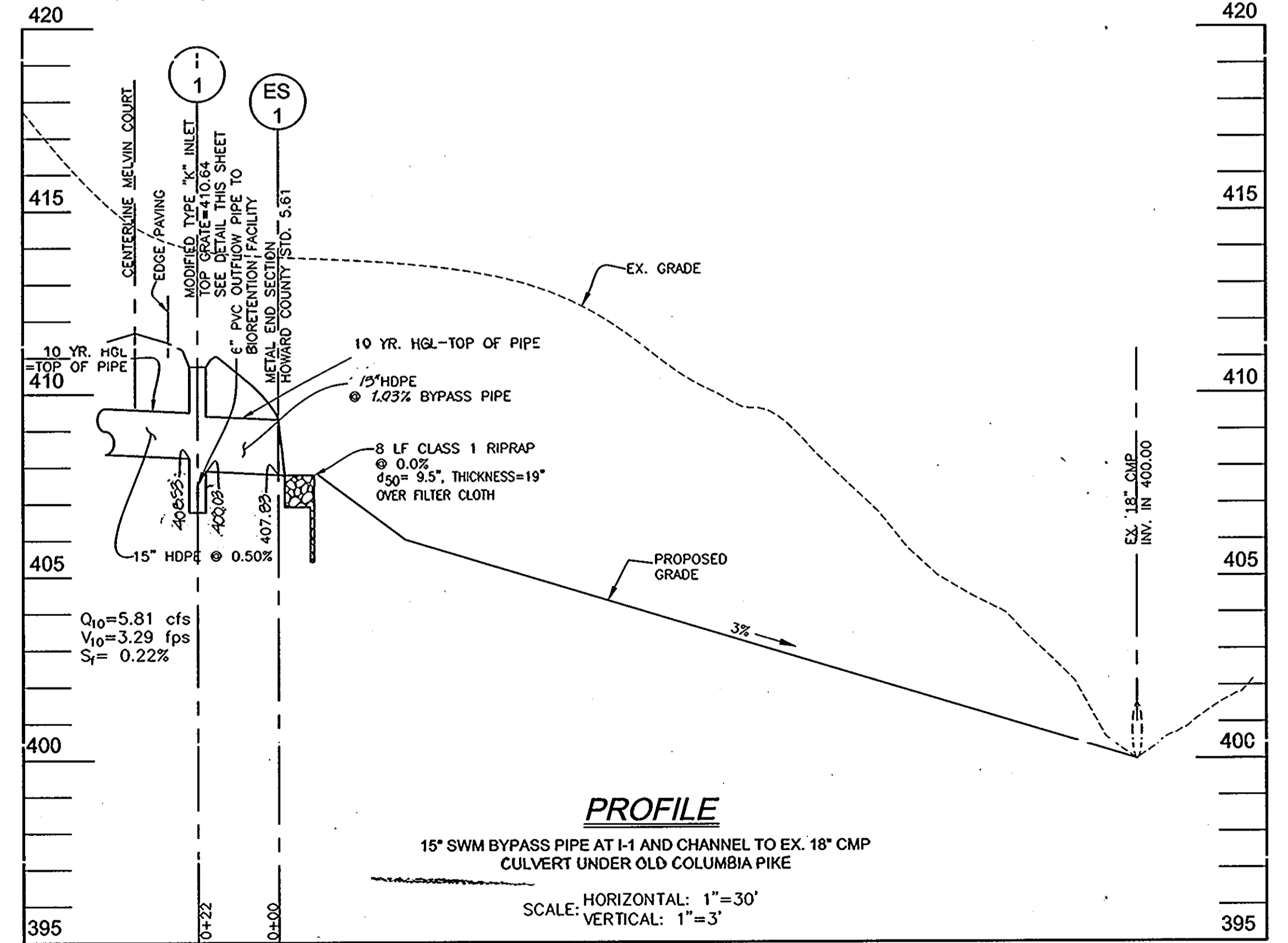
STRUCTURE SCHEDULE							
NO.	TYPE	LOCATION		TOP ELEV.	INV. IN	INV. OUT	REMARKS
		NORTHING	EASTING				
ES-1	HOWARD COUNTY STD. 5.61 METAL END SECTION	578,273	1,364,278	401.45	-	407.83	SD-5.21
CS-1	HOWARD COUNTY STD. 5-2.22 CLEANOUT	578,274	1,364,271	404.00	397.08	396.98	MODIFIED G-5.03



