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# FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN

## BUCKSKIN OAKS

LOTS 1 THRU 4, OPEN SPACE LOT 5,  
 BUILDABLE PRESERVATION PARCEL 'A' AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
 (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINIX PROPERTY, PLAT NO. 144449)

ZONED: RR-DEO

TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hancock* 12/7/05  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE  
*W. DeWitt* 12/16/05  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE  
 APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*W. Peter F. Walsh* 12-1-05  
 CHIEF, BUREAU OF HIGHWAYS  
 DATE

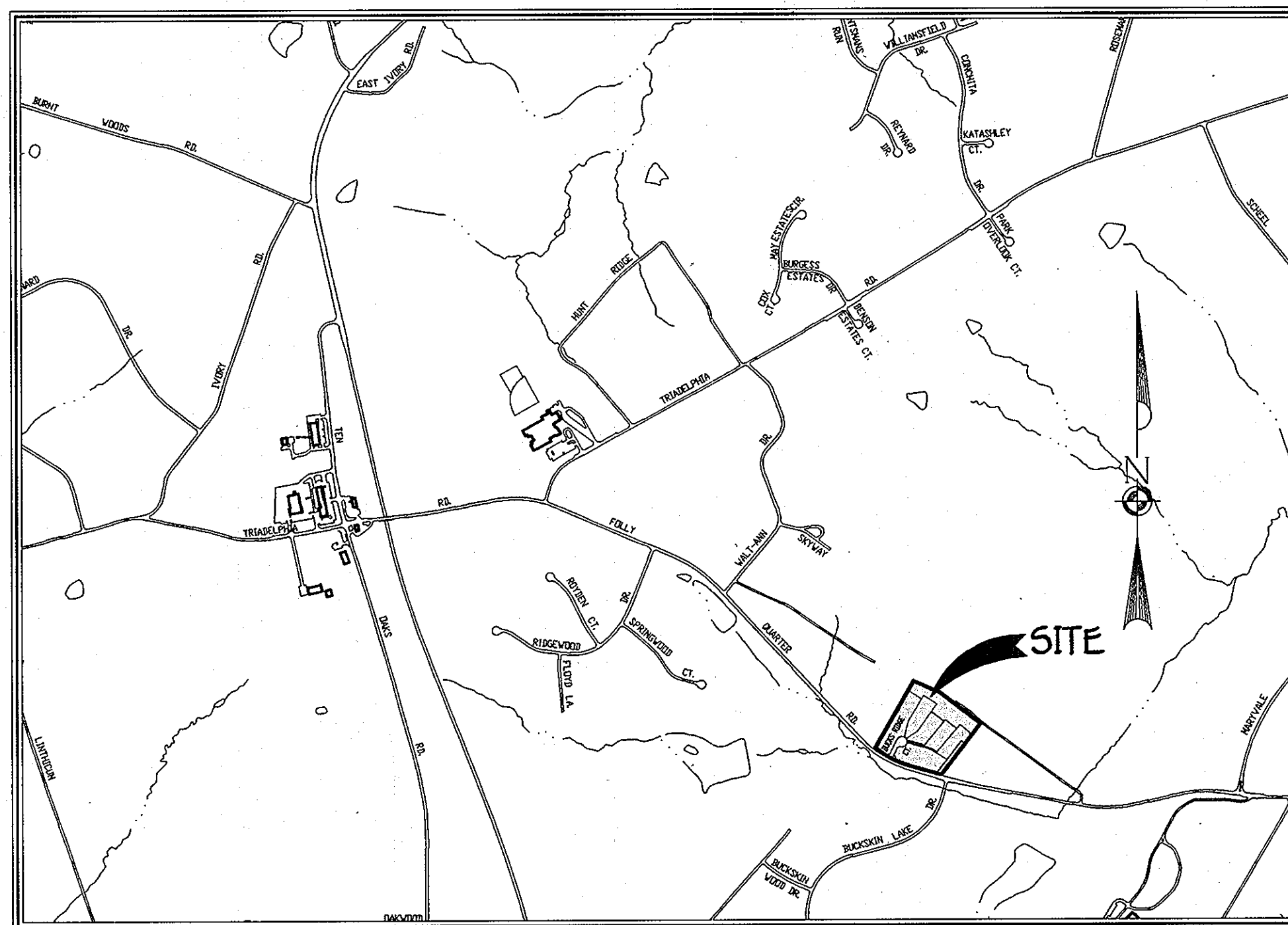
**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (9) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- COORDINATES BASED ON NAD27 MARYLAND COORDINATE SYSTEM AS PROVIDED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 3035003 AND NO. 3035002  
 V.NO. 3035003 N 518,771,894 ELEV. = 501.265  
 E 808,824,115  
 V.NO. 3035002 N 518,569,098 ELEV. = 493.080  
 E 809,377,965
- THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP DATED JULY 27, 2009 AND APPROVED UNDER SP 01-05.
- BACKGROUND INFORMATION:  
 A. SUBDIVISION NAME: BUCKSKIN OAKS  
 B. TAX MAP NO.: 22  
 C. PARCEL NO.: PART OF PARCEL NO. 73  
 D. ZONING: RR-DEO  
 E. ELECTION DISTRICT: THIRD  
 F. TOTAL TRACT AREA: 11.487 AC.  
 G. NO. OF BUILDABLE LOTS: 4  
 H. NO. OF OPEN SPACE LOTS: 1  
 I. NO. OF NON-BUILDABLE PARCELS: 2  
 J. NO. OF BUILDABLE PARCELS: 1  
 K. AREA OF BUILDABLE LOTS: 4.236 AC.  
 L. AREA OF OPEN SPACE LOTS: 0.345 AC.  
 M. AREA OF NON-BUILDABLE PARCELS: 4.351 AC.  
 N. AREA OF BUILDABLE PARCELS: 2.215 AC.  
 O. TOTAL AREA OF ROADWAY TO BE DEDICATED: 0.339 AC.  
 P. PREVIOUS FILE NOS.: SP 01-05, APPROVAL DATE: 11/02/01 & WP 05-82 WAS APPROVED ON MARCH 28, 2005 TO ALLOW CLEARING OR GRADING WITHIN THE FLOODPLAIN (SEC. 16100) AND TO ALLOW GRADING WITHIN 50' OF AN INTERMITTENT STREAM OR 75' OF A PERENNIAL STREAM (SEC. 16115 (a)). THE WAIVER WAS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:  
 1. COORDINATE THE LOCATION OF THE OUTFALL WITH THE DEVELOPMENT ENGINEERING DIVISION AND THE SOIL CONSERVATION DISTRICT.  
 2. PROVIDE A DESIGN WHICH MINIMIZES DISTURBANCE, AND SHOW A CLEAR LIMIT OF DISTURBANCE.  
 3. GRADING, REMOVAL OF VEGETATIVE COVER AND CONSTRUCTION SHALL ONLY BE TO THE EXTENT REQUIRED TO ACCOMMODATE THE NECESSARY IMPROVEMENTS. REPLANT ANY AREA DISTURBED OUTSIDE OF THE RIP-RAP OUTFALL.  
 (THE EASEMENT IN CONJUNCTION WITH THE STORM DRAIN WAS REDESIGNED SO AS NOT TO REQUIRE THE APPROVED WAIVER.)
- NO CEMETERIES EXIST ON THE PROPERTY.
- ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.
- THE FOREST CONSERVATION EASEMENTS HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16100 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- STORMWATER MANAGEMENT FACILITY:  
 TYPE - MICRO-POOL DESIGN (EXTENDED DETENTION)  
 OWNER - PRIVATELY OWNED AND MAINTAINED BY HOA.  
 CREDIT AREAS FOR SWM COMPUTATIONS: NATURAL AREA CONSERVATION CREDIT FOR DRAINAGE AREA 'A'. THERE WAS NO CHANGE IN RCN OR Q VALUES, THE ONLY BENEFIT GAINED BY THIS CREDIT WAS A REDUCTION IN WQV. IN ADDITION, A GRASS CHANNEL CREDIT IS UTILIZED THAT PROVIDES THE REQUIRED RECHARGE VOLUME FOR THIS SITE.
- THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PRIVATE.
- THE SUBJECT PROPERTY IS LOCATED OUTSIDE OF THE METROPOLITAN DISTRICT.
- TOPOGRAPHIC INFORMATION PROVIDED BY FISHER, COLLINS & CARTER, INC. FIELD RUN SURVEY DATED JUNE, 2000 AND SUPPLEMENTED BY HOWARD COUNTY AERIAL SURVEY DATED APRIL, 1973.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PIPESTEM DRIVEWAY.
- THERE ARE NO WETLANDS PRESENT ON-SITE AS BASED ON THE REPORT BY PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED NOVEMBER 21, 2000.
- SOILS INFORMATION TAKEN FROM SOIL MAP NO. 18, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY 1988 ISSUE.
- AS A CONSEQUENCE OF ITS SUBMISSION FOR COUNTY REVIEW PRIOR TO NOVEMBER 15, 2001, THIS PLAN IS SUBJECT TO THE 4th EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. IN ADDITION BECAUSE IT DID NOT HAVE PRELIMINARY PLAN APPROVAL PRIOR TO NOVEMBER 1, 2001, IT IS SUBJECT TO COMPLIANCE WITH COUNTY COUNCIL BILL 50-2001, WHICH AMENDS PORTIONS OF THE ZONING REGULATIONS. THIS PLAN IS ALSO SUBJECT TO THE 1993 ZONING REGULATIONS.
- SUBJECT PROPERTY ZONED RR-DEO PER 04/13/04 COMPREHENSIVE ZONING PLAN.
- THERE ARE NO STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY "SLOPES THAT AVERAGE 25% OR GREATER OVER 10 VERTICAL FEET, PER SECTION 16100(b)(55) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- AS PER SECTION 104.F.4.b OF THE ZONING REGULATIONS, ONLY ONE EASEMENT HOLDER IS REQUIRED FOR PRESERVATION PARCELS DESIGNED SOLELY FOR SWM FACILITIES OR COMMUNITY SEWERAGE DISPOSAL SYSTEMS.  
 A. BUILDABLE PRESERVATION PARCEL 'A'  
 OWNED PRIVATE OWNER  
 EASEMENT HOLDERS: HOWARD COUNTY, MARYLAND AND BUCKSKIN OAKS HOMEOWNERS ASSOCIATION  
 B. NON-BUILDABLE PRESERVATION PARCEL 'B'  
 OWNED: BUCKSKIN WOODS HOMEOWNERS ASSOCIATION  
 EASEMENT HOLDERS: HOWARD COUNTY, MARYLAND  
 C. NON-BUILDABLE PRESERVATION PARCEL 'C'  
 OWNED PRIVATE OWNER OF EITHER PARCEL 'A'. LOTS 12.3 OR 4 OF THE BUCKSKIN OAKS SUBDIVISION  
 EASEMENT HOLDER: HOWARD COUNTY, MARYLAND & BUCKSKIN OAKS HOMEOWNERS ASSOCIATION
- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 161200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING 0.7 ACRES +/- OF ONSITE AFFORESTATION @ \$40,500/AC FOR 30,492 S.F. = \$ 15,246.00 AND 16 ACRES OF ONSITE FOREST RESTORATION @ \$40,200/AC FOR 68,688 S.F. = \$ 13,593.60  
 TOTAL FOREST CONSERVATION EASEMENT AREA = 2.3 ACRES FOR A TOTAL FOREST SURETY OF \$29,185.20.
- THE LANDSCAPE SURETY IN THE AMOUNT OF \$ 18,750.00 FOR PERIMETER LANDSCAPE REQUIREMENTS OF SECTION 16124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL IS POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION.
- A NOISE STUDY IS NOT REQUIRED AS THIS PLAN OF SUBDIVISION DOES NOT MEET ANY OF THE CRITERIA UNDER VOLUME III, SECTION 2.2.31.5 (PAGE 5-12).
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL, INSTALLED WITHIN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED SQUARE TUBE (4 GAUGE) INSERTED INTO A 2 1/2" GALVANIZED STEEL PERFORATED SQUARE TUBE SLEEVE (2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

ROAD CLASSIFICATION CHART			
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
BUCKS RIDGE COURT	PUBLIC ACCESS PLACE	25 M.P.H.	40'

TRAFFIC CONTROL SIGNS				
STREET NAME	CL. STATION	OFFSET	POSTED SIGN	SIGN CODE
BUCKS RIDGE COURT	0+39	15'L	STOP	R1-1

NOTE: PLACE STREET SIGN ON TOP OF STOP SIGN POLE



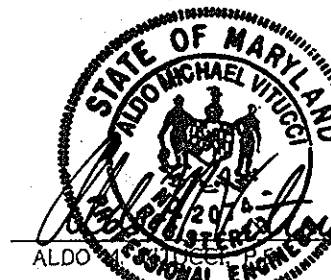
VICINITY MAP  
 SCALE: 1" = 1200'

## THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALDORNE NATIONAL PARK  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2055

**OWNERS**  
 J. DAVID MULLINIX  
 ELIZABETH C. MULLINIX  
 14420 HOWARD ROAD  
 DAYTON, MARYLAND, 21036  
 PATRICIA LEE SCHWARZ  
 13384 FOLLY QUARTER ROAD  
 ELICOTT CITY, MARYLAND, 21042-1247

**DEVELOPER**  
 J. THOMAS SCRIVENER INC.  
 8800 CENTRE PARK DRIVE  
 SUITE 209  
 COLUMBIA, MARYLAND, 21145



TITLE SHEET  
**BUCKSKIN OAKS**  
 LOTS 1 THRU 4, OPEN SPACE LOT 5,  
 BUILDABLE PRESERVATION PARCEL 'A' AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
 (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINIX PROPERTY, PLAT NO. 14449)

ZONED: RR-DEO  
 TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 1 OF 13

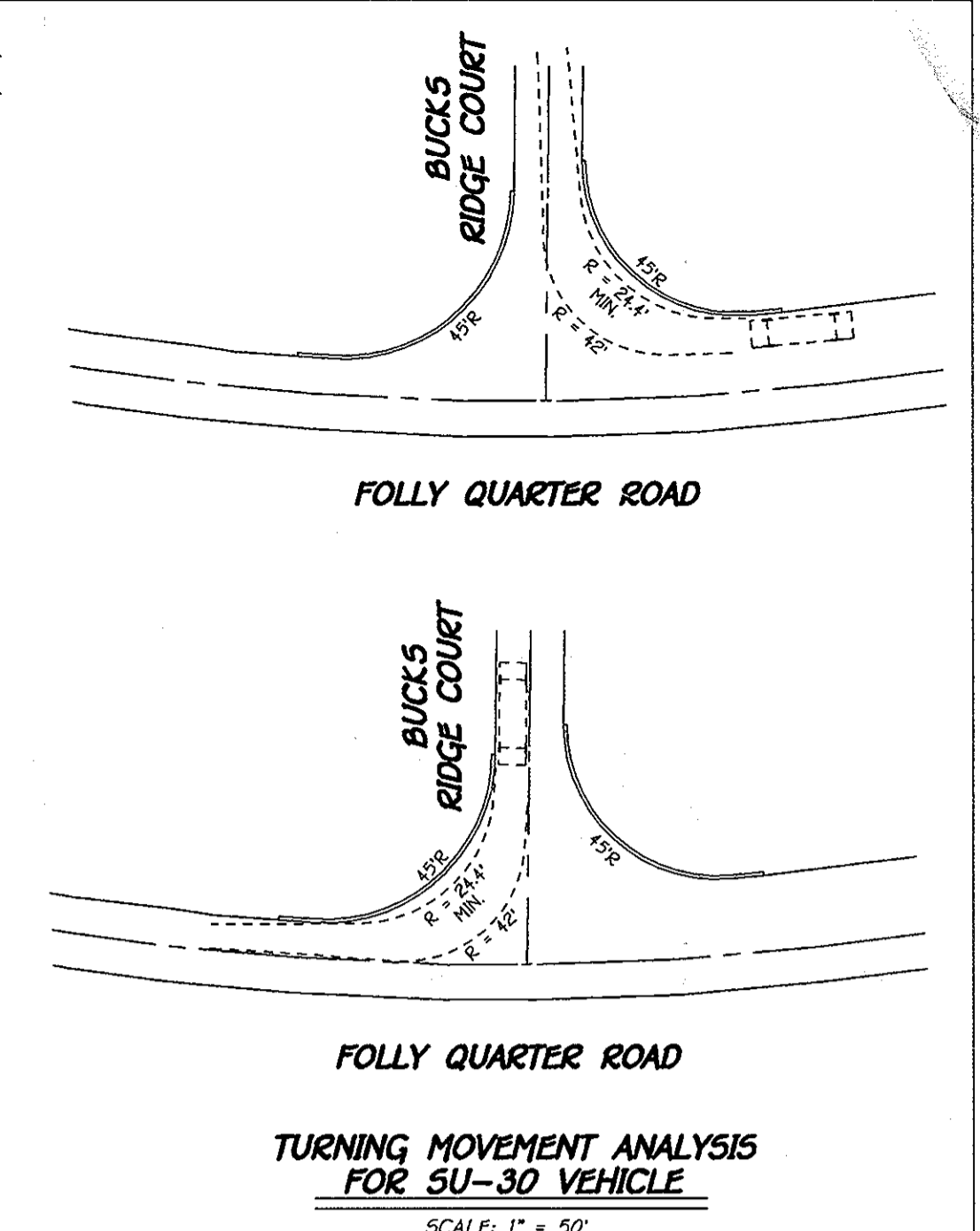
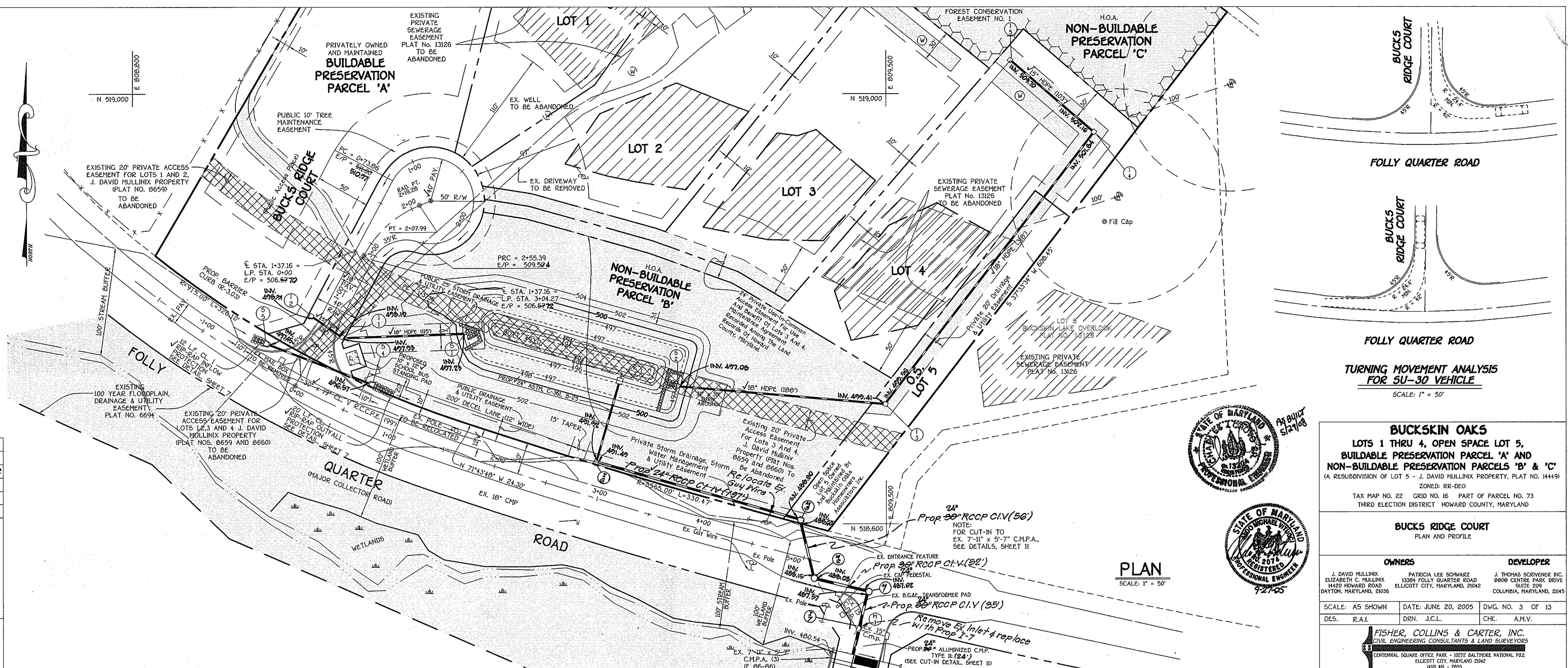
9/27/05  
 DATE

F 05-61

AS BUILT



CURVE DATA  
**BUCKS RIDGE COURT**  
 STA. 1+37.16 TO STA. 2+07.99  
 RADIUS = 101.44'  
 ARC LENGTH = 70.83'  
 TAN. = 36.93'  
 DELTA = 40°00'33"  
 CHORD = 147°53'52"E, 69.40'



REVISIONS		
NO.	DESCRIPTION	DATE
1	Revise storm drain from 1-G to the ex. 7'-11" x 5'-7" C.M.P.A.	7-19-05

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamrick* 12/16/05  
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Walter T. Anderson* 12-1-05  
 CHIEF, BUREAU OF HIGHWAYS

**BUCKSKIN OAKS**  
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 (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINX PROPERTY, PLAT NO. 14449)

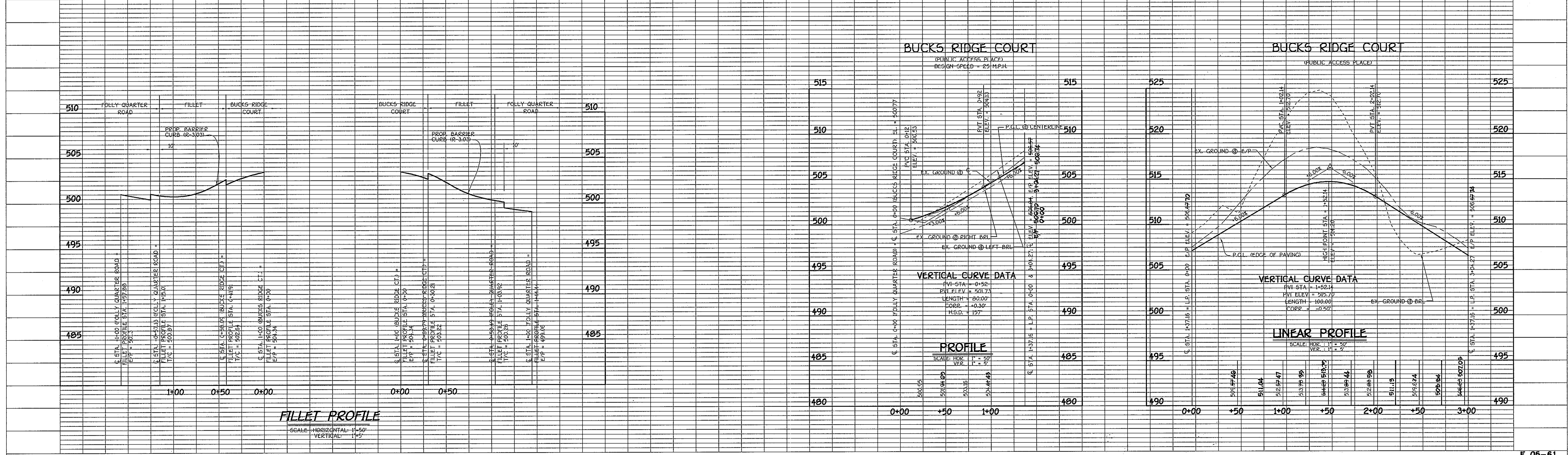
TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**BUCKS RIDGE COURT**  
 PLAN AND PROFILE

OWNERS	DEVELOPER
J. DAVID MULLINX 1420 HOWARD ROAD DAYTON, MARYLAND, 21035	PATRICIA LEE SCHWARTZ 13384 FOLLY QUARTER ROAD SUITE 209 COLUMBIA, MARYLAND, 21042

SCALE: AS SHOWN DATE: JUNE 20, 2005 DWG. NO. 3 OF 13  
 DES. R.A.I. DRN. J.C.L. CHK. A.M.V.

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10775 BALTIMORE NATIONAL PkE  
 ELICOTT CITY, MARYLAND 21042  
 MD 461 - 2055



AS BUILT

By the Developer:  
 I/We Certify That All Development And/Or Construction Will Be Done According 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. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.

Signature: *William Green* Date: 9/27/09

Printed Name of Developer: **William Green**

By the Engineer:  
 I Certify That The Pond Construction Erosion And Sediment Control Represents A Practical Application Of The Requirements Of The Howard Soil Conservation District. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Reviewed The Plans And I Have Verified That The Plans Must Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Within 30 Days Of Completion.

Signature: *John Ingolia* Date: 9-27-09

Printed Name of Engineer: **John Ingolia**

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

Signature: *John Ingolia* Date: 11/27/05

USDA-Natural Resources Conservation Service

These Plans For Small Pond Construction Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Signature: *John Ingolia* Date: 11/27/05

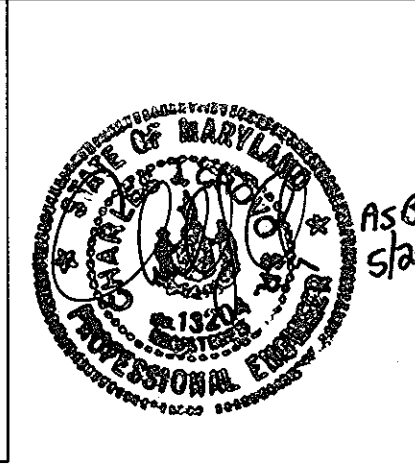
Approved Department of Public Works  
 Signature: *William Z. White* Date: 12-1-05  
 Chief, Bureau of Highways

Approved Department of Planning And Zoning  
 Signature: *Charles Hammond* Date: 12/7/05  
 Chief, Division of Land Development  
 Signature: *Charles Hammond* Date: 12/6/05  
 Chief, Development Engineering Division

AS-BUILT CERTIFICATION  
 I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature: *AS BUILT* Date: 5/24/08

Certify Means To State Or Declare A Professional Opinion Based Upon On-site Inspections And Material Tests Which Are Conducted During Construction. The On-site Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed by Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



**LEGEND**

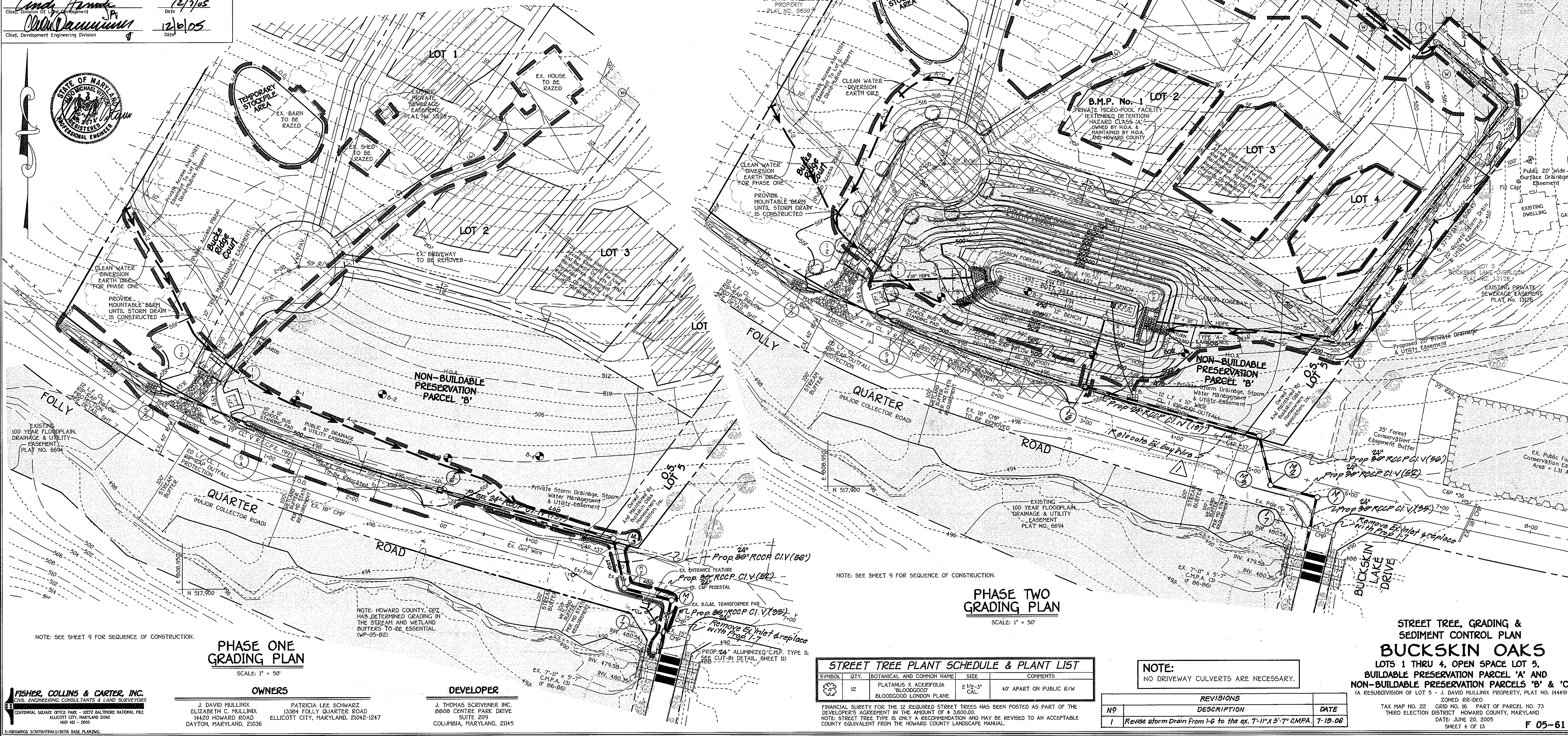
- SSP - SSP - SSP SUPER-SILT FENCE
- SF - SF - SF SILT FENCE
- TP - TP - TP TREE PROTECTION FENCE
- S.C.E. STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE
- DENOTES L.O.D. LIMITS OF DISTURBANCE
- DENOTES EROSION CONTROL MATTING (TO BE PLACED IN ALL ROADWAY DITCHES AND IN ALL SWALES)
- DENOTES SLOPE SYMBOL
- DENOTES REMOVABLE PUMPING STATION
- DENOTES GABION INFLOW PROTECTION
- DENOTES FILTER BAG
- DENOTES AREA TREATED BY GRASS CHANNEL CREDIT FOR Rev
- DENOTES INLET PROTECTION
- ⊗ R.P.S.
- G.I.P.
- F.B.
- I.P.

**ULTIMATE CONDITION SUMMARY TABLE**

DRAINAGE AREA (ACRES)	RCN	Tc (HRS.)	Q/Qa - STORM EVENT - YEARS		
			1	10	100
B.M.P. NO. 1 7.64 AC.	69	0.23	3.37 c.f.s. 0.47 in.	17.29 c.f.s. 2.04 in.	32.69 c.f.s. 3.79 in.
BY-PASS AREA 1A 4.94 AC.	66	0.20	1.52 c.f.s. 0.35 in.	10.22 c.f.s. 1.77 in.	19.81 c.f.s. 3.32 in.
PROPOSED POND RELEASE RATES	Q c.f.s.		0.07	4.7	15.4
ADDHYD BY-PASS AREA Q TOTAL (c.f.s.)			1.70	12.2	29.7
ALLOWED RELEASE RATES 11.97 AC.	W.S. ELEVATION		497.41	498.31	499.30
		0.20	2.10 c.f.s.	20.34 c.f.s.	42.07 c.f.s.

**TEMPORARY SEDIMENT BASIN No. 1**

INITIAL D.A. = 7.48 AC.  
 FINAL D.A. = 7.64 AC.  
 STORAGE REQUIRED  
 WET = 1800 x 7.64 = 13,752 Cuft.  
 DRY = 1800 x 7.64 = 13,752 Cuft.  
 STORAGE PROVIDED  
 WET = 13,752 Cuft. @ ELEV. 497.10  
 DRY = 13,752 Cuft. @ ELEV. 498.70  
 BOTTOM ELEV. = 493.00  
 STORAGE DEPTH = 9.0'  
 TOP OF EMBANKMENT = 502.00  
 CLEAN CUT ELEV. = 499.80  
 RISER CREST ELEV. = 498.70  
 1 YR. ORIFICE INV. = 497.10  
 Q1 exist. = 124 c.f.s.  
 Q1 prop. = 0.40 c.f.s.