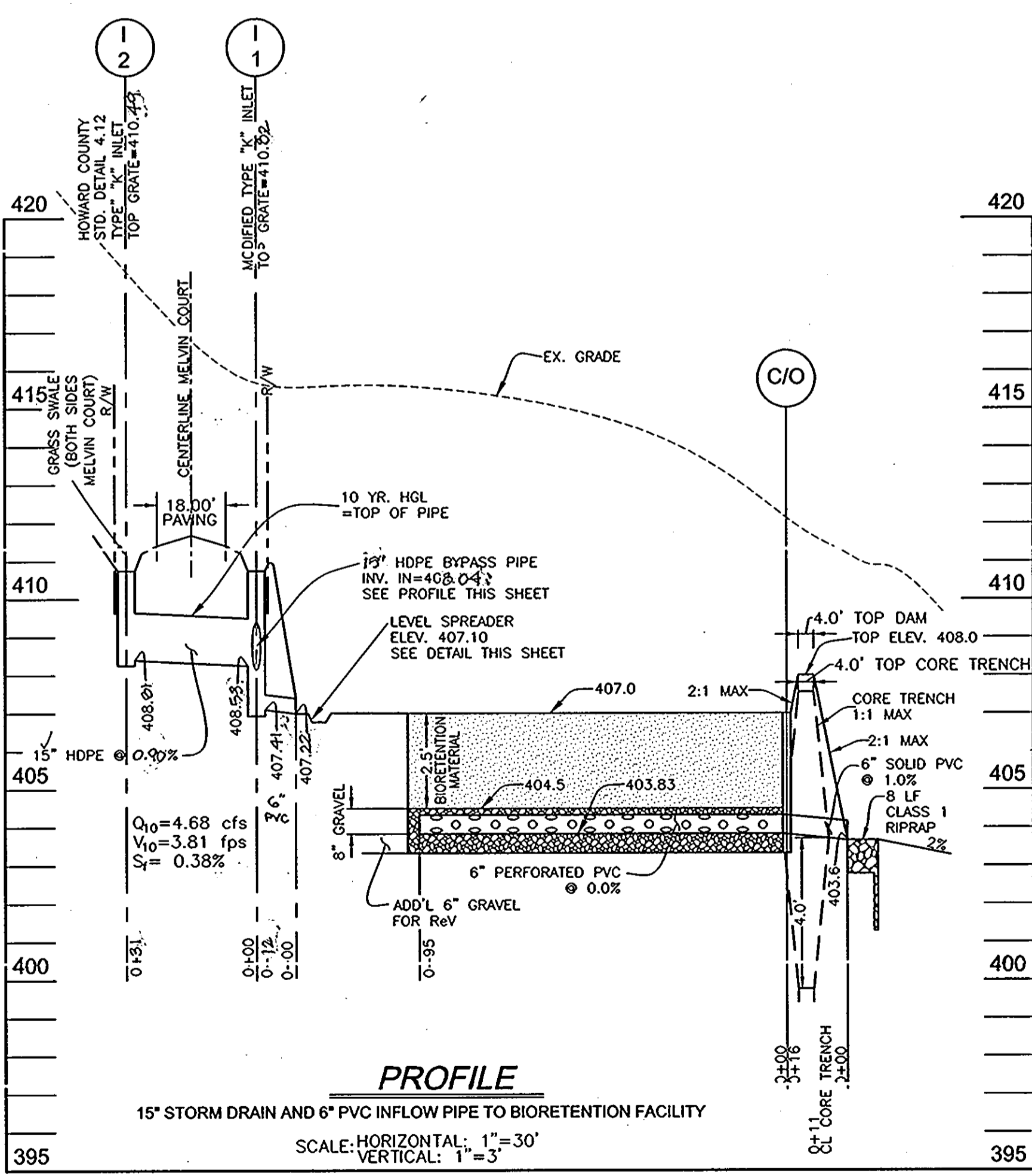
FLOW SPLITTER DETAIL
SCALE: 1"=20'



PROFILE ACROSS SPILLWAY
SCALE: HORIZONTAL: 1"=30'
VERTICAL: 1"=3'



PROFILE
SCALE: HORIZONTAL: 1"=30'
VERTICAL: 1"=3'



PROFILE
SCALE: HORIZONTAL: 1"=30'
VERTICAL: 1"=3'

- OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (F-6)**
- 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 RELACEMENT 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 DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
 - SOIL 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 BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

OWNER/DEVELOPER
MURRAY ROAD ESTATES, LLC
3258 BETHANY LANE
ELLCOTT CITY, MD 21042
(410) 485-8200

NO.	REVISION	DATE

STORMWATER MANAGEMENT DETAILS
SCAGGSVILLE KNOLLS
LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I
REFERENCE: SP-03-16

TAX MAP #40 GRID 3 & 9 PARCEL 118
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: JCO
DRAWN BY: DRN
CHECKED BY: JCO
DATE: OCTOBER 2008
SCALE: AS SHOWN
W.O. NO.: 2014031.00

6 SHEET OF 9

AS-BUILT
I HEREBY CERTIFY THAT THE FACILITY ON THIS PLAN WAS CONSTRUCTED AS SHOWN AND MEETS THE AS-BUILT PLANS AND SPECIFICATIONS.

ROBERT H. VOGEL, P.E. No. 16193

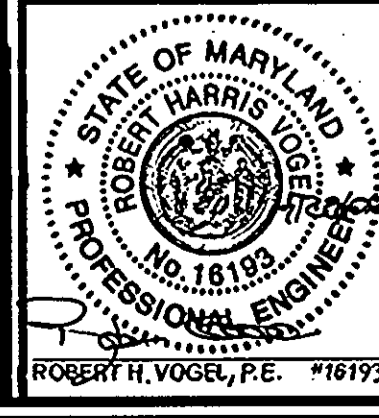
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hamant 9/5/08
Chief, Division of Land Development

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE
THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER'S CERTIFICATE
I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROCESS WILL HAVE A CERTIFICATE OF ATTENDANCE AT A FURNISHED BY THE FURNISHED APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION, BEFORE BEGINNING THE PROJECT.



MARYLAND 378 STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

These specifications are applicable 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. Grubbed logs and stumps shall be disposed of to a depth of not less than 1:1. All trees shall be cleared and grubbed within 15 feet of the low of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, stumps, rocks and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut off 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 United Soil Classification GC, SC, CH or CL and must have at least 50% passing the #20 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement - Areas 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 fill shall be traversed by not less than one load of heavy equipment or compaction shall be obtained by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall be compacted to a minimum density of 95% of the maximum dry density of the borrow material as determined by the Proctor test. 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 it 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 and 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 currently 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 borrow fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The borrow fill shall have a minimum pit of 4.0 and a minimum resistivity of 2000 ohm-cm. Material shall be placed such that minimum of 2" (measured perpendicular to the outside of the pipe) of borrow 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 material. Adequate measures shall be taken (sand logs, etc.) to prevent floating the pipe. When using borrow 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 borrow 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 the 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 (Borrow 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.