AS BUILT

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cindy Harvath* 12/7/05  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE

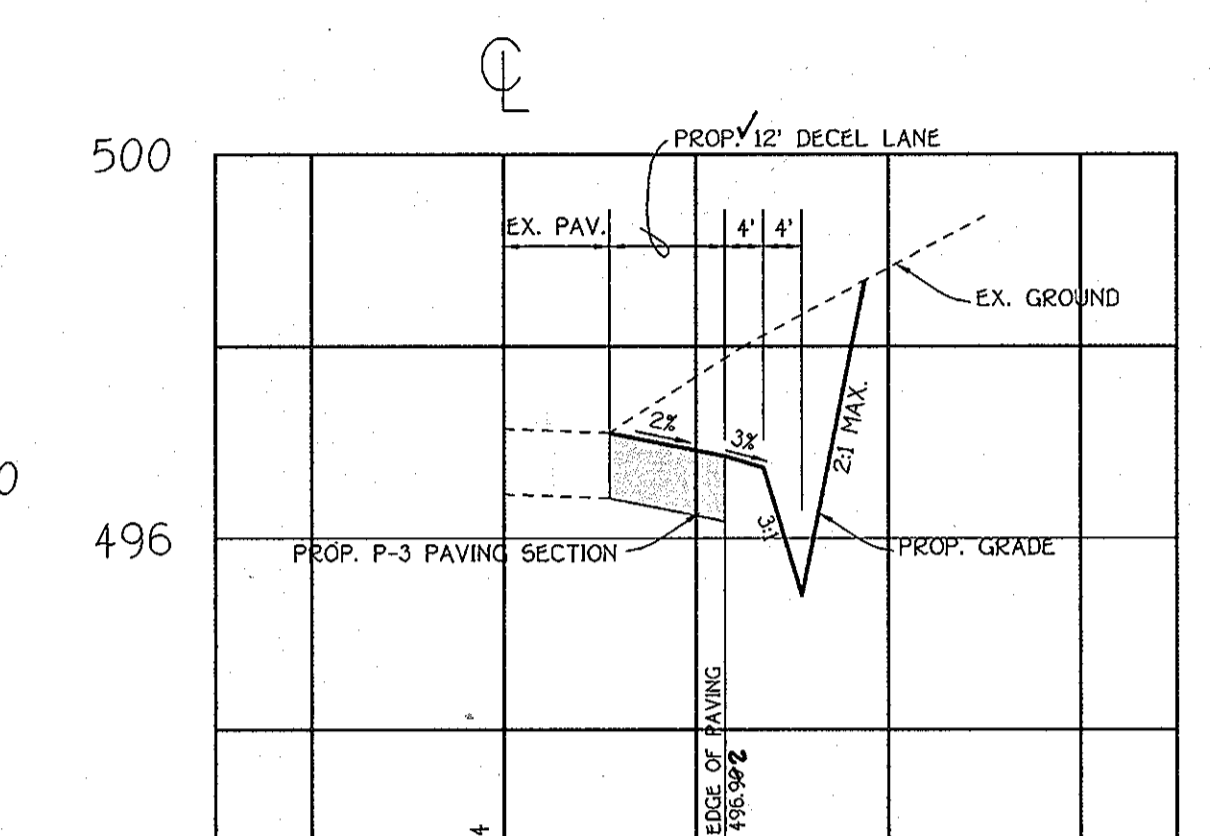
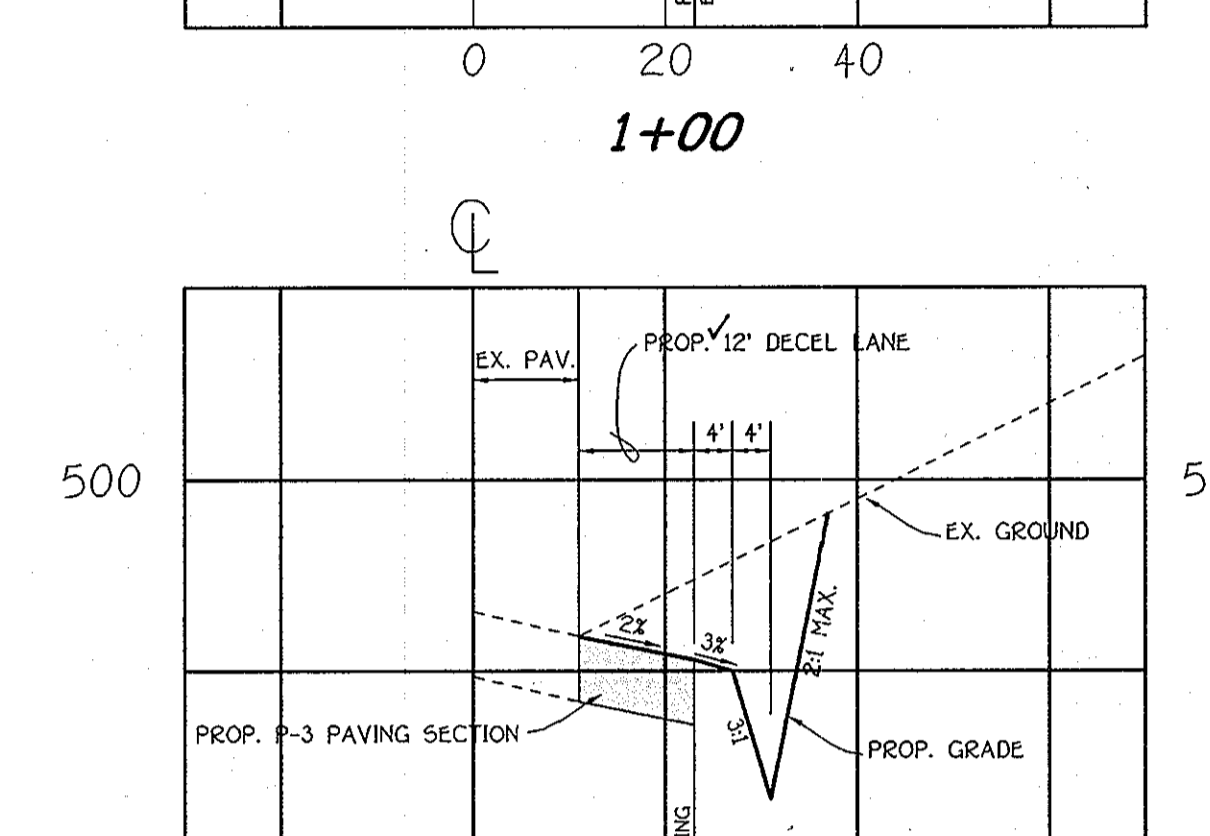
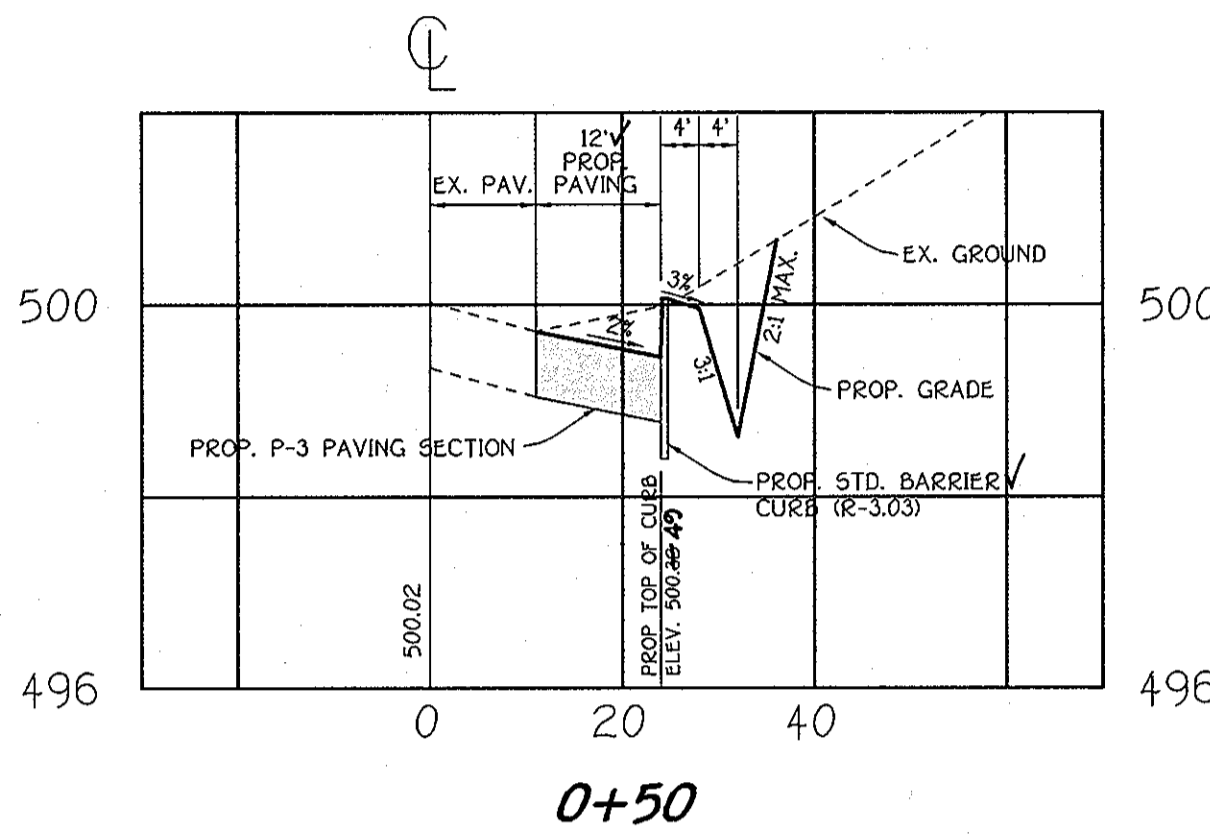
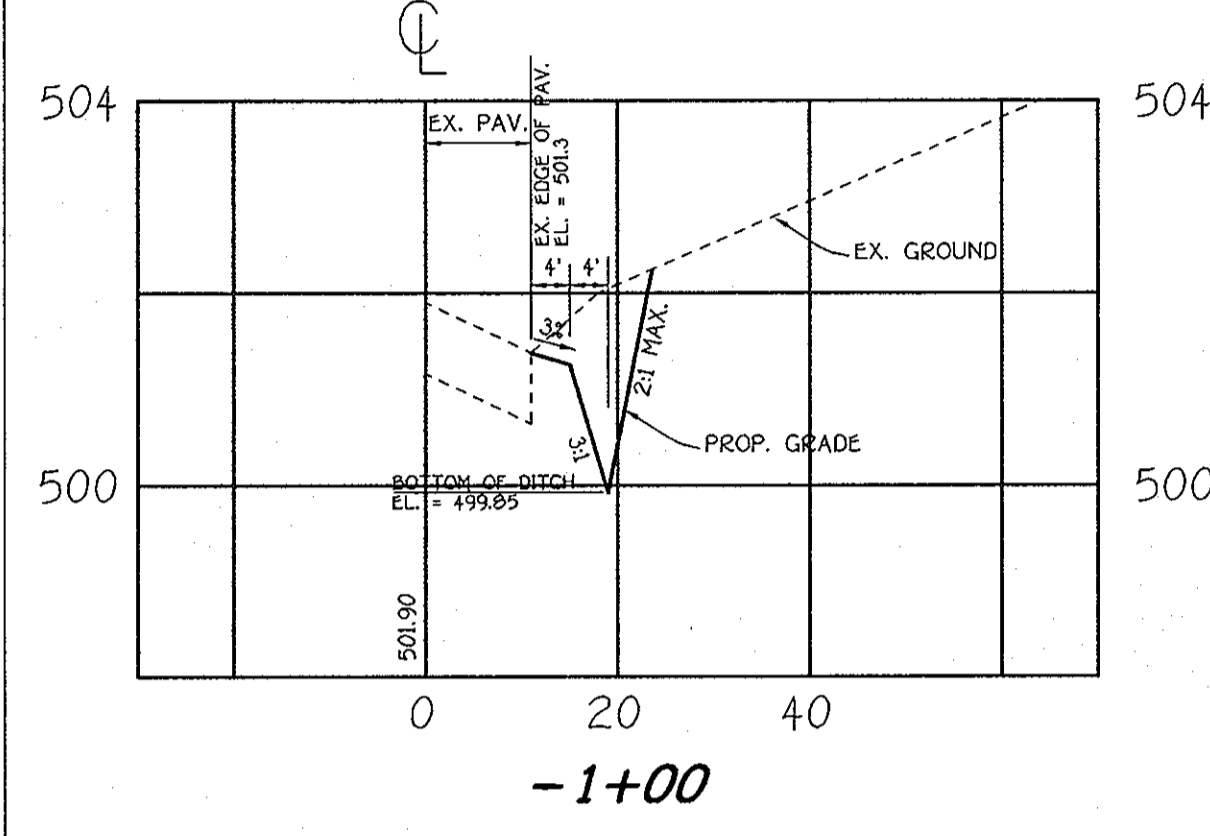
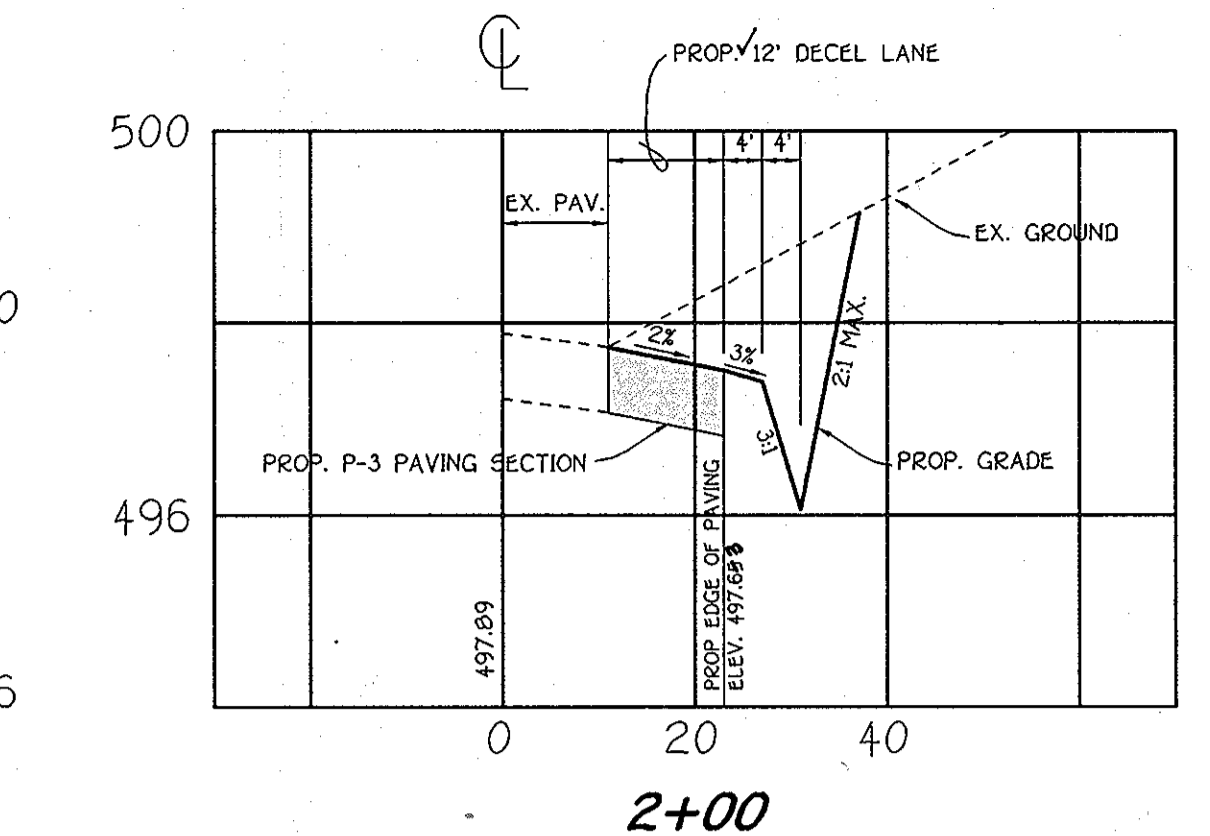
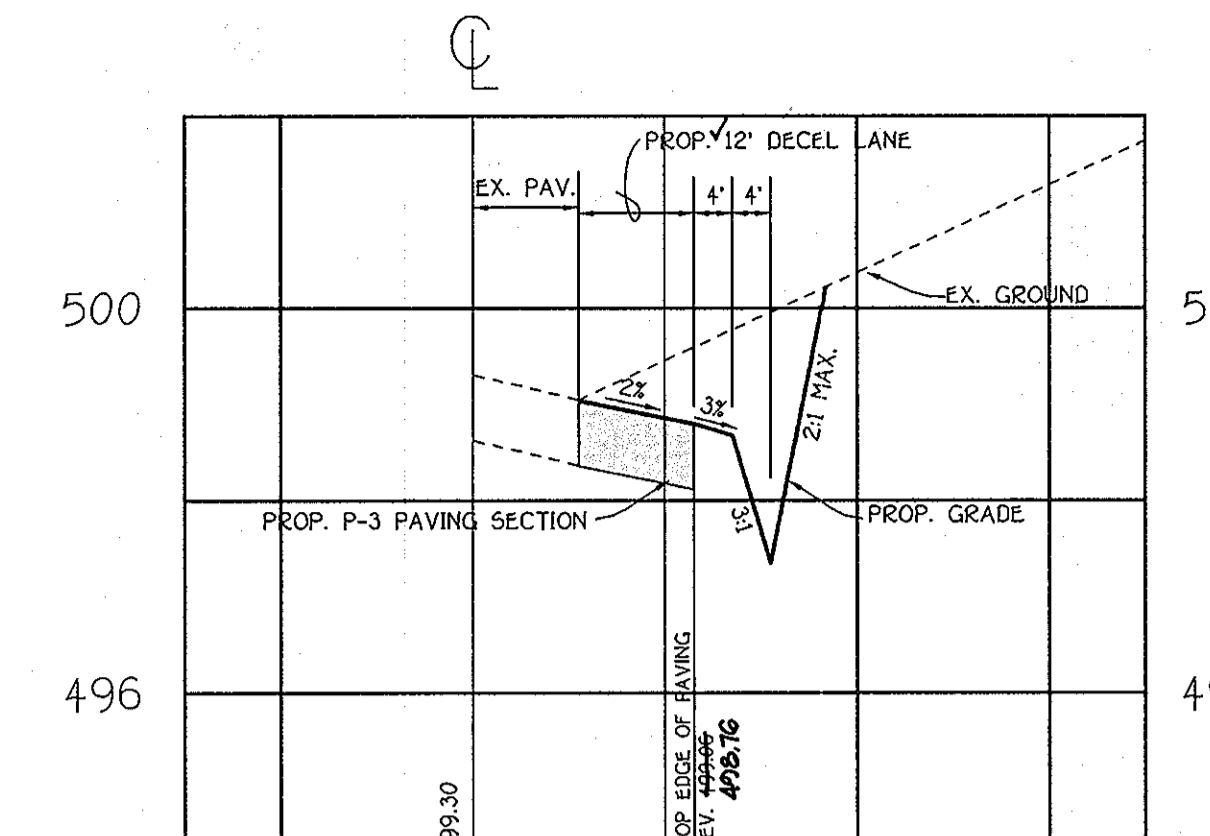
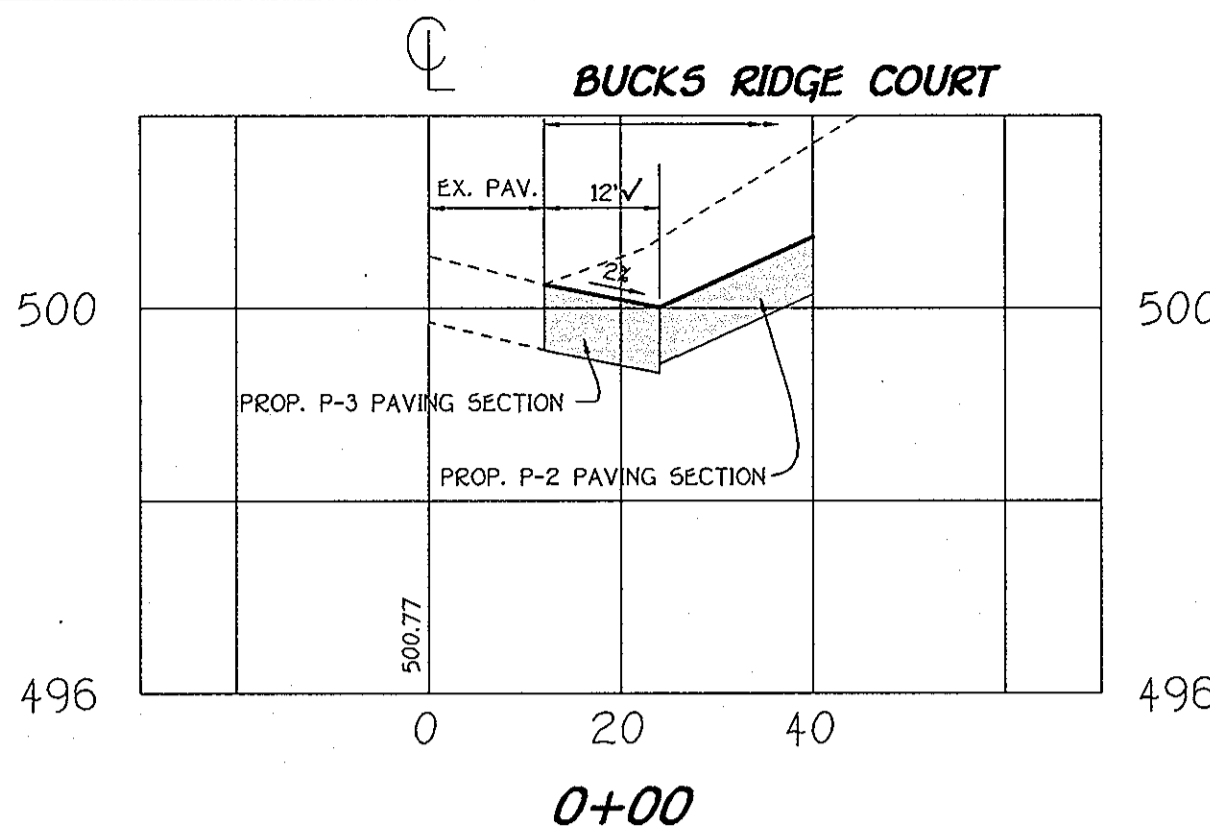
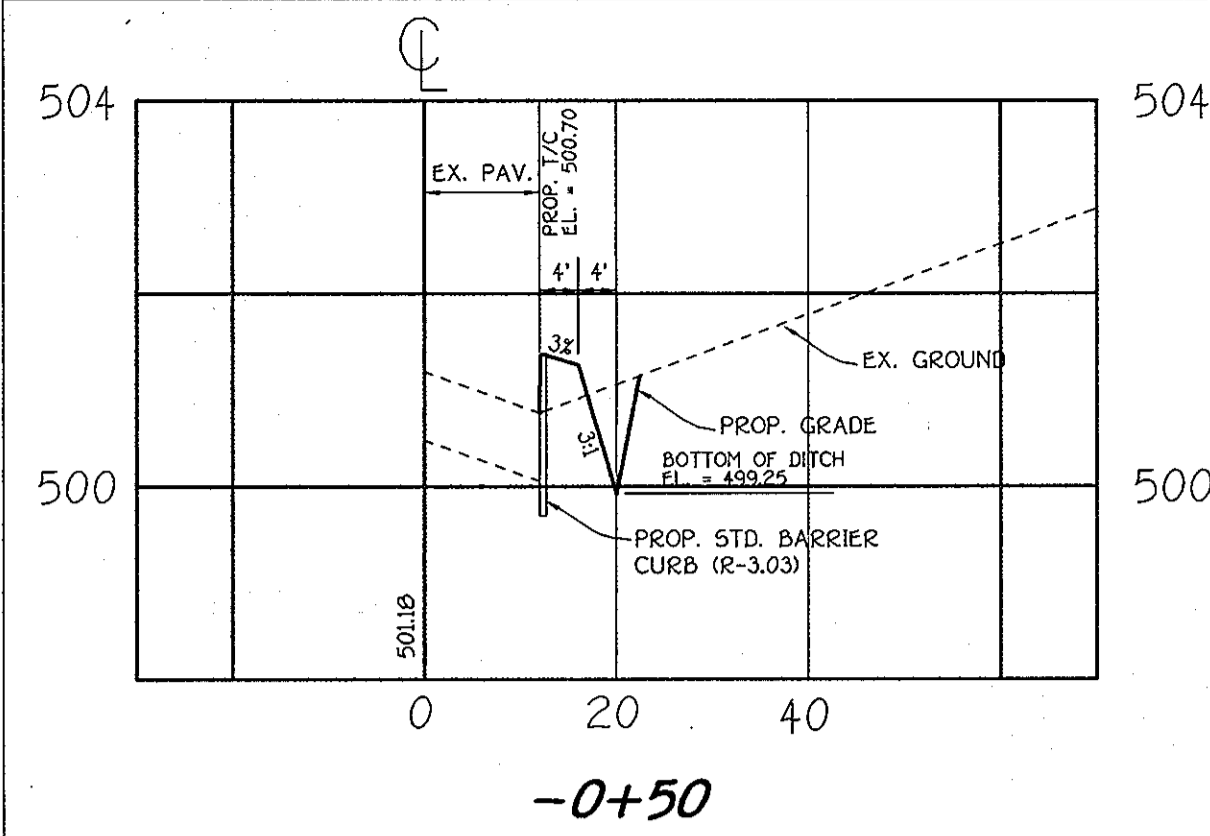
*John Williams* 12/14/05  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*William R. White* 12-1-05  
 CHIEF, BUREAU OF HIGHWAYS  
 DATE

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISE STORM DRAIN FROM I-6 TO THE EX. 7'-11" x 5'-7" C.M.P.A.	2/27/06

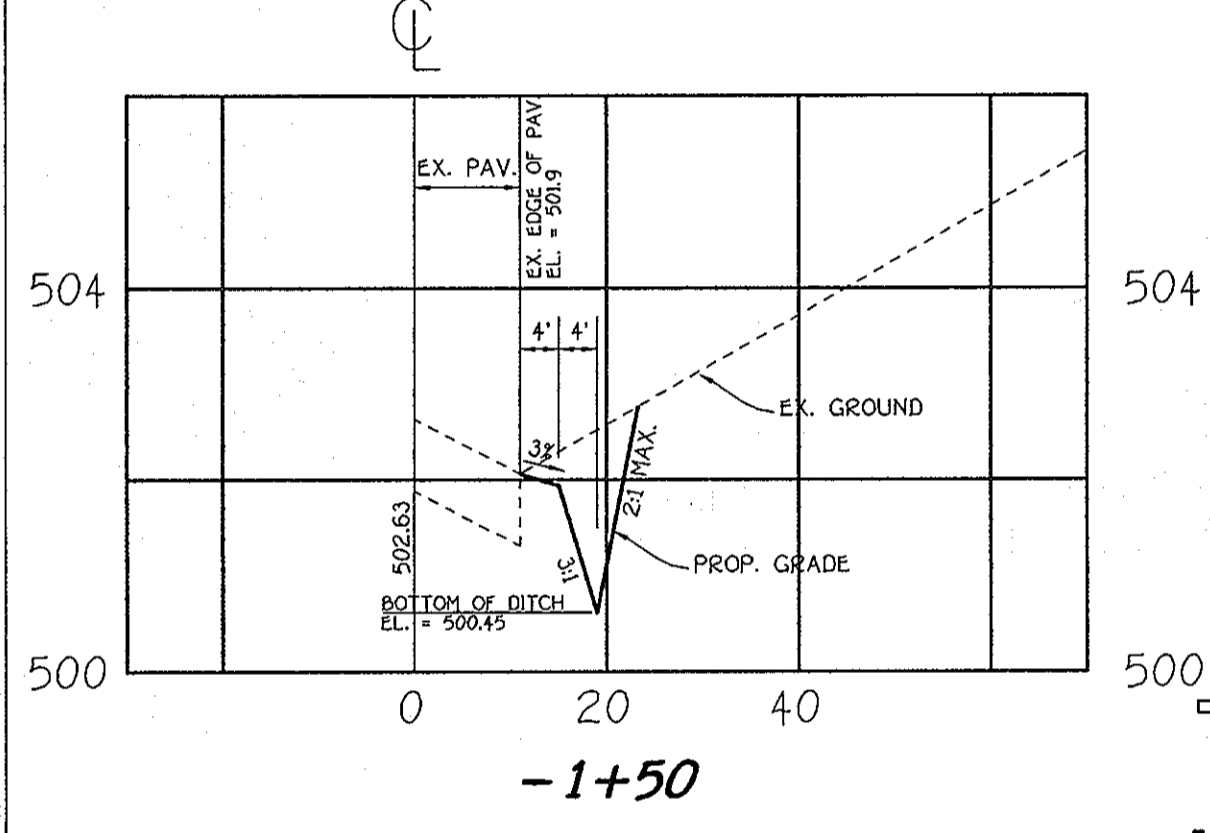
**NOTE:**  
 PROVIDE DITCH LINING FROM WHERE 3:1 SLOPE STARTS, DOWN AND UP 2:1 SLOPE TO MEET EXISTING GROUND.

MIRAFI  
 CONSTRUCTION PRODUCTS  
 365 SOUTH HOLLAND DRIVE  
 PENDERGRASS, GA. 30567  
 TEL: (706) 693-226



**CROSS-SECTIONS (FOLLY QUARTER ROAD)**

SCALE: HORIZ. : 1" = 20'  
 VERT. : 1" = 2'