Compacted Metal Pipe - All of the following criteria shall apply for compacted metal pipe:

- Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coating shall have a minimum coating thickness of 0.01 inch (10 mils) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-245 & M-246 with water tight coating bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with water tight coating bands or flanges. Aluminum Coated Steel Pipes, when used with borax fill or when soil and/or water conditions warrant 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 painted with one coat of zinc chromate primer or two coats of asphalt.

POND BOTTOM SOIL CONDITIONS

If broken rock fragments are encountered at finished pond bottom, under a minimum of 12" below basin grade and to a horizontal distance of at least 18" beyond each edge of the broken rock and backfill with fine-grained silty or CL soils compacted to a firm condition. This procedure should be performed under the supervision of the project Geotechnical Engineer.

MATERIAL SPECIFICATIONS FOR BIORETENTION

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	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 diaphragm and curtain drain	pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 3"	
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4222), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
poured in place concrete (if required)	MSHA Mix No. 3; F _c = 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 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking.
sand (1" deep)	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

SWM BORING DATA

OWNER/DEVELOPER
MURRAY ROAD ESTATES, LLC
3258 BETHANY LANE
ELLICOTT CITY, MD 21042
(410) 465-8200

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

STORMWATER MANAGEMENT BORING LOGS
SCAGGSVILLE KNOLLS
LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I
REFERENCE: SP-03-16

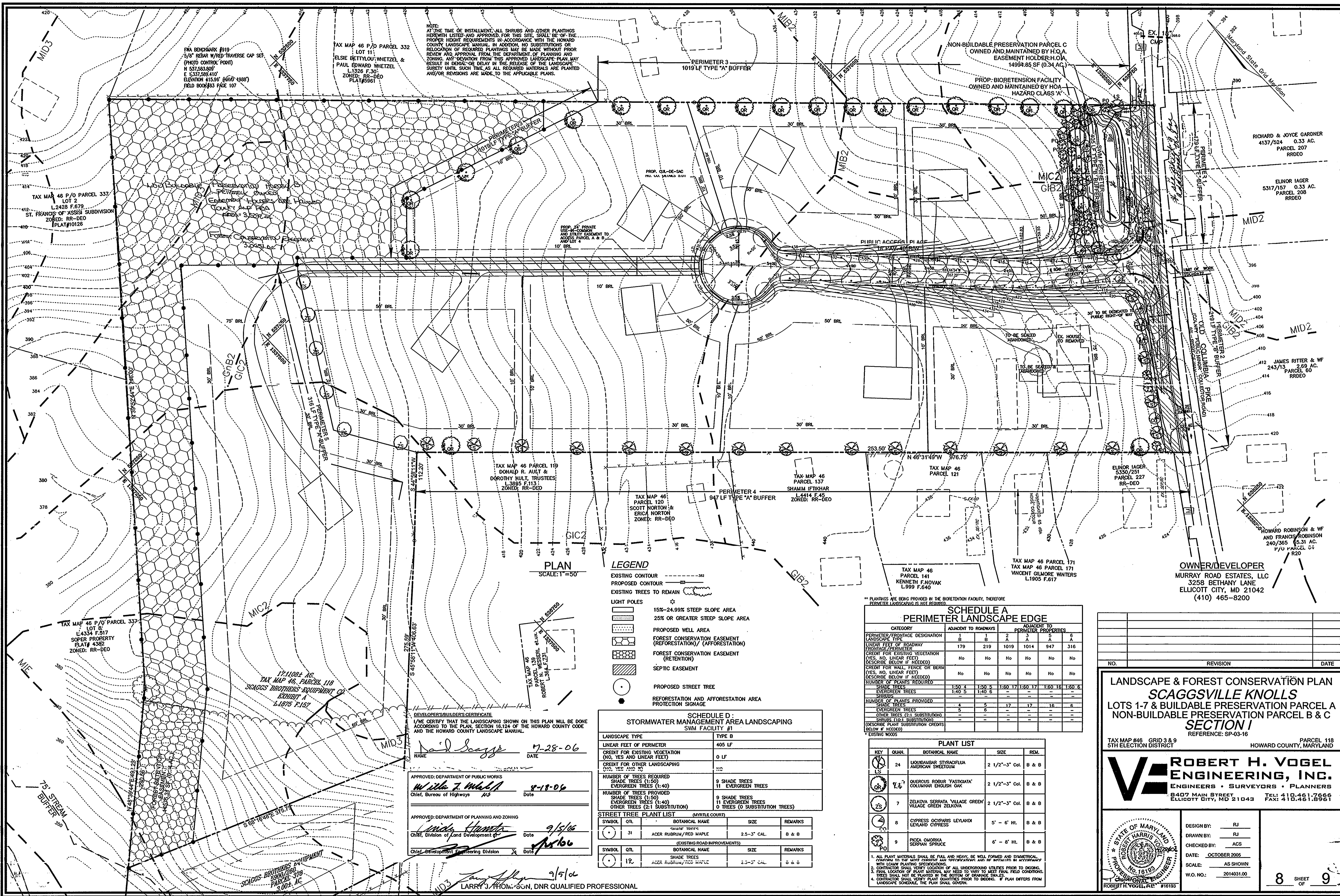
TAX MAP #46 GRID 3 & 9 PARCEL 118
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: *RSJ/CO*
DRAWN BY: *DRN*
CHECKED BY: *JCB*
DATE: OCTOBER 2005
SCALE: AS SHOWN
W.O. NO.: 2014031.00

7 SHEET OF 9

APPROVED: DEPARTMENT OF PUBLIC WORKS
William J. Hubbell 8-18-06
Chief, Bureau of Highways MS Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Christa Hancock 9/5/06
Chief, Division of Land Development pl Date



PLAN
SCALE: 1"=50'