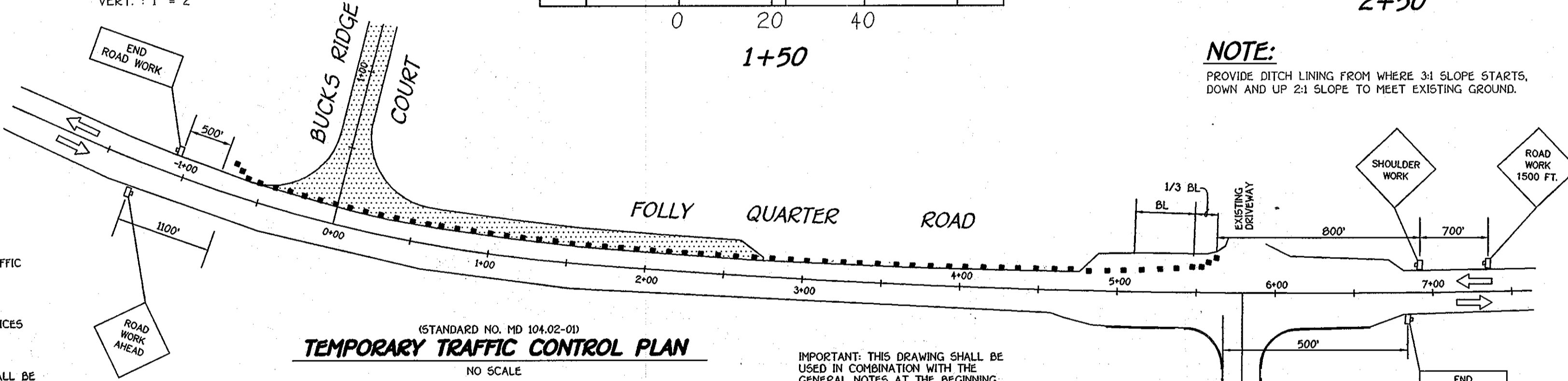


**KEY**  
 → DIRECTION OF TRAFFIC  
 □ SIGN SUPPORT  
 ■ CHANNELIZING DEVICES  
 ■ WORK SITE

IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00-01 - MD 104.00.18

**GENERAL MAINTENANCE OF TRAFFIC SPECIAL PROVISIONS**

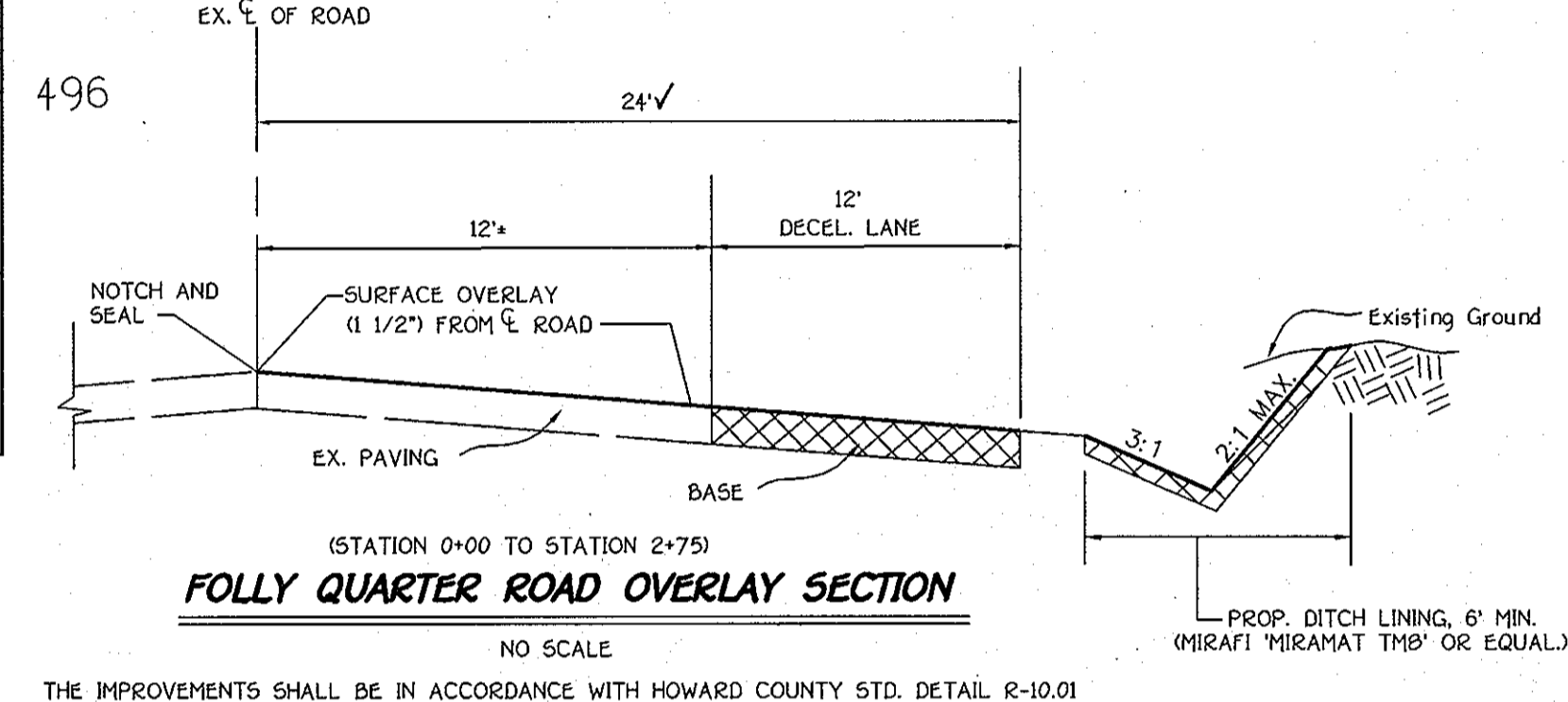
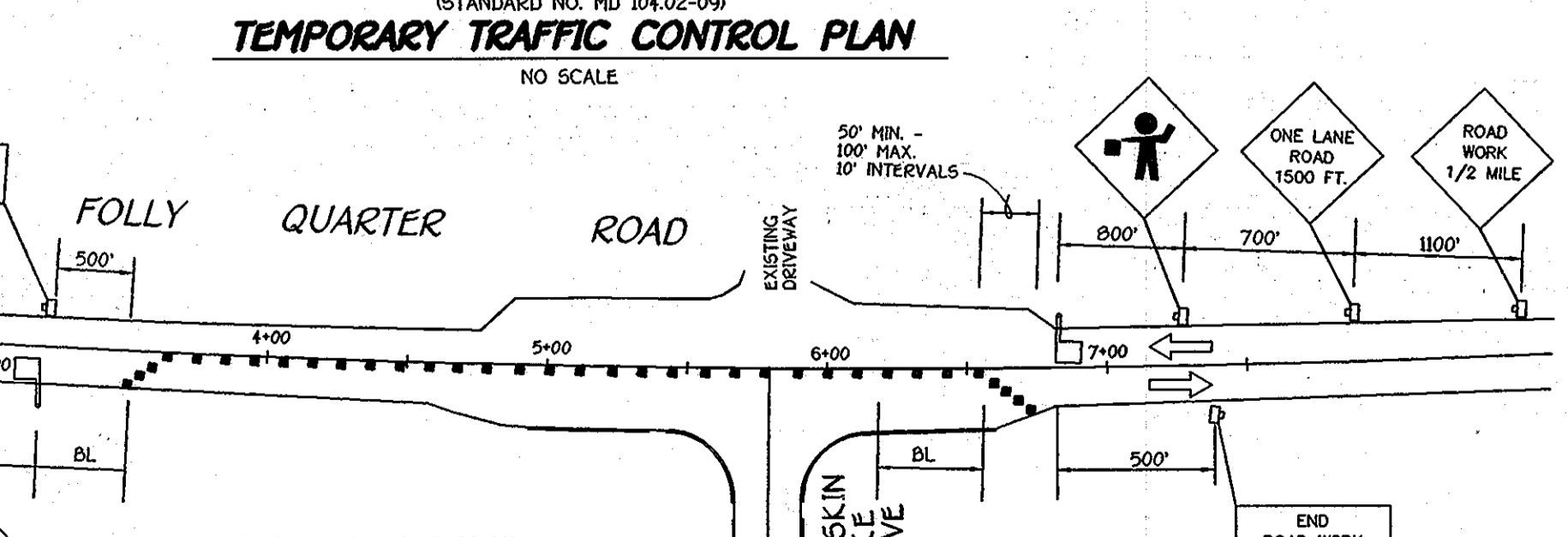
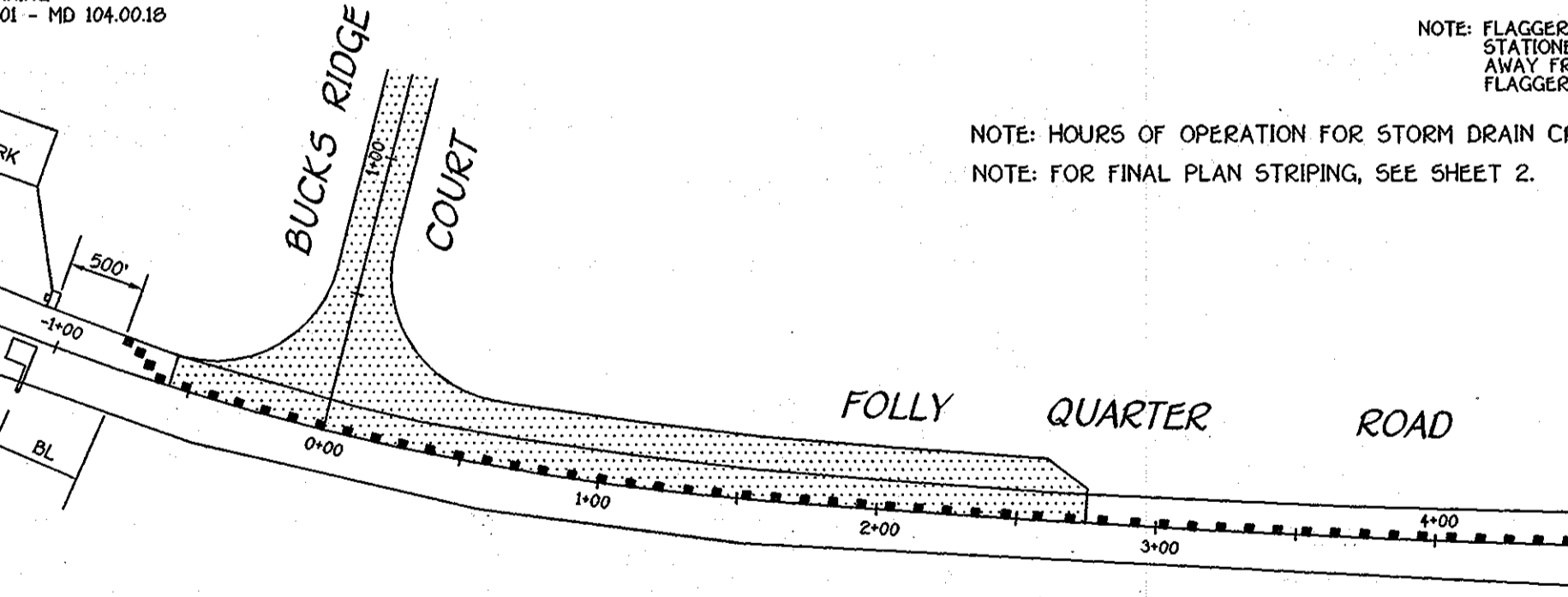
- THE PURPOSE OF THIS PORTION OF THE SPECIAL PROVISIONS IS TO SET FOR THE TRAFFIC CONTROL REQUIREMENTS NECESSARY FOR THE SAFE AND EFFICIENT MAINTENANCE TO TRAFFIC WITHIN WORK AREAS AND TO PROVIDE ANY INCREASING TO THE TRAVELING PUBLIC AND THE CONTRACTOR AND/OR PERMITTEE.
- PROPERLY TRAFFIC CONTROL THROUGH WORK AREAS IS ESSENTIAL FOR INSURING THE SAFETY AND THAT OF HIGHWAY WORKERS HAS THE HIGHEST PRIORITY OF ALL TASKS WITHIN THIS PROJECT. THE PROPER APPLICATION OF THE APPROVED TRAFFIC CONTROL PLAN (TCP) WILL PROVIDE THE DESIRED LEVEL OF SAFETY.
- THROUGHOUT THIS SPECIAL PROVISIONS, ANY MENTION OF THE TCP SHALL BE HELD TO INCLUDE ANY COMBINATION OF TYPICAL TRAFFIC CONTROL STANDARDS WHICH FORM THE OVERALL TCP FOR THIS PROJECT WHICH HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER.
- THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE PROVISIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 8TH EDITION, SPECIALLY PART 11 AND 12 SECTION 811 OF THE MARYLAND DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS (JANUARY, 1992), INCLUDING ALL REVISIONS AND SUPPLEMENTS TO EACH.
- THE CONTRACTOR AND/OR PERMITTEE SHALL BE REQUIRED TO ADHERE TO THE REQUIREMENTS SET FOR IN THE TCP AND THESE SPECIAL PROVISIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ANY REQUESTS TO MAKE CHANGES TO THE TCP OR THE SPECIAL PROVISIONS WITH REGARD TO THE TRAFFIC CONTROL ITEMS SHALL BE MADE IN WRITING TO THE ENGINEER A MINIMUM OF THIRTY DAYS PRIOR TO THE PROPOSED SCHEDULING CHANGE. THE CONTRACTOR AND/OR PERMITTEE SHALL HAVE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO ANY CHANGE.
- NO WORK SHALL BEGIN ON ANY WORK ACTIVITY OR WORK PHASE UNTIL ALL REQUIRED TRAFFIC CONTROL PATTERNS AND DEVICES INDICATED ON THE TCP FOR THAT ACTIVITY OR PHASE ARE COMPLETELY AND CORRECTLY IN PLACE TO HAVE BEEN CHECKED FOR APPROVED USAGE.
- GENERAL AND SPECIFIC WARNING SIGNS SHALL BE IN PLACE WHEN SPECIFIC WORK TASKS AND ACTIVITIES ARE ACTUALLY UNDERWAY OR CONDITIONS EXIST THAT POSE A POTENTIAL HAZARD TO THE PUBLIC, AND ANY ADDITIONAL SIGNING HAS BEEN APPROVED BY THE APPROPRIATE SHA TRAFFIC ENGINEER. NOTE: THE PRACTICE OF PLACING SIGNS AND OTHER TRAFFIC CONTROL DEVICES IN ADDITION TO THOSE INDICATED ON THE APPROVED TCP IS NOT PERMITTED.
- THE CONTRACTOR AND/OR PERMITTEE SHALL PROVIDE, MAINTAIN IN NEW CONDITION, AND MOVE WHEN NECESSARY, OR AS DIRECTED BY THE ENGINEER, ALL TRAFFIC CONTROL DEVICES USED FOR THE GUIDANCE AND PROTECTION OF PEDESTRIANS, CYCLISTS, AND WORKERS.
- ALL TRAFFIC CONTROL DEVICES REQUIRED BY THE TCP SHALL BE KEPT IN GOOD CONDITION, FULLY PERFORMING AS SET FORTH IN THE TCP. THE MOUNTING AND SECTION 811 OF THE SPECIFICATIONS. FOR REFLECTIVE DEVICES, A PARTICULAR DEVICE IS ASSIGNED TO HAVE FAILED TO MEET MINIMUM OPERATING STANDARDS WHEN THE DEVICE NO LONGER HAS RETRO-REFLECTANCE CAPABILITY OF AT LEAST 60% OF THE SPECIFIED MINIMUM VALUE OVER AT LEAST ONE OF THE VISIBLE REFLECTIVE SURFACES.
- ALL TRAFFIC CONTROL DEVICES NOT REQUIRED FOR THE SAFE CONDUCT OF TRAFFIC SHALL BE PROMPTLY REMOVED, COMPLETELY COVERED, TURNED AWAY FROM TRAFFIC OR OTHERWISE TAKEN OUT OF SERVICE. IT IS INTENDED THAT NO TRAFFIC CONTROL DEVICE IS TO BE IN SERVICE WHEN THERE IS NO CLEAR OUT REASON FOR THE DEVICE.
- THROUGHOUT THE PERIOD OF WORK ACTIVITIES, TRAFFIC SHALL BE MAINTAINED BY IMPLEMENTING THE APPROVED TCP. IN LIEU OF THE TCP PREPARED FOR THIS PROJECT, AND/OR INDIVIDUAL TYPICAL TRAFFIC CONTROL STANDARDS, THE CONTRACTOR AND/OR PERMITTEE HAS THE OPTION OF PREPARING AND SUBMITTING A TCP, WHOLLY OR IN PART, OF HIS OWN DESIGN, FOLLOWING GUIDELINES SET FORTH IN THE TCP AND PRESCRIBED BY THE ADMINISTRATION. A TCP DEVELOPED BY THE CONTRACTOR AND/OR PERMITTEE SHALL NOT BE IMPLEMENTED UNTIL ADVANCE WRITTEN APPROVAL IS OBTAINED FROM THE ENGINEER. TOPS MAY BE IMPLEMENTED WITHIN A SINGLE PROJECT OR JOINTLY BETWEEN TWO OR MORE PROJECTS. IN SITUATIONS WHERE TOPS JOINTLY IMPLEMENTED CARE SHALL BE EXERCISED TO PRESENT CORRECT AND NON-CONFLICTING GUIDANCE TO THE TRAVELING PUBLIC.
- THROUGHOUT THESE SPECIAL PROVISIONS, WHERE SPEED OF TRAFFIC IS NOTED, THIS MEANS THE POSTED SPEED OR PREVAILING TRAFFIC SPEED, WHICHEVER IS HIGHER, UNLESS OTHERWISE NOTED.
- TRAFFIC SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT UNLESS OTHERWISE NOTED. NO TRAVEL LANES OTHER THAN THOSE DESIGNATED FOR POSSIBLE CLOSURE IN THE TCP SHALL BE CLOSED WITHOUT ADVANCE WRITTEN APPROVAL FROM THE ENGINEER. ALL INGRESS AND EGRESS TO THE WORK AREA BY THE CONTRACTOR AND/OR PERMITTEE SHALL BE PERFORMED WITH THE FLOW OF TRAFFIC.



IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES AT THE BEGINNING OF STANDARDS NO. MD 104.00-01 - MD 104.00.18

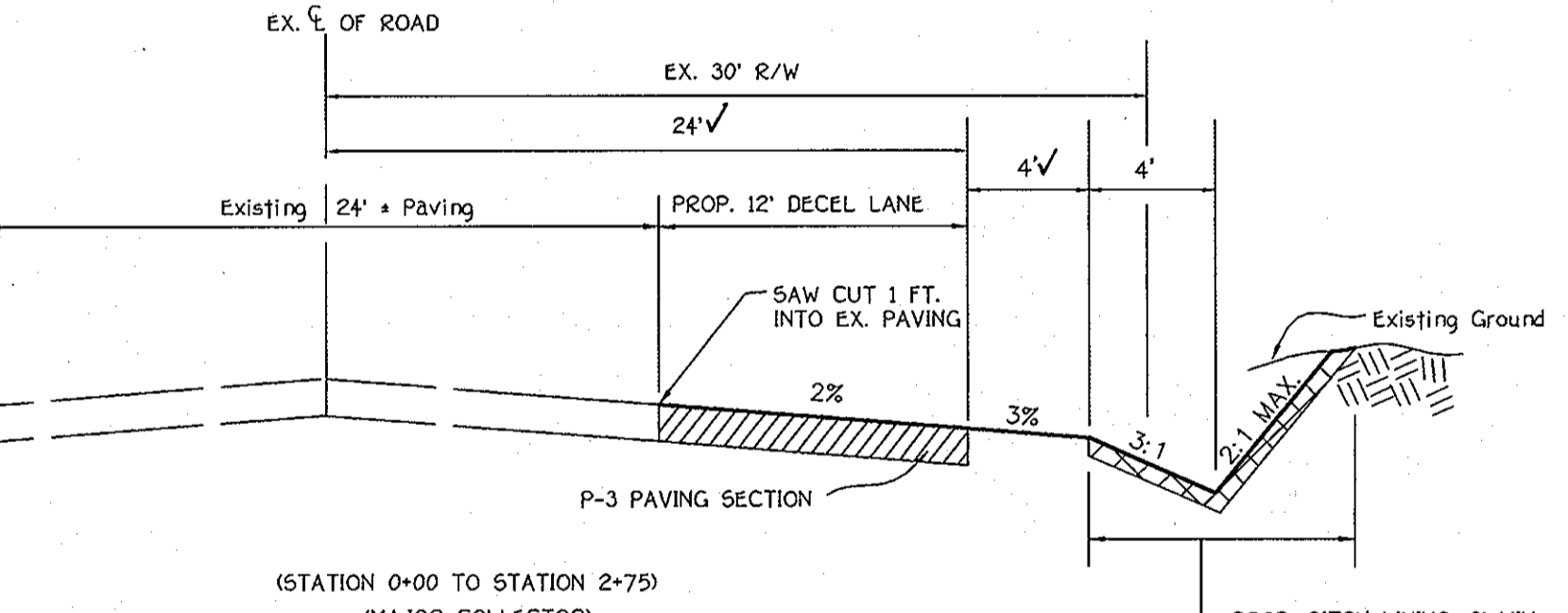
NOTE: FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

NOTE: HOURS OF OPERATION FOR STORM DRAIN CROSSING ARE 9:00 am. TO 3:00 pm.  
 NOTE: FOR FINAL PLAN STRIPING, SEE SHEET 2.



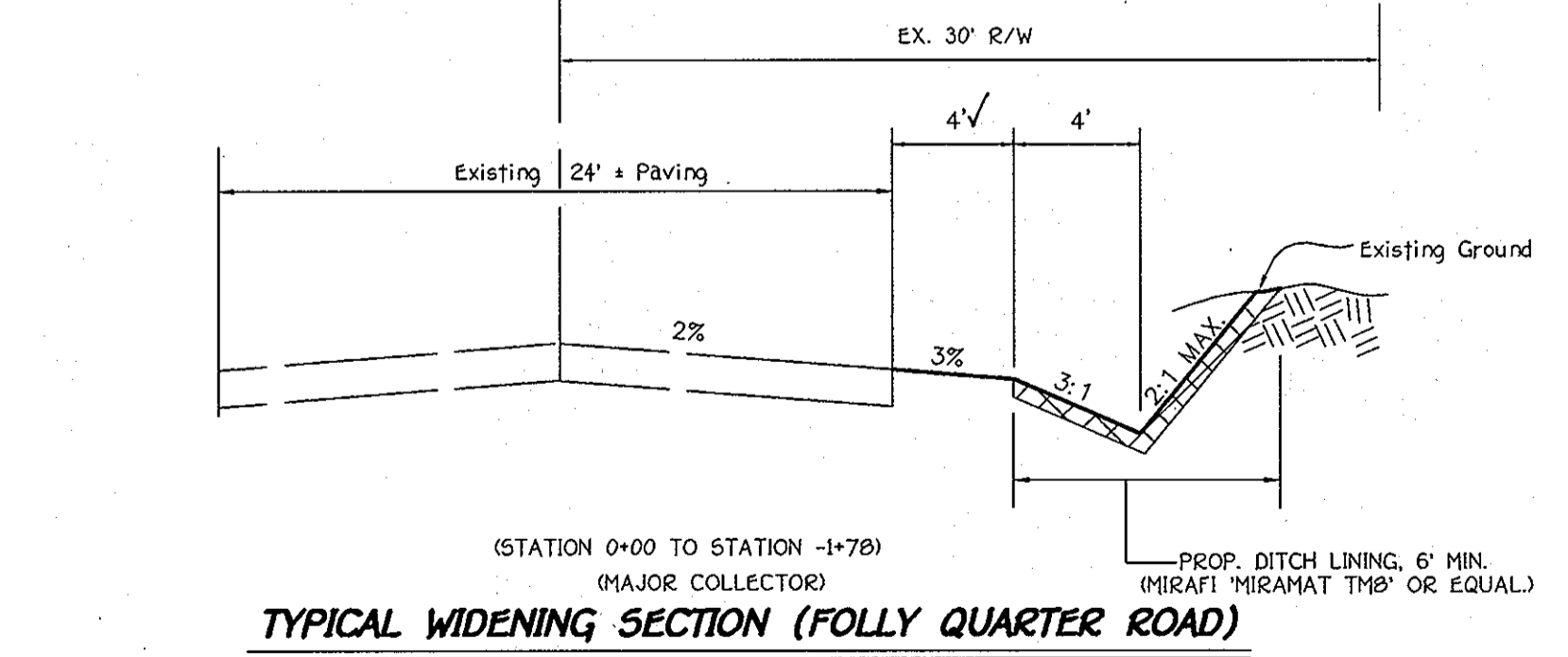
**FOLLY QUARTER ROAD OVERLAY SECTION**

NO SCALE  
 THE IMPROVEMENTS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STD. DETAIL R-10.01