- LEGEND**
- EXISTING CONTOUR
 - PROPOSED CONTOUR
 - EXISTING TREES TO REMAIN
 - LIGHT POLES
 - 15%-24.99% STEEP SLOPE AREA
 - 25% OR GREATER STEEP SLOPE AREA
 - PROPOSED WELL AREA
 - FOREST CONSERVATION EASEMENT (REFORESTATION)/ (AFFORESTATION)
 - FOREST CONSERVATION EASEMENT (RETENTION)
 - SEPTIC EASEMENT
 - PROPOSED STREET TREE
 - REFORESTATION AND AFFORESTATION AREA
 - PROTECTION SIGNAGE

**SCHEDULE D:
STORMWATER MANAGEMENT AREA LANDSCAPING
SWM FACILITY #1**

LANDSCAPE TYPE	TYPE B
LINEAR FEET OF PERIMETER	405 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	0 LF
CREDIT FOR OTHER LANDSCAPING (NO, YES AND LF)	110
NUMBER OF TREES REQUIRED SHADE TREES (1:50) EVERGREEN TREES (1:40)	9 SHADE TREES 11 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES (1:50) EVERGREEN TREES (1:40) OTHER TREES (2:1 SUBSTITUTION)	9 SHADE TREES 11 EVERGREEN TREES 0 TREES (0 SUBSTITUTION TREES)

STREET TREE PLANT LIST (MYRTLE COURT)

SYMBOL	QTY	BOTANICAL NAME	SIZE	REMARKS
OR	31	ACER RUBRUM/RED MAPLE	2.5"-3" CAL.	B & B

(EXISTING ROAD IMPROVEMENTS)

SYMBOL	QTY	BOTANICAL NAME	SIZE	REMARKS
OR	12	SHADE TREES ACER RUBRUM/RED MAPLE	2.5"-3" CAL.	B & B

**SCHEDULE A
PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES	
	B	A	2	1
PERIMETER/FRONTAGE DESIGNATION	B	A	2	1
LANDSCAPE TYPE	B	A	2	1
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	179	219	1019	1014
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	No	No	No	No
CREDIT FOR WALL, FENCE OR BERTU (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	No	No	No	No
NUMBER OF PLANTS REQUIRED	1:50 4	1:50 5	1:50 17	1:50 17
NUMBER OF PLANTS PROVIDED	4	5	17	17
SHRUBS	0	0	0	0
EVERGREEN TREES	0	0	0	0
SHADE TREES	4	5	17	17
OTHER TREES (2:1 SUBSTITUTION)	0	0	0	0
SHRUBS (1:1 SUBSTITUTION)	0	0	0	0
OTHER TREES (2:1 SUBSTITUTION)	0	0	0	0
EXISTING WOODS	0	0	0	0

PLANT LIST

KEY	QTY	BOTANICAL NAME	SIZE	REMARKS
LS	24	LIQUIDAMBAR STYRACIFLUA AMERICAN SWEETGUM	2 1/2"-3" Col.	B & B
OR	11	QUERCUS ROBUR 'FASTIGIATA' COLLUMNAR ENGLISH OAK	2 1/2"-3" Col.	B & B
ZS	7	ZELKOVA SERRATA 'VILLAGE GREEN' VILLAGE GREEN ZELKOVA	2 1/2"-3" Col.	B & B
CS	8	CYPRESS OXYDANS LEYLANDI LEYLAND CYPRESS	5' - 6' HL.	B & B
PO	9	PICEA OMORICA SERPIAN SPRUCE	6' - 8' HL.	B & B

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORMING TO THE MOST RECENT AND APPROPRIATE SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LOCAL PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL WILL NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUALITIES PRIOR TO BROOKING. IF PLANS DIFFER FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

DEVELOPER'S/BUILDERS 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.

NAME: *David Scagg* DATE: *7-28-06*

APPROVED: DEPARTMENT OF PUBLIC WORKS
W. L. W. Chief, Bureau of Highways DATE: *8-18-06*

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development DATE: *9/5/06*

LARRY J. THOM, SON, DNR QUALIFIED PROFESSIONAL DATE: *9/5/06*

**LANDSCAPE & FOREST CONSERVATION PLAN
SCAGGSVILLE KNOLLS
LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I**

REFERENCE: SP-03-16

TAX MAP #46, GRID 3 & 9 PARCEL 118
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

NO.	REVISION	DATE

DESIGN BY: RJ
DRAWN BY: ACS
CHECKED BY: ACS
DATE: OCTOBER 2005
SCALE: AS SHOWN
W.O. NO.: 2014031.00

8 SHEET OF 9

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:
 TOTAL TRACT AREA (PHASE II) 17.1108 AC
 AREA WITHIN 100 YEAR FLOODPLAIN 0.00 AC
 AREA TO REMAIN IN AGRICULTURAL PRODUCTION 0.00 AC
 NET TRACT AREA (PHASE II) 17.1108 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	HDR	MPD	CIA
0	1	0	0	0	0

E. AFFOREST THRESHOLD 20% X D = 3.4 AC
 F. CONSERVATION THRESHOLD 25% X D = 4.3 AC

EXISTING FOREST COVER:
 G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 0.97 AC
 H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 0.00 AC
 I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 0.00 AC

BREAK EVEN POINT:
 J. FOREST RETENTION WITH NO MITIGATION REQUIRED = 0.34 AC
 K. CLEARING PERMITTED WITHOUT MITIGATION = 0.00 AC

PROPOSED FOREST CLEARING:
 L. TOTAL AREA OF FOREST TO BE CLEARED = 0.63 AC
 M. TOTAL AREA OF FOREST TO BE RETAINED = 0.34 AC

PLANTING REQUIREMENTS:
 N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD = 0.00 AC
 O. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 1.26 AC
 P. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD = 0.00 AC
 R. TOTAL REFORESTATION REQUIRED = 1.26 AC
 S. TOTAL AFFORESTATION REQUIRED = 2.45 AC
 T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 3.71 AC

SYMBOL	QUAN	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	NOTES
238		Acer Rubrum	Red Maple	3-4'	11' O.C.	CONTAINER W/ SHELTERS
238		Fraxinus pennsylvanica	Green Ash	3-4'	11' O.C.	CONTAINER W/ SHELTERS
238		Platanus occidentalis	Sycamore	3-4'	11' O.C.	CONTAINER W/ SHELTERS
238		Liquidambar styraciflua	Sweetgum	3-4'	11' O.C.	CONTAINER W/ SHELTERS
238		Fagus grandifolia	American Beech	3-4'	11' O.C.	CONTAINER W/ SHELTERS

FOREST STAND ANALYSIS TABLE

KEY	A. TYPE OF COMMUNITY	B. AREA	C. SOILS INFORMATION			D. EXISTING VEGETATION	E. STAND CHARACTERISTICS			F. FOREST AREA IN SEH. ENV.	G. HABITAT
			1. SOIL TYPES	2. TYPICAL FOREST COVER FOR SOIL TYPE	3. WOODLAND SUITABILITY INDEX		1. SIZE (DIA)	2. AGE (YRS)	3. GENERAL CONDITION		
L-3	HOUSES, BARN AND YARD	1.71 AC	G82	MIXED UPLAND HARDWOODS MAINLY OAKS	30	TUSE LANDSCAPING 1 60'DBH SILVER MAPLE	N/A	N/A	N/A	0.00 AC	G
	IN PASTURE		M03	HARDWOODS	44	RED MAPLE, SYCAMORE					
OF-3	PASTURE, POND STREAMS, TREES	13.40 AC	G82, C2, M03, C2, M03	MIXED HARDWOODS	30, 43, 44	PASTURE GRASSES	N/A	N/A	N/A	0.00 AC	F

FOREST STAND TOTALS

STAND L-3 1.71 ACRES
 STAND OF-3 15.40 ACRES
 TOTAL 17.11 ACRES

SUPPLEMENTAL INFORMATION

GROSS SITE AREA 17.1108 ACRES
 ZONED RESIDENTIAL
 PROPOSED USE RESIDENTIAL DEVELOPMENT

FOREST RETENTION AREAS AND NOTES

- FORESTED STREAM BUFFERS ARE RETAINED IN OPEN SPACE LOTS.
- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
- THE WOODED STEEP SLOPES ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
- FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
- THERE ARE NO ISOLATED FOREST STANDS ON THIS SITE.
- CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES. RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
- FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE, DPZ, AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE RETENTION OF EXISTING FOREST IN THE AMOUNT OF 0.34 AC, REFORESTATION/AFFORESTATION OF 3.06 AC, AND FEE-IN-LIEU FOR THE REMAINING 0.65 AC.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. THE TOTAL FOREST CONSERVATION OBLIGATION IS 3.71 ACRES (REFORESTATION 1.26 AC AND AFFORESTATION 2.45 ACRES).

FOREST PROTECTION NOTES

PRE-CONSTRUCTION ACTIVITIES

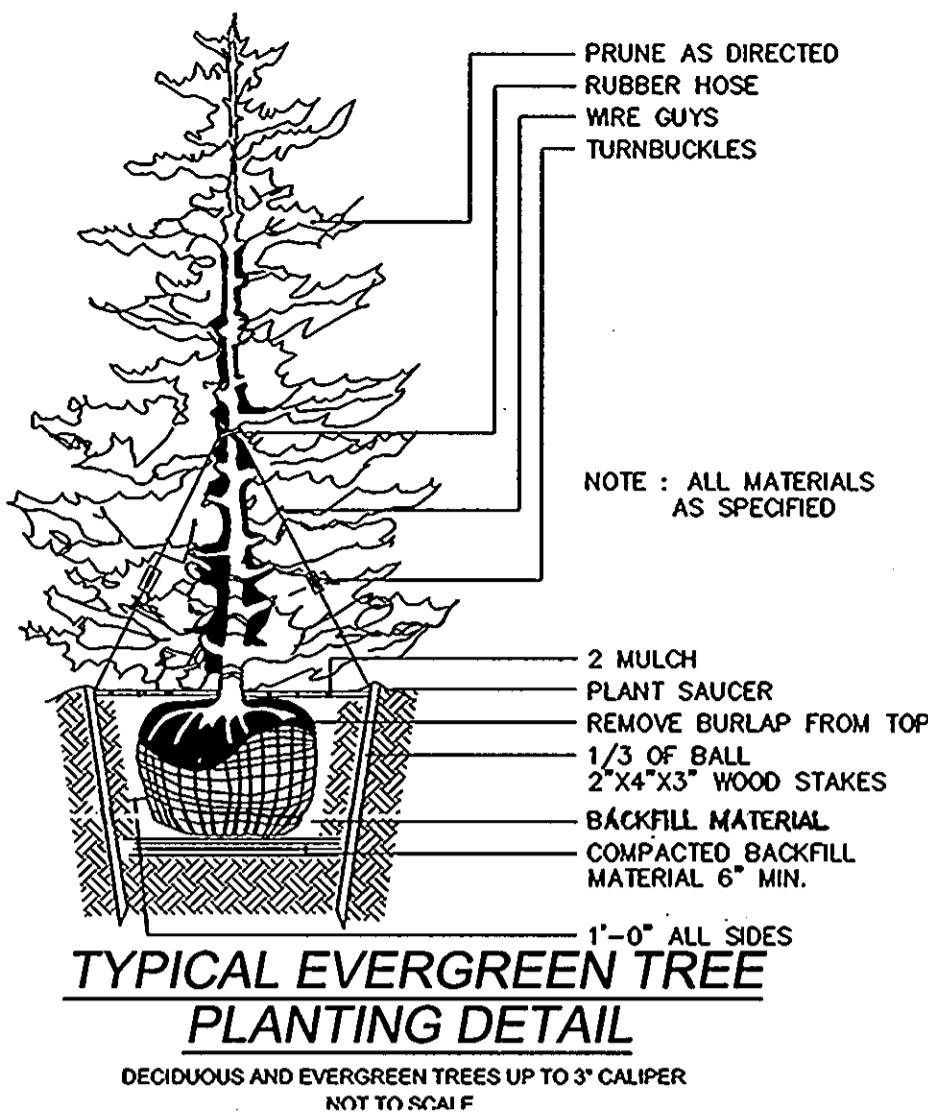
- FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
- FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
- A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE

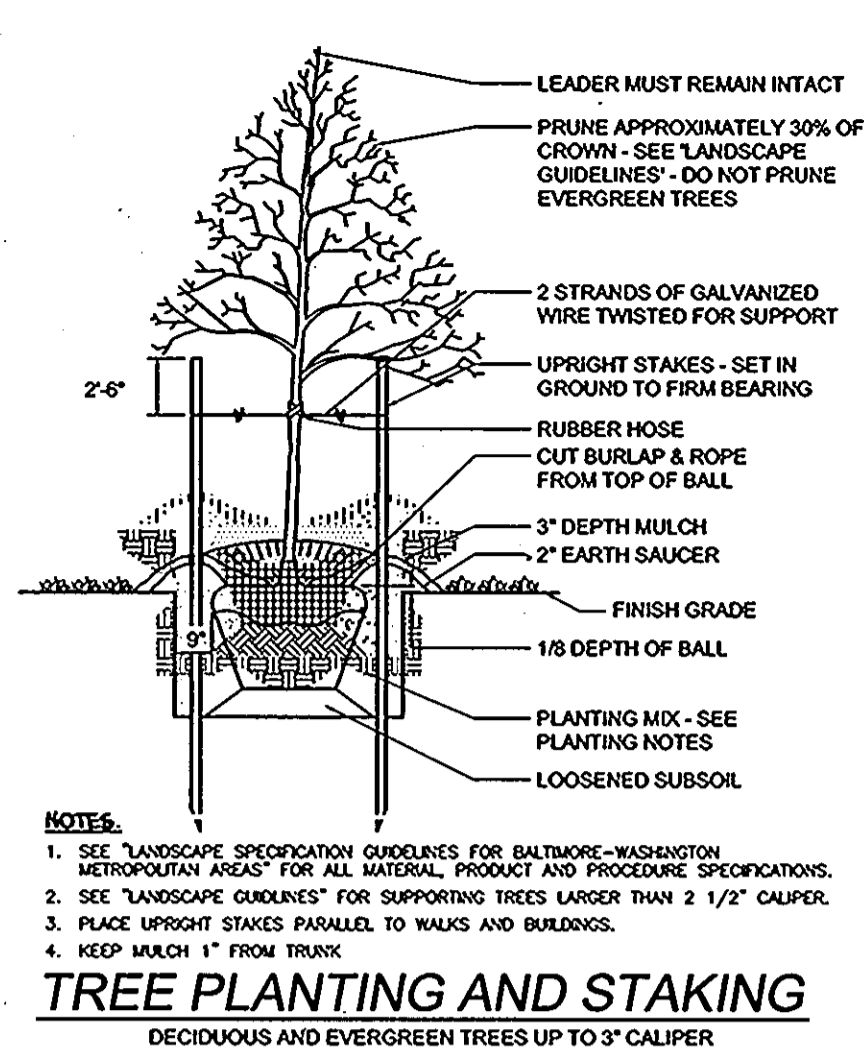
- NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
- NO EQUIPMENT SHALL BE OPERATED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
- IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION ACTIVITIES

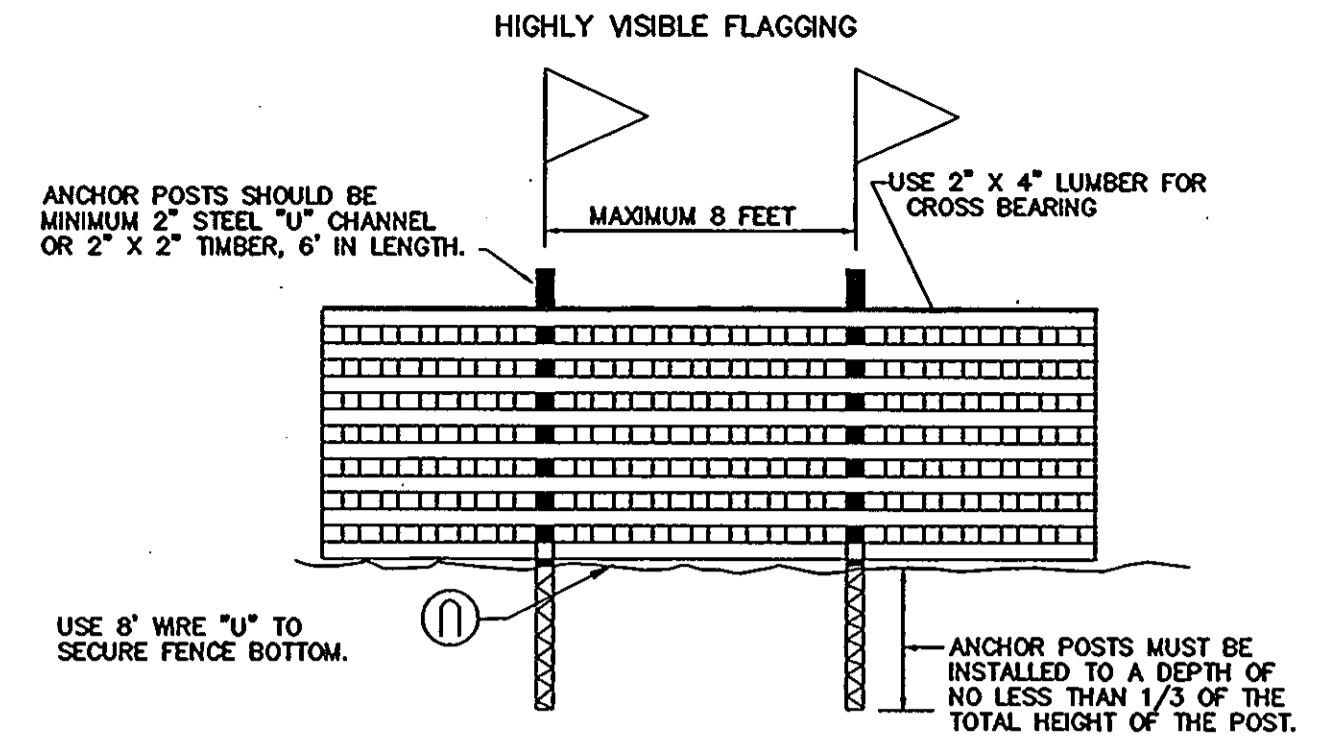
- AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
- FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
- DO NOT REMOVE SIGNS.