**TYPICAL WIDENING SECTION (FOLLY QUARTER ROAD)**

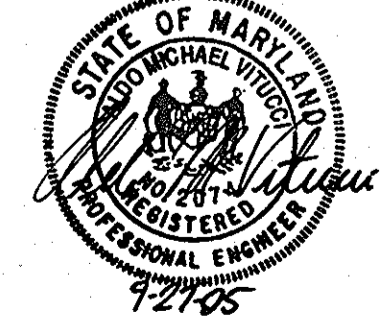
NO SCALE  
 (MAJOR COLLECTOR)  
 (MIRAFI 'MIRAMAT' TMB' OR EQUAL)



**TYPICAL WIDENING SECTION (FOLLY QUARTER ROAD)**

NO SCALE  
 (MAJOR COLLECTOR)  
 (MIRAFI 'MIRAMAT' TMB' OR EQUAL)

**FOLLY QUARTER ROAD CROSS-SECTIONS**  
**BUCKSKIN OAKS**  
 LOTS 1 THRU 4, OPEN SPACE LOT 5,  
 BUILDABLE PRESERVATION PARCEL 'A' AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
 (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINX PROPERTY, PLAT NO. 144491)



**OWNERS**  
 J. DAVID MULLINX  
 ELIZABETH C. MULLINX  
 14420 HOWARD ROAD  
 DAYTON, MARYLAND, 21036

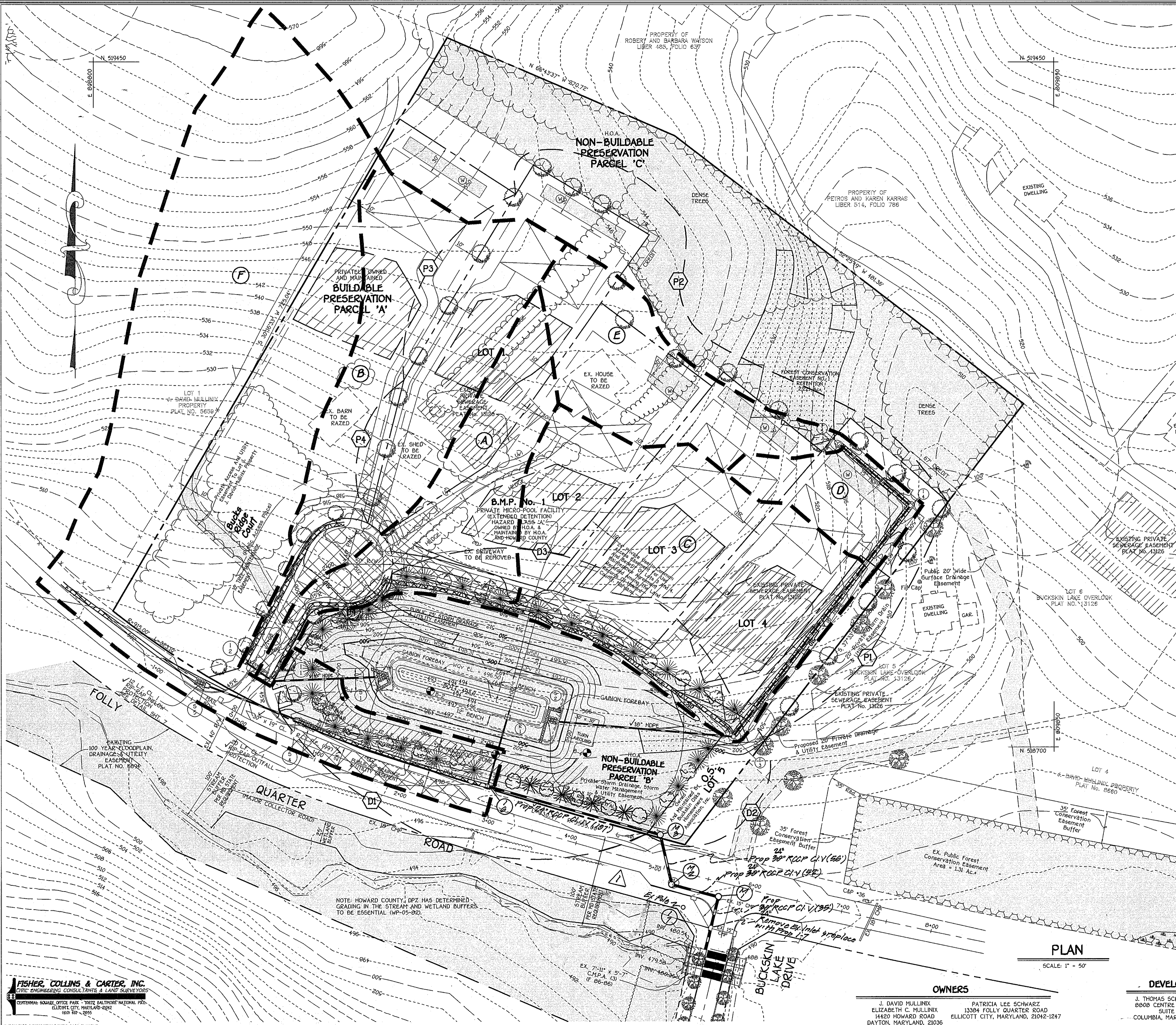
**DEVELOPER**  
 J. THOMAS SCRIVENER INC.  
 8808 CENTRE PARK DRIVE  
 SUITE 209  
 COLUMBIA, MARYLAND, 21145

ZONED: RR-DEO  
 TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 5 OF 13

**FISHER, COLLINS & CARTEE, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 800.461.2929

DRAWINGS: 5/27/05/RRALS/0706 SHEET 5 CROSS-SECTIONS.DWG

**AS BUILT**



Approved: Department Of Public Works  
 Chief: Bureau Of Highways  
 Date: 12-1-05

Approved: Department Of Planning And Zoning  
 Chief: Division Of Land Development  
 Date: 12/7/05

Chief, Development Engineering Division  
 Date: 12/16/05

**SCHEDULE A - PERIMETER LANDSCAPE EDGE**

PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BUSH (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED & PROVIDED		
						SHADE TREES	EVERGREEN TREES	SHRUBS
P-1	ADJACENT TO PERIMETER	A	324'	NO	NO	5	-	-
P-2	ADJACENT TO PERIMETER	A	808'	YES - 146'	NO	11	-	-
P-3	ADJACENT TO PERIMETER	A	237'	NO	NO	4	-	-
P-4	ADJACENT TO PERIMETER	A	161'	NO	NO	3	-	-

**SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING**

LINEAR FEET OF PERIMETER	D1: 420'	D2: 165'	D3: 413'	D4: 264'
NUMBER OF TREES REQUIRED:				
SHADE TREES	8	3	8	5
EVERGREEN TREES	10	4	10	7
CREDIT FOR EXISTING VEGETATION (NO, YES AND #)	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND #)	NO	NO	NO	NO
NUMBER OF TREES PROVIDED:				
SHADE TREES	8	3	8	5
EVERGREEN TREES	10	4	10	7
OTHER TREES (2:1 SUBSTITUTION)				

No.	Revision	Date
1	Revise storm drain from 1'-6" to the eq. 7'-11" x 8'-7" CMRA	7-19-06

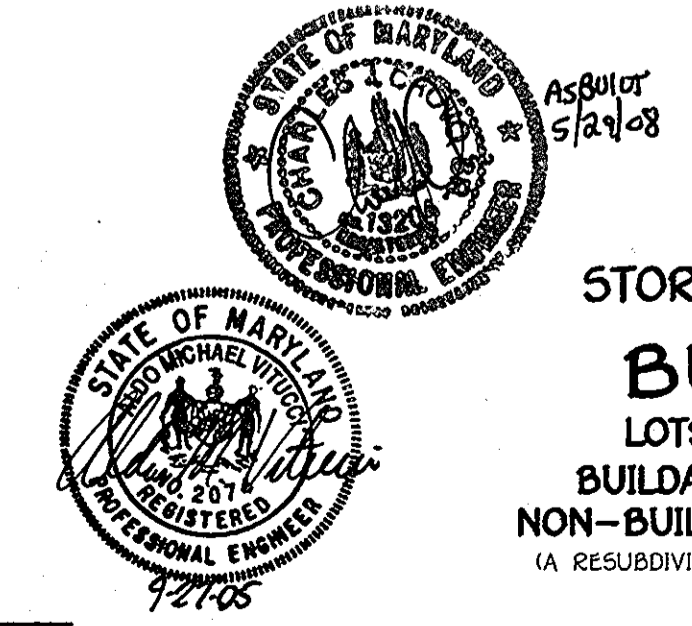
**DRAINAGE AREA DATA**

STRUCTURE NO.	DRAINAGE AREA	AREA	'C'	ZONED	% IMP.
I-1	A	0.88 AC.	0.63	RR-DEO	54%
I-2	B	1.52 AC.	0.35	RR-DEO	14%
I-3	C	1.88 AC.	0.41	RR-DEO	23%
I-4	D	0.34 AC.	0.42	RR-DEO	25%
I-5	E	0.77 AC.	0.40	RR-DEO	22%
I-6	F	3.98 AC.	0.30	RR-DEO	7%

**LANDSCAPING PLANT LIST**

QTY.	KEY	NAME	SIZE
24	(Symbol)	ACER RUBRUM RED SUNSET (RED SUNSET RED MAPLE)	2" - 2 1/2" CALIPER FULL CROWN, B&B
23	(Symbol)	ACER RUBRUM 'OCTOBER GLORY' (OCTOBER RED MAPLE)	2" - 2 1/2" CALIPER FULL CROWN, B&B
31	(Symbol)	PNUS STROBUS EASTERN WHITE PINE	6" - 8" HT.

"THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL". FINANCIAL SURETY FOR THE 78 REQUIRED LANDSCAPE TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$18,750.00.



**LANDSCAPE PLAN AND STORM DRAIN DRAINAGE AREA MAP**  
**BUCKSKIN OAKS**  
 LOTS 1 THRU 4, OPEN SPACE LOT 5,  
 BUILDABLE PRESERVATION PARCEL 'A' AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
 (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINX PROPERTY, PLAT NO. 14449)  
 ZONED: RR-DEO  
 TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 6 OF 13

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 70712 BALTIMORE NATIONAL FREE  
 ELLENRE CITY, MARYLAND 21042  
 410 581-2955

**OWNERS**  
 J. DAVID MULLINX  
 ELIZABETH C. MULLINX  
 14420 HOWARD ROAD  
 DAYTON, MARYLAND, 21036

PATRICIA LEE SCHWARZ  
 13384 FOLLY QUARTER ROAD  
 ELLICOTT CITY, MARYLAND, 21042-1247

**DEVELOPER**  
 J. THOMAS SCRIVENER INC.  
 8808 CENTRE PARK DRIVE  
 SUITE 209  
 COLUMBIA, MARYLAND, 21145

**PLAN**  
 SCALE: 1" = 50'

**AS BUILT**

**STRUCTURE SCHEDULE**

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	ROAD NAME	CL. ROAD STA.	OFFSET	TYPE	REMARKS
I-1	TOP* 500.64 501.36	498.04.19	497.79.03	BUCKS RIDGE COURT	0+59	17' RV	√ SEE DETAIL, THIS SHEET	
I-2	TOP* 500.56 501.54	---	498.81.91	BUCKS RIDGE COURT	0+64	17' LV	√ D' INLET	S.D. - 4.11
I-3	TOP* 503.17.79	499.67.56	499.42.1	N 51871.5255 E 80949.5255	---	---	√ SEE DETAIL, THIS SHEET	
I-4	TOP* 505.46.07	502.35.10	501.84 502.16	N 51854.3356 E 80969.3356	---	---	√ SEE DETAIL, THIS SHEET	
I-5	TOP* 514.27.75	---	502.10 514.06	N 51900.0000 E 80961.0000	---	---	√ D' INLET	S.D. - 4.11
I-6	TOP* 495.56.06	491.96 492.36	491.03.19	N 51801.1504 E 80926.1504	---	---	√ SEE DETAIL, THIS SHEET	
I-7 (Match Ex. 1-2)	492.00.0	486.02.19	486.72.10	Buckskin Lake Drive	0+92 0+55.5	---	√ A-5 & Ex 1-2 (R-00-00) (See plan)	
M-1	491.12 492.10	487.82.02	487.10.37	*	---	---	√ STD. MANHOLE	G - 5.11
M-2	492.02.10	487.72.05	487.02.00	*	---	---	√ STD. MANHOLE	G - 5.11
M-3	493.95 494.20	488.67.80	488.17.80	*	---	---	√ STD. MANHOLE	G - 5.11
R-1	501.04	494.00 493.77	493.74.2	N 51873.5400 E 80925.5400	---	---	√ CONCRETE RISER	-----
S-1	498.54.73	497.04.23	---	N 51877.2156 E 80910.2156	---	---	√ CONC. END SECTION	S.D. - 5.52
S-2	498.64.58	497.14.08	---	N 51872.2224 E 80930.2224	---	---	√ CONC. END SECTION	S.D. - 5.52
S-4	498.19.24	496.58.7	---	BUCKS RIDGE COURT	0+35	19' 6" R	√ TYPE 'O' HEADWALL	S.D. - 5.42 & S.D. - 5.42 A
S-5	499.62.12	---	497.95.49	BUCKS RIDGE COURT	0+22	18' 6" L	√ TYPE 'O' HEADWALL	S.D. - 5.42 & S.D. - 5.42 A

\* - DENOTES THROAT ELEVATION

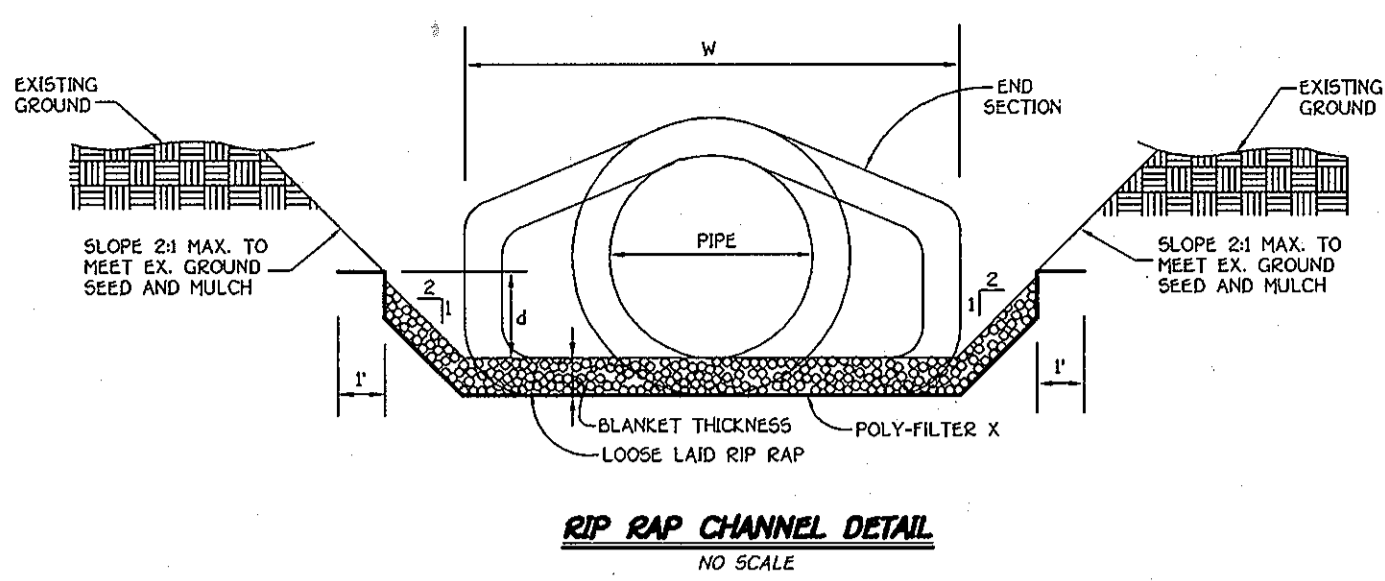
\* M-1 N 51855.8000 0.000  
E 80949.5255 1.270  
M-2 N 51849.810 0.000  
E 80949.5255 1.270  
M-3 N 51800.0000 0.000  
E 80949.5255 1.270

**PIPE SCHEDULE**

SIZE	MATERIAL	LENGTH
15"	HDPE	137'
18"	HDPE	621'
30" x 19"	CL. V. R.C.C.P.E.	99'
24"	ASTM, C-361 8-25	76'
24"	CL. V. R.C.C.P.	149'
24"	CL. IV. R.C.C.P.	197'
24"	ALUMINIZED C.M.P., TYPE II	24'

**CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS**

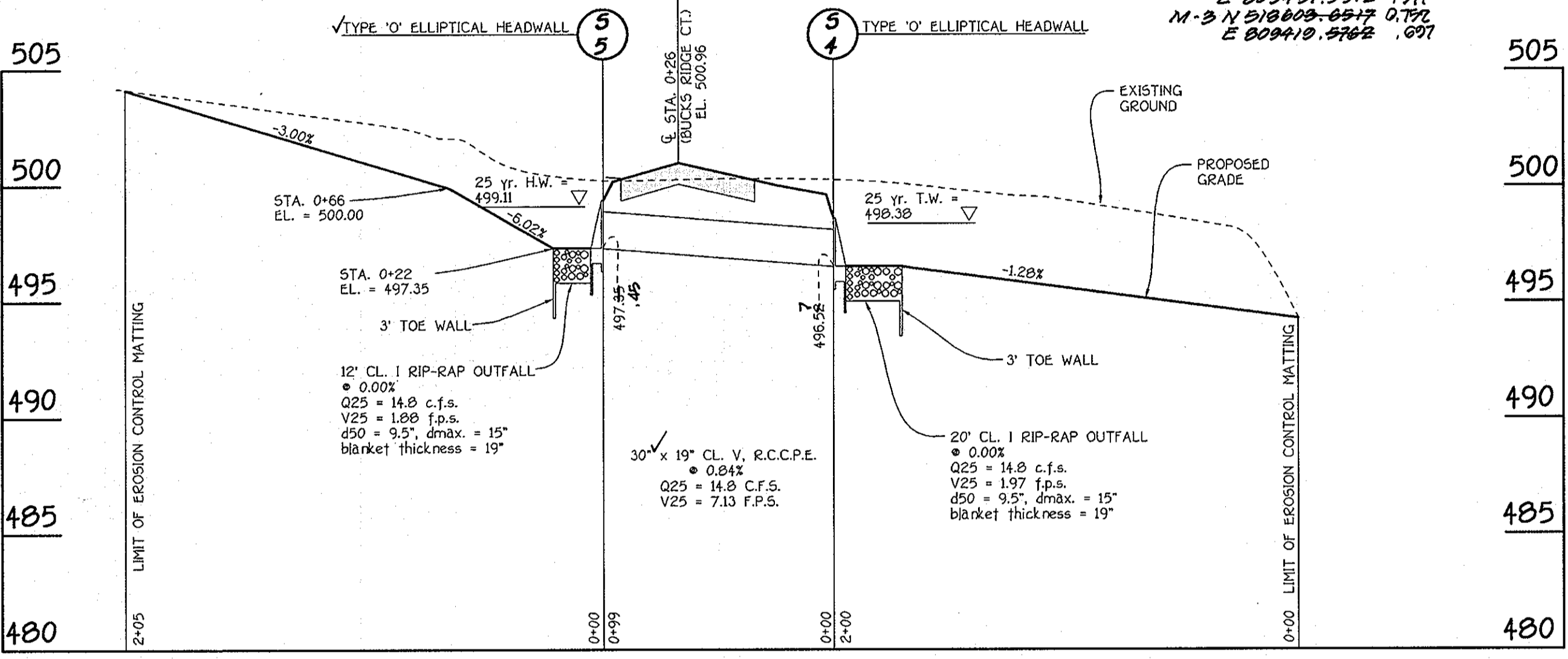
- The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged area or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
- Stone for the riprap or gabion outlets may be placed by equipment. Both shall each 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 riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



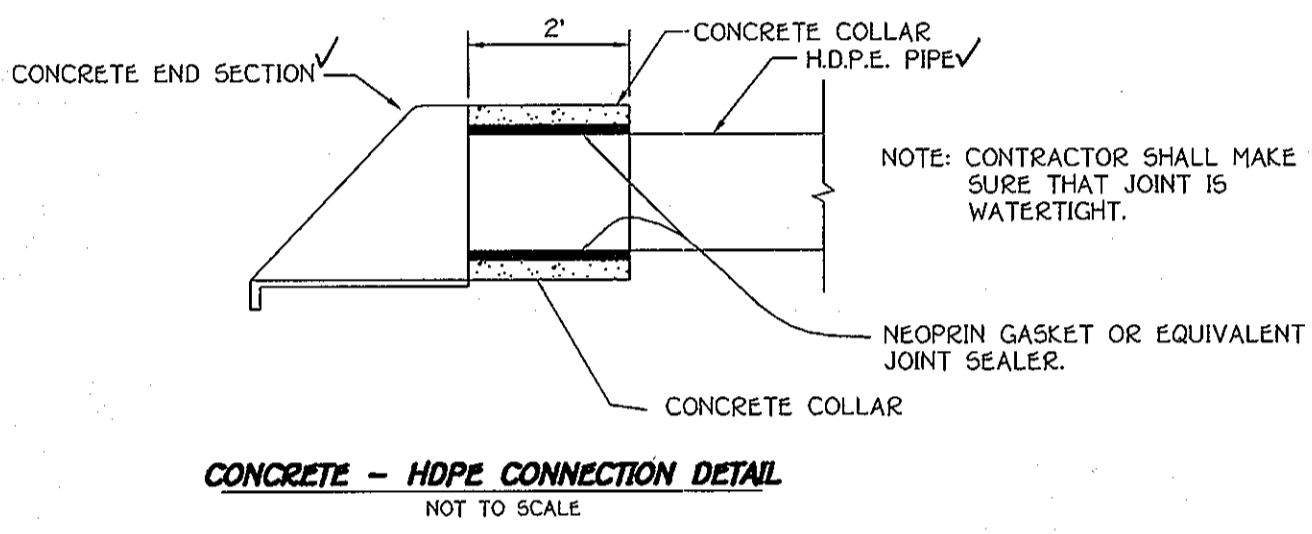
**RIP-RAP CHANNEL DESIGN DATA**

STRUCTURE	AREA	WETTED PERIMETER	R	R <sup>2/3</sup>	S	S <sup>1/2</sup>	W	d	N	V (ft <sup>3</sup> /s)	Q (c.f.s.)	BLANKET THICKNESS	PIPE SIZE
S-1	4.92'	9.00'	0.5467	0.6673	0.0050	0.0707	6.0'	0.67'	0.04	1.76	8.65	9.5"	19"
S-2	5.18'	9.13'	0.5674	0.6841	0.0050	0.0707	6.0'	0.70'	0.04	1.80	9.32	9.5"	19"
S-4	7.98'	13.13'	0.6078	0.7163	0.0050	0.0707	10.0'	0.70'	0.04	1.80	14.8*	9.5"	19"
S-5	7.98'	13.13'	0.6078	0.7163	0.0050	0.0707	10.0'	0.70'	0.04	1.80	14.8*	9.5"	19"

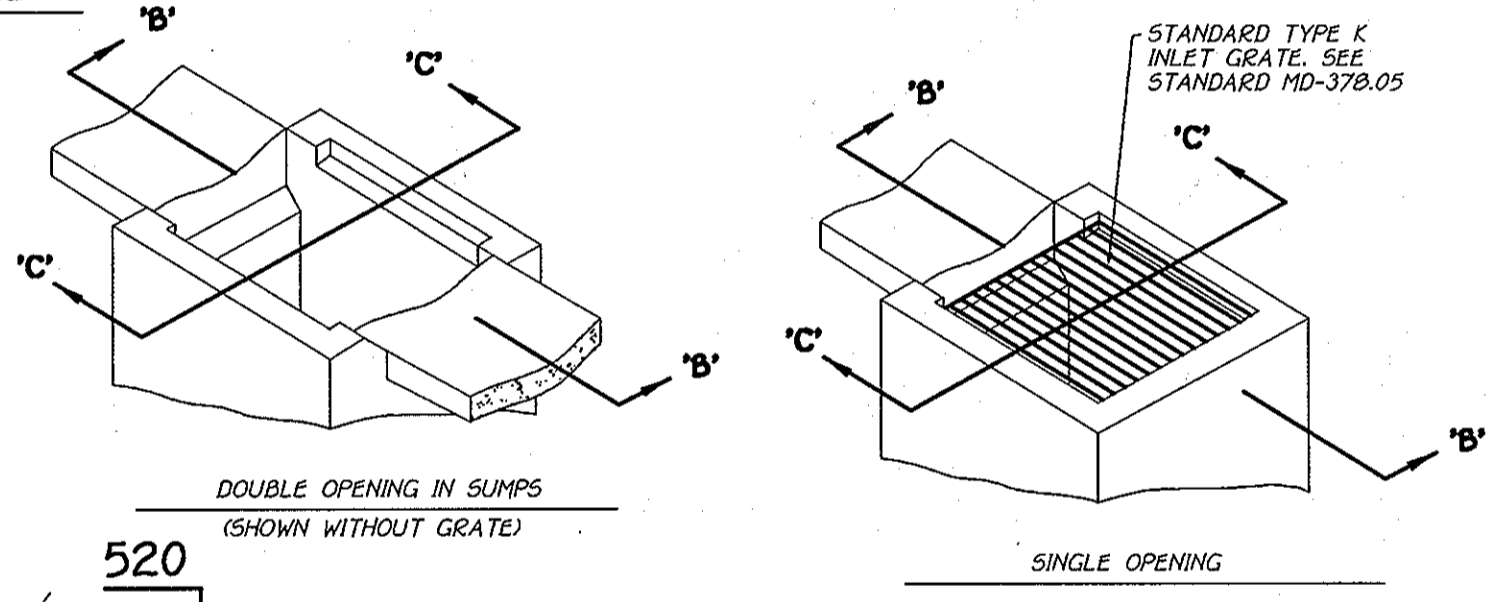
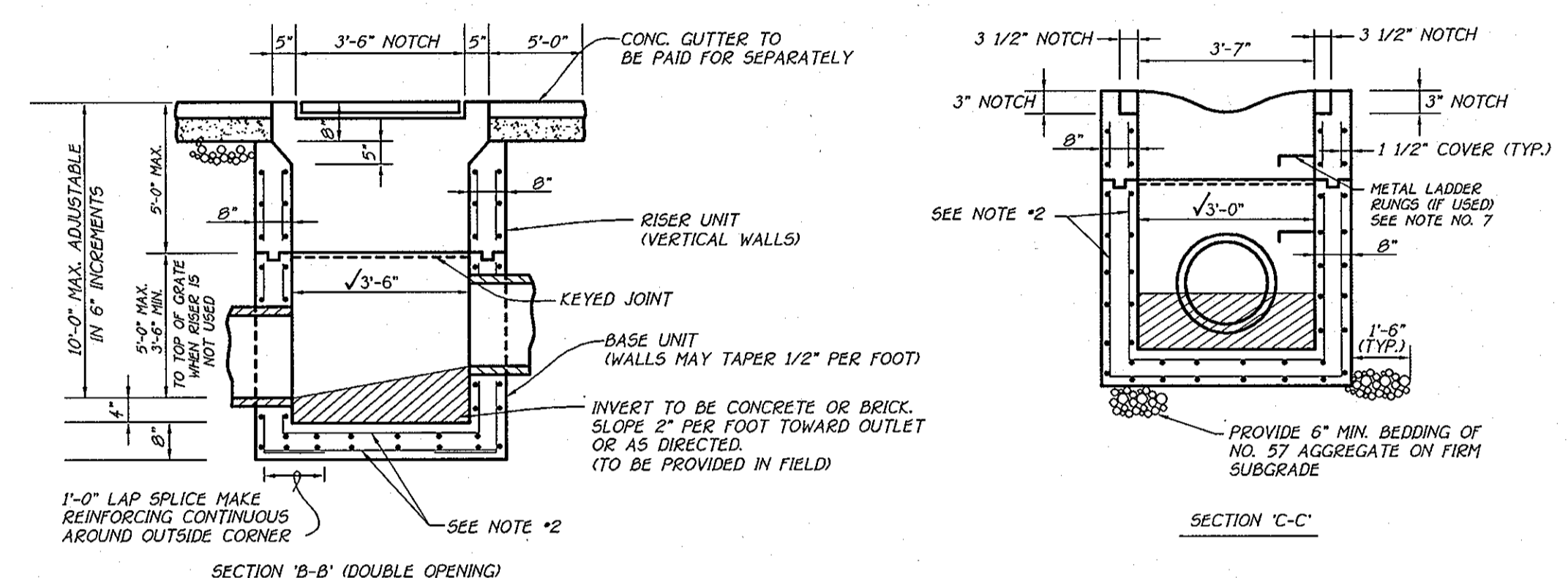
\* - DENOTES 25-YEAR Q



**CULVERT PROFILE**  
SCALE: HORIZ. : 1" = 50'  
VERT. : 1" = 5'

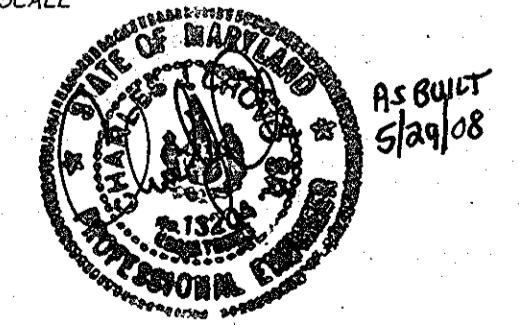


**CONCRETE - HDPE CONNECTION DETAIL**  
NOT TO SCALE

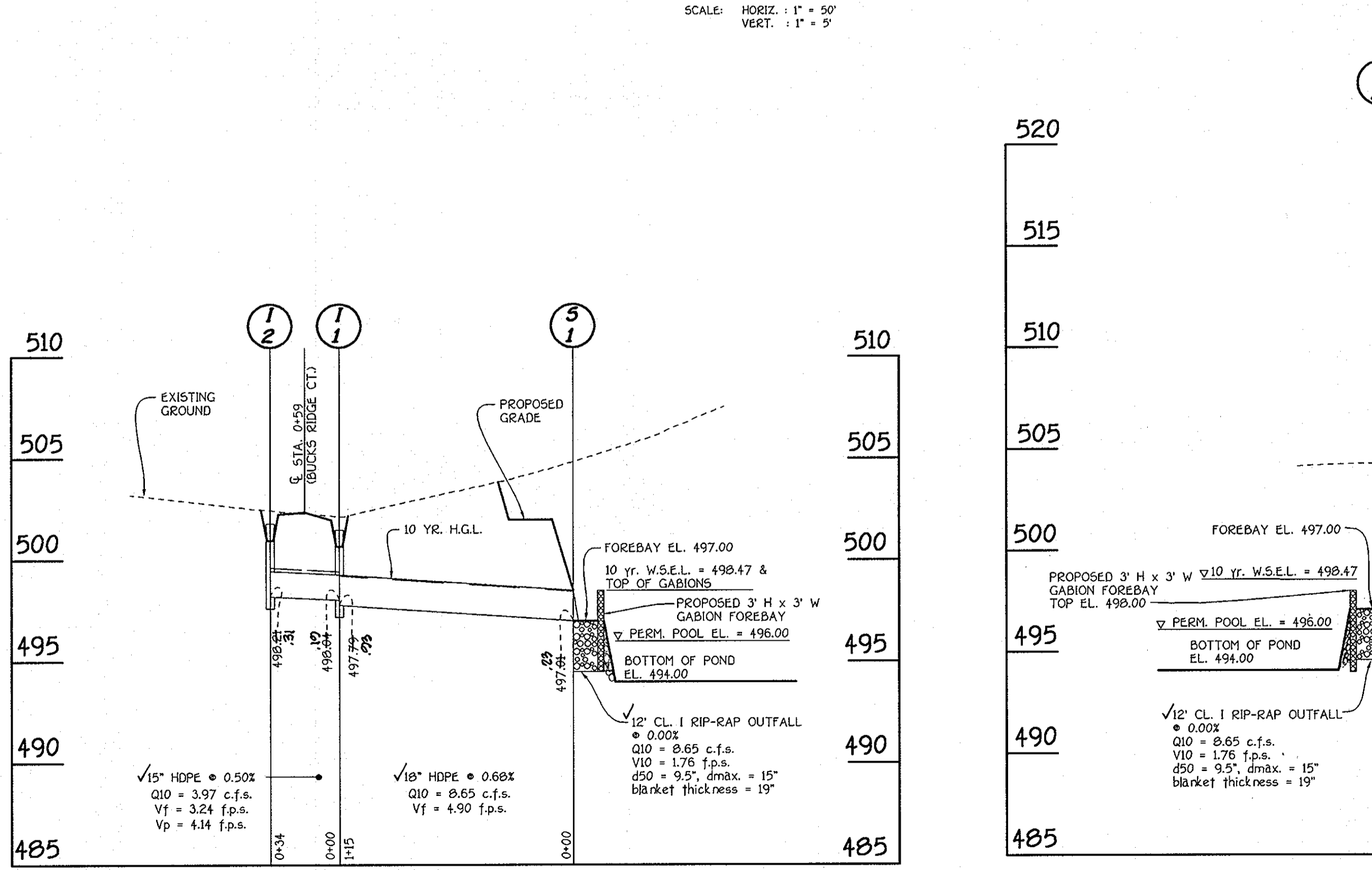


- GENERAL NOTES:**
- CONCRETE TO BE MIX NO. 6 (4500 PSI).
  - REINFORCING - 2 LAYERS OF 4 x 4 - W 4.0 x W 4.0 WELDED WIRE FABRIC.
  - THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
  - FOR GRATE DETAILS SEE STANDARD MD. - 378.05. GRATE TO BE AS SHOWN OR FURNISH APPROVED EQUIVALENT.
  - PIPE OPENINGS TO BE PROVIDED AS REQUIRED, FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.
  - PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE CONSTRUCTION PLANS.
  - LADDER RUNGS SHALL BE IN ACCORDANCE WITH STANDARD MD. - 383.91, AS SHOWN OR AS DIRECTED BY THE ENGINEER.
  - MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6". VERTICAL DEPTH PAYMENT PER LINEAR FOOT INCLUDES DEPTHS IN EXCESS OF 3'-6".
  - A 6" PERFORATED CIRCULAR PIPE, FOR EROSION AND SEDIMENT CONTROL, SHALL BE PLACED IN THE INLET WALL AT ALL INLET SEDIMENT TRAPS AS SHOWN ON THE PLANS.
  - FOR USE IN NON-TRAFFIC LOCATIONS ONLY.