TYPICAL EVERGREEN TREE PLANTING DETAIL
 DECIDUOUS AND EVERGREEN TREES UP TO 3" CALIPER
 NOT TO SCALE

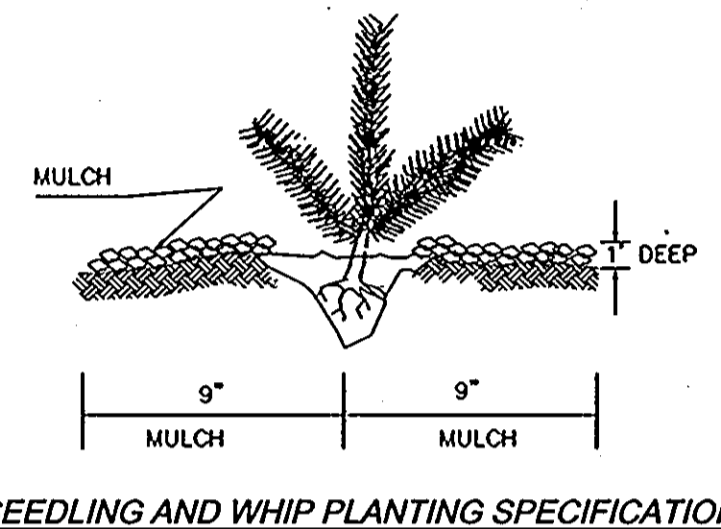


TREE PLANTING AND STAKING
 DECIDUOUS AND EVERGREEN TREES UP TO 3" CALIPER
 NOT TO SCALE

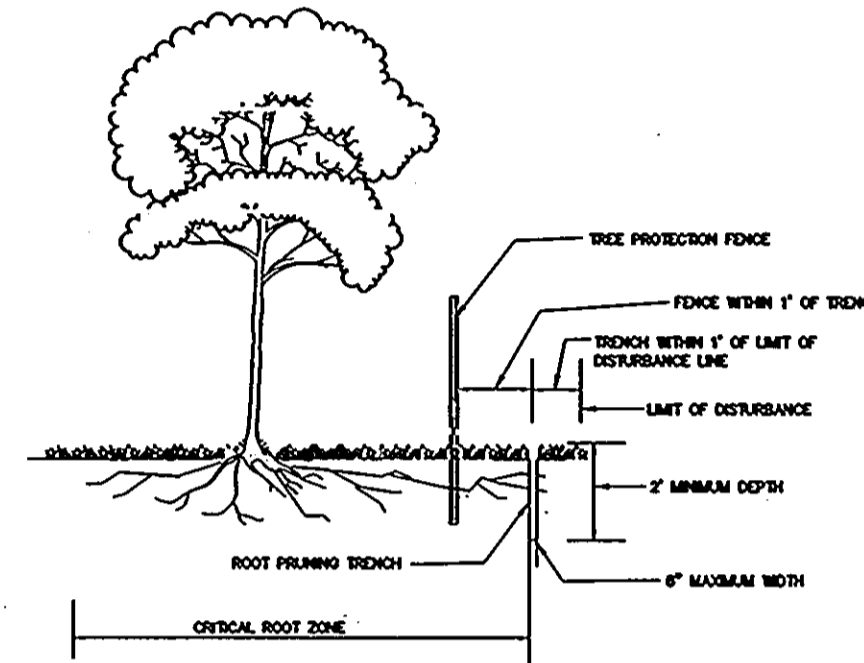


- NOTES:**
- FOREST PROTECTION DEVICE ONLY.
 - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOT DAMAGE SHOULD BE AVOIDED.
 - PROTECTION SIGNAGE SHOULD BE USED.
 - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

BLAZE ORANGE PLASTIC MESH TYPICAL TREE PROTECTION FENCE DETAIL
 NTS

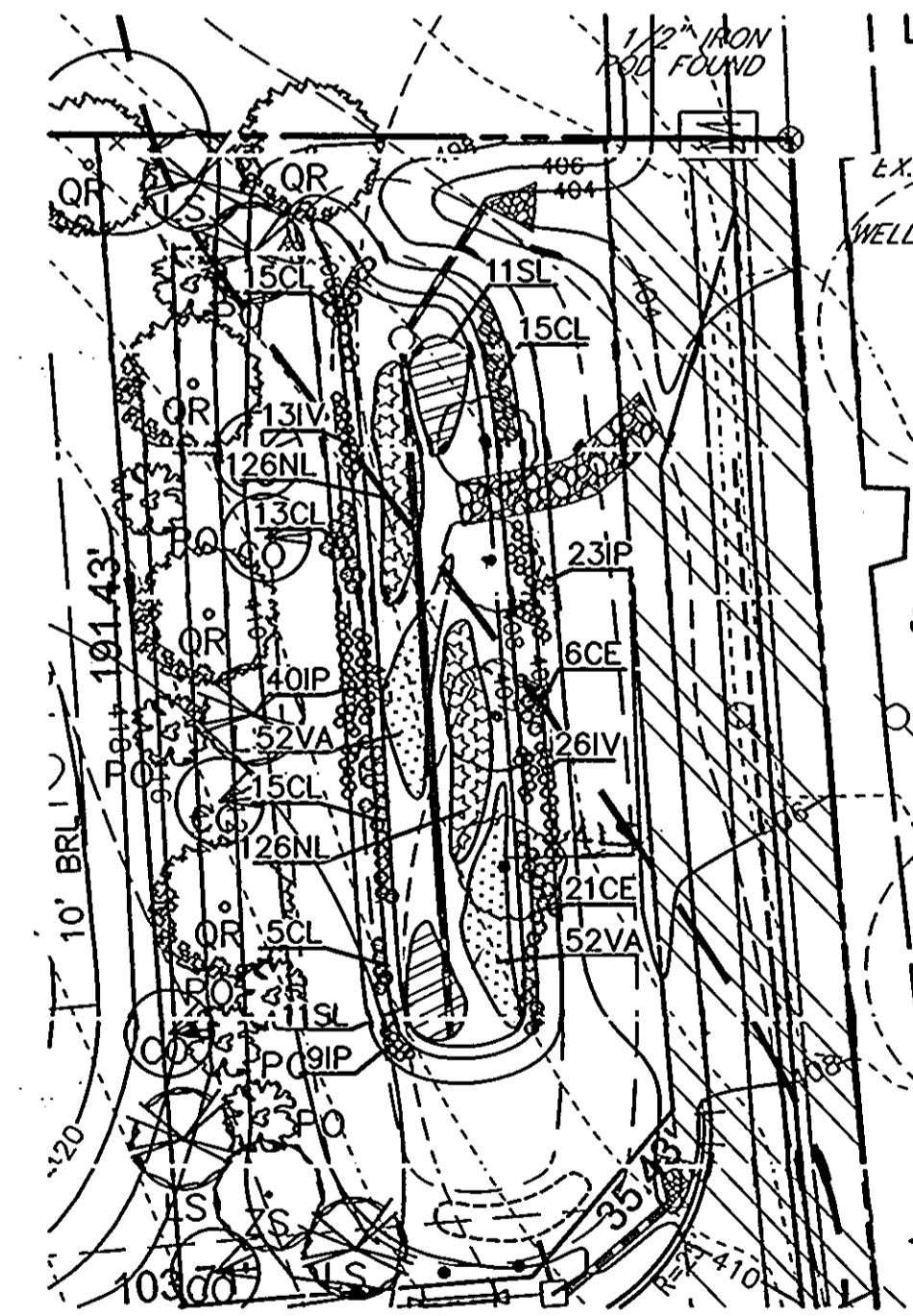


SEEDLING AND WHIP PLANTING SPECIFICATION



- NOTES:**
- RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TRENCHING.
 - EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
 - TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL.
 - ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

ROOT PRUNING



BIORETENTION PLANTING PLAN
 SCALE: 1" = 30'

KEY	QUAN	BOTANICAL NAME	SIZE	REMARKS
VA	104	Vallisneria americana Wild Celery	plug	2' oc
IP	52	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
IV	39	Iris versicolor Blue Floa (wear gloves)	plug	1.5' oc
SL	22	Sagittaria latifolia Duck Potato (do not plant tubers)	plug	4' oc
CE	27	Cyperus esculentus Yellow Nut Sedge	plug	2' oc
NL	252	Nuphar luteum Spatterdock	plug	1.5' oc
CL	63	Carex lasustris Lake Sedge	plug	2' oc

ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVA NATIVE NURSERY OR EQUAL. ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCAMW SPECIFICATIONS.

FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS A PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$21,000 FOR 59 SHADE TREES AND 22 EVERGREEN TREES.

FINANCIAL SURETY FOR THE REQUIRED STREET TREES WILL BE POSTED AS A PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$11,700.

AN AFFORESTATION AND REFORESTATION EASEMENT WILL BE ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. THE TOTAL FOREST CONSERVATION OBLIGATION IS 3.71 ACRES (REFORESTATION 1.26 AC AND AFFORESTATION 2.45 ACRES).

A FEE-IN-LIEU TOTALING \$14,157 (28,314 SF X 0.50) WILL BE POSTED FOR THE REMAINING 0.65 ACRES OF REFORESTATION.

BOND FOR THE 3.71 ACRES WILL BE POSTED IN THE AMOUNT OF \$69,610 RETENTION - (14,811 SF X .20) \$2,963 AFFORESTATION AND REFORESTATION - (14,350 X .50) \$7,175

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 8-18-06
 Chief, Bureau of Highways

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 9/5/06
 Chief, Division of Land Development

[Signature] 7-31-06
 LARRY J. THOMPSON
 DNR QUALIFIED PROFESSIONAL

OWNER/DEVELOPER
 MURRAY ROAD ESTATES, LLC
 3258 BETHANY LANE
 ELLICOTT CITY, MD 21042
 (410) 465-8200

NO.	REVISION	DATE

LANDSCAPE & FOREST CONSERVATION DETAILS
SCAGGSVILLE KNOLLS
 LOTS 1-7 & BUILDABLE PRESERVATION PARCEL A
 NON-BUILDABLE PRESERVATION PARCEL B & C
SECTION I
 REFERENCE: SP-03-16

TAX MAP #46 GRID 3 & 9 PARCEL 118
 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: 410.461.8981

DESIGN BY: RJ
 DRAWN BY: RJ
 CHECKED BY: JCO
 DATE: OCTOBER 2006
 SCALE: AS SHOWN
 W.O. NO.: 2014031.00

9 SHEET OF 9