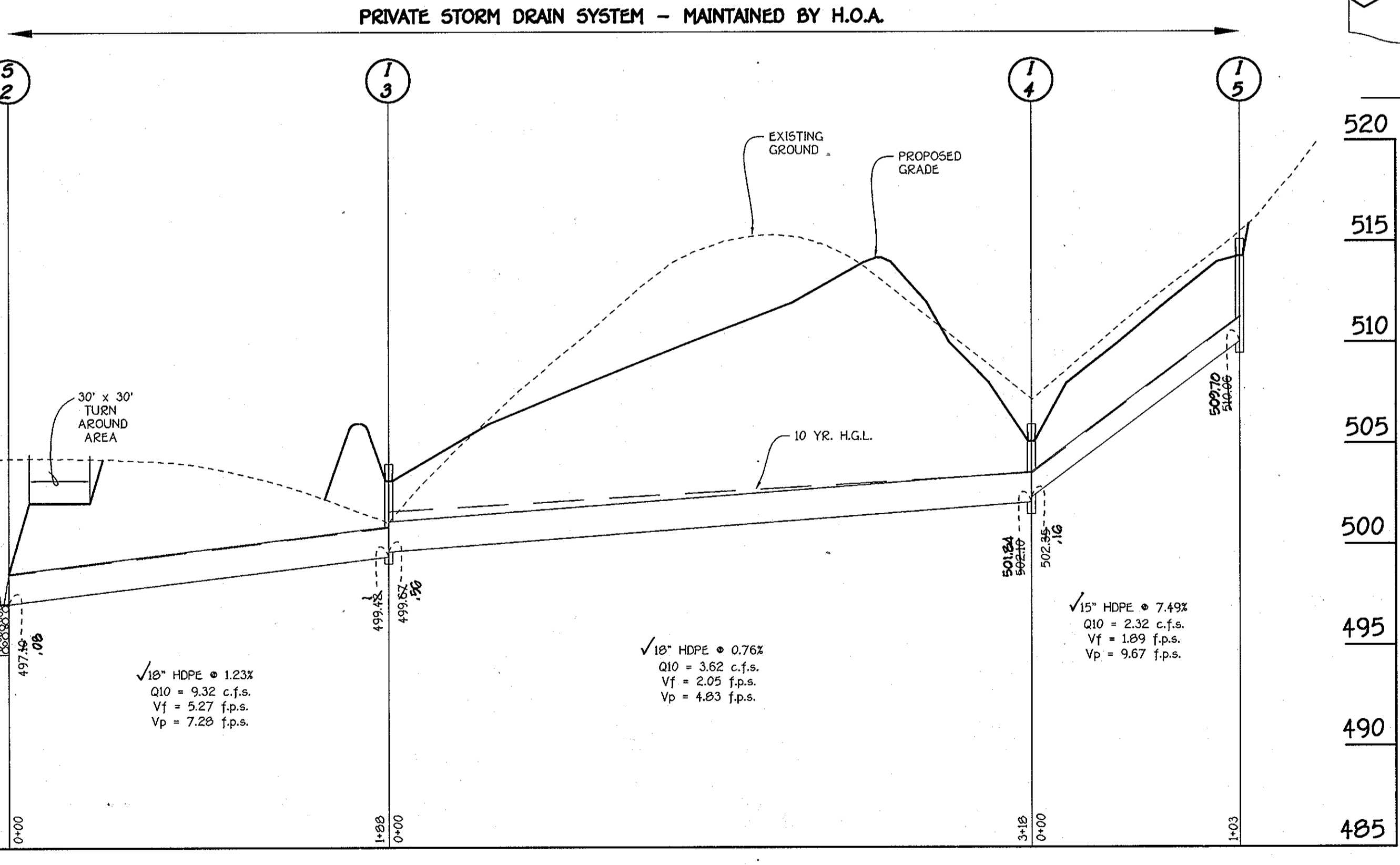
**MODIFIED OPEN END GRATE**  
NOT TO SCALE



**STORMDRAIN PROFILES**  
**BUCKSKIN OAKS**  
LOTS 1 THRU 4, OPEN SPACE LOT 5,  
BUILDABLE PRESERVATION PARCEL 'A' AND  
NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
(A RESUBDIVISION OF LOT 5 - J. DAVID MULLINIX PROPERTY, PLAT NO. 14449)

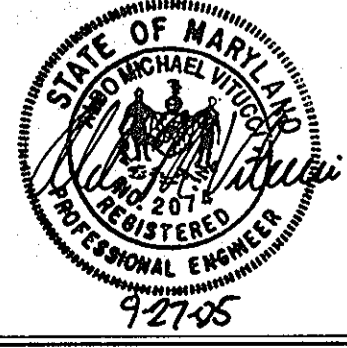


**PROFILE**  
SCALE: HORIZ. : 1" = 50'  
VERT. : 1" = 5'



**PROFILE**  
SCALE: HORIZ. : 1" = 50'  
VERT. : 1" = 5'

**FISHER, COLLINS & CARTER, INC.**  
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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-1855



**OWNERS**  
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**DEVELOPER**  
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13384 FOLLY QUARTERS ROAD  
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**OWNER**  
J. THOMAS SCRIVENER, INC.  
8908 CENTRE PARK DRIVE  
SUITE 203  
COLUMBIA, MARYLAND, 21145

No.	Revision	Date
1	Revised storm drain from 1-6 to the Ex. 7'-11" x 5'-7" C.M.P.A.	7/18/06

TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: JUNE 20, 2005  
SHEET 7 OF 13

**AS BUILT**

**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 vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH materials toxic to plants, and/or unacceptable soil gradation.

**Conditions Where Practice Applies**

I. 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**

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:  
I. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate authority. Regardless, topsoil shall not be a mixture of contrasting textures, textures subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/2" in diameter.

II. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.  
III. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4 to 5 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over disturbed areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

IV. For sites having disturbed areas over 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.

II. For sites having disturbed areas over 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.

III. For sites having disturbed areas over 5 acres:  
I. On soil meeting Topsoil Specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:  
a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.  
b. Organic content of topsoil shall be not less than 15 percent by weight.  
c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.  
d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (45 days min) to permit distribution of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate authority, may be used in lieu of natural topsoil.

II. Place topsoil if required and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.

V. Topsoil Application  
I. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment traps and basins.

II. Grades on the areas to be topsoiled, which have been previously established, shall be maintained about 4" - 6" higher in elevation.  
III. Topsoil shall be uniformly distributed in a 4" - 6" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

IV. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

V. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:  
I. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall conform to the following requirements:  
a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.  
b. Composted sludge shall contain at least 1 percent nitrogen, 15 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.  
c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

II. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/2 the normal lime application rate.  
References: Guideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. No. Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

III. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

IV. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/2 the normal lime application rate.

V. References: Guideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. No. Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

**SEDIMENT CONTROL NOTES**

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (315-1825).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THEREOF.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL SEDIMENT TRAP/BASINS SHOWN MUST BE FENCED AND WARDING SIGNS POSTED AROUND THEIR PERMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, FOR PERMETER SEDIMENT CONTROL (SEC. 315.500 (SEC. 3A)), TEMPORARY SEEDING (SEC. 500, AND MULCHING (SEC. 52)). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:  
TOTAL AREA OF SITE 11487 ACRES  
AREA DISTURBED 3.39 ACRES  
AREA TO BE ROOFED OR PAVED 0.37 ACRES  
AREA TO BE VEGETATIVELY STABILIZED 3.02 ACRES  
TOTAL CUT 3,500 YDS.  
TOTAL FILL 8,500 CU. YDS.

8. ALL WASTE/ROOFING AREA LOCATION  
9. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.  
10. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.  
11. APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERMETER SEDIMENT CONTROL STRUCTURES, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

12. 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.

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 1872 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2955

CONTRACT NO. 3107057/01/MS/00/0075 SHEET 8 OF 20 (REVISIONS)

**20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION**

**DEFINITION**  
Using vegetation as cover for barren soil to protect it from forces that cause erosion.

**PURPOSE**  
Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas, and improving wildlife habitat and visual resources.

**CONDITIONS WHERE PRACTICE APPLIES**  
This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are ditches, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

**EFFECTS ON WATER QUALITY AND QUANTITY**  
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff. Infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seeding, preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

**SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS**

A. Site Preparation  
I. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.  
II. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.  
III. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)  
I. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be substituted for fertilizer with prior approval from the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.  
II. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Fertilizers may be substituted for fertilizer with prior approval from the appropriate authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.  
III. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides of calcium plus magnesium oxides. Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 90-100% will pass through a #20 mesh sieve.

IV. Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.  
C. Seeded Preparation  
I. Temporary Seeding  
a. Seeded preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be roller or dragged smooth, but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.  
b. Apply fertilizer and lime as prescribed on the plans.  
c. Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.  
II. Permanent Seeding  
a. Minimum conditions required for permanent vegetative establishment:  
1. Soil pH shall be between 6.0 and 7.0.  
2. Soluble salts shall be less than 500 parts per million (ppm).  
3. The soil shall contain less than 40% clay, but enough to provide the capacity to hold a moderate amount of moisture. An exception is for areas where the soil is sandy (less than 40% clay) which would be acceptable.  
4. Soil shall contain a minimum of 1% minimum organic matter by weight.  
5. Soil must contain sufficient pore space to permit adequate root penetration.  
6. If these conditions cannot be met by soils on site, adding topsoil is required.  
b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.  
c. Apply soil amendments as per soil test or as included on the plans.  
d. Mix soil amendments into the top 3-5" of topsoil by diking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Areas with slopes steeper than 3:1 should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-2" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

D. Seed Specifications  
I. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed inspector. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.  
II. Note: Seed lots shall be made available to the inspector to verify type and rate of seed used.  
III. Incubant - The incubant for treating legume seed in the seed mixtures shall be a sure culture of nitrogen-fixing bacteria, prepared specifically for the species and incubated under conditions similar to the date indicated on container. Add fresh incubant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep incubant as cool as possible until used. Temperatures above 72°F can weaken bacteria and make the inoculant less effective.  
E. Methods of Seeding  
I. Hydroseeding - Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeded, or a cut/packer seeder.  
a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following maximum of 100 lbs. per acre total of soluble nitrogen: P205 (phosphorus): 200 lb/acre; K2O (potassium): 200 lb/acre.  
b. Lime - use only granular material and apply at a rate of 2 tons per acre may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time.  
c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.  
II. Dry Seeding - This includes use of conventional drop or broadcast spreaders.  
a. Seed spread rate shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summary or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.  
b. Wind direction shall be perpendicular to the direction of travel.  
c. Apply half the seeding rate in each direction.  
III. Drill or Cut/packer Seeding - Mechanized seeders that apply and cover seed with soil.  
a. Cut/packer seeders are required to be used in such a fashion as to provide at least 1/4 inch of soil covering. Seeded must be firm after planting.  
b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.  
F. Mixture Specifications (in order of preference)  
I. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonable bright in color, and shall not be musty, moldy, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.  
II. Wood Cellulose Fiber (WCFM) - WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.  
a. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of uniform spread rates.  
b. WCFM, including dye, shall contain no germination or growth inhibiting factors.  
c. WCFM material shall be manufactured in such a manner that it will remain in suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry.  
The mulch material shall form a better-ground cover, absorb moisture, retain moisture, improve moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.  
e. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm, diameter approximately 1 mm, pH range of 4.0 to 8.5, ash content of 6% maximum and water holding capacity of 30% minimum.  
sterile straw mulch should be used in areas where one species of grass is desired.  
G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.  
I. If grading is completed outside of the seeding season, mulch shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.  
II. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall have a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.  
III. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of water per 100 lbs. of wood cellulose fiber.  
H. Securing Straw Mulch (Mulch Anchoring) - Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods listed by preference, depending upon size of area and erosion hazard:  
I. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate easily. It uses an auger and a uniform surface should be used on the contour if possible.  
II. Wood cellulose fiber binder should be used for the fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a minimum of 50 pounds of wood cellulose fiber per 100 gallons of water.  
III. Application of liquid binders should be heavier at the edges where wind catches much, such as in valleys and crest of banks. The remainder of area should be applied uniformly after binder application. Synthetic binders are not permitted.  
IV. Terra Tack AC or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.  
V. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4" to 15' wide and 300' to 3,000' feet long.

**SECTION 2 - TEMPORARY SEEDING**  
Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.  
A. Seed mixtures - Temporary Seeding  
I. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 9) and enter them in the Temporary Seeding Summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.  
II. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

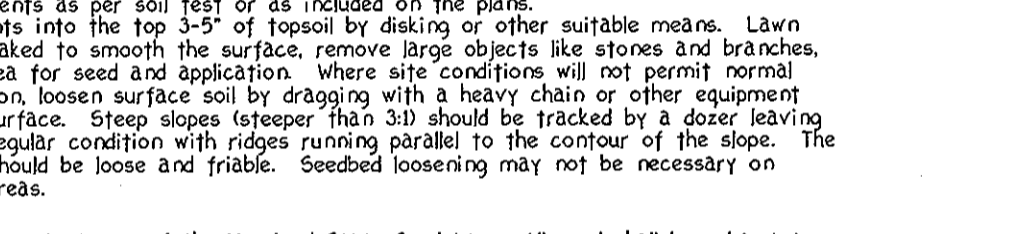
**SECTION 3 - PERMANENT SEEDING**  
Seeding grass and legumes to establish ground cover for a minimum of one year on disturbed areas generally receiving low maintenance.  
A. Seed mixtures - Permanent Seeding  
I. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 9) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting. For special low maintenance areas, see Sections IV Sed and V Turfgrass.  
II. For sites having disturbed area over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.  
III. For areas receiving low maintenance, apply uniform fertilizer 146-0-0 at 3 1/2 lbs/1000 sq. ft. (50 lbs/acre) in addition to the above amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardness Zone ...)	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	Fertilizer Rate (lb/100-100)	Lime Rate (lb/1000sqft)
1. BARKLEY	122	3/1 - 5/15	1" - 2"	600 lb/acre	2 tons/acre
OATS	95	8/15 - 10/15	1" - 2"	15 lb/1000sqft	
RYE	140		1" - 2"		

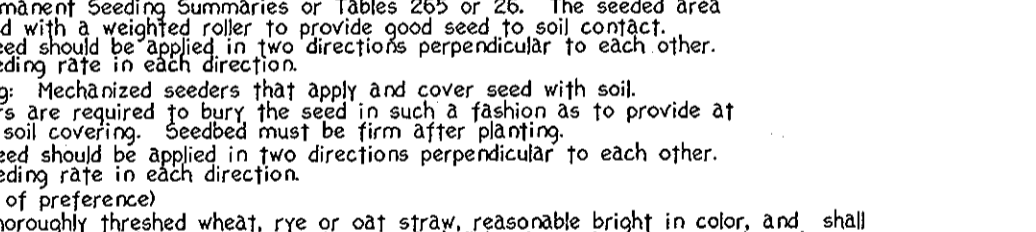
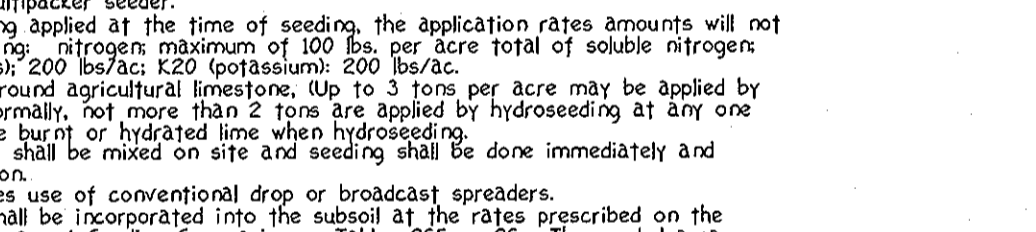
Seed Mixture (Hardness Zone ...)	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	Fertilizer Rate (lb/100-200)	Lime Rate (lb/1000sqft)
1. TALL FESCUE (855)	125	3/1 - 5/15	1" - 2"	90 lb/acre (20.0 lb/1000sqft)	175 lb/acre (14.2 lb/1000sqft)
PERENNIAL RYE GRASS (803)	120	8/15 - 10/15	1" - 2"	15 lb/1000sqft	
LENTICULAR BLUEGRASS (52)	120	3/1 - 5/15	1" - 2"		
TALL FESCUE (803)	120	8/15 - 10/15	1" - 2"		
MAID FESCUE (208)	30				

Seed Mixture (Hardness Zone ...)	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	Fertilizer Rate (lb/100-200)	Lime Rate (lb/1000sqft)
1. TALL FESCUE (855)	125	3/1 - 5/15	1" - 2"	90 lb/acre (20.0 lb/1000sqft)	175 lb/acre (14.2 lb/1000sqft)
PERENNIAL RYE GRASS (803)	120	8/15 - 10/15	1" - 2"	15 lb/1000sqft	
LENTICULAR BLUEGRASS (52)	120	3/1 - 5/15	1" - 2"		
TALL FESCUE (803)	120	8/15 - 10/15	1" - 2"		
MAID FESCUE (208)	30				

**EARTH DIKE**  
NOT TO SCALE  
2:1 SLOPE OR FLATTER  
EXCAVATE TO PROVIDE REQUIRED FLOW WIDTH AT DESIGN FLOW DEPTH



**GABION INFLOW PROTECTION**  
NOT TO SCALE  
CONSTRUCTION SPECIFICATIONS  
1. Seed and cover with straw mulch.  
2. Seed and cover with erosion control hitting or line with sod.  
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.  
4. Temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.  
5. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.  
6. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.  
7. 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.  
8. 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.  
9. Fill shall be compacted by earth moving equipment.  
10. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.  
11. Inspection and maintenance must be provided periodically and after each rain event.



**SEDIMENT CONTROL NOTES AND DETAILS**  
**BUCKSKIN OAKS**  
LOTS 1 THRU 4, OPEN SPACE LOT 5,  
BUILDABLE PRESERVATION PARCEL 'A' AND  
NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
(A RESUBDIVISION OF LOT 5 - J. DAVID MULLINIX PROPERTY, PLAT NO. 14449)

1. Gabion inflow protection shall be constructed of 9" x 9" x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.  
2. Geotextile Class C shall be installed under all gabion baskets.  
3. The stone used to fill the gabion baskets shall be 4" - 7".  
4. Gabions shall be installed in accordance with manufacturers recommendations.  
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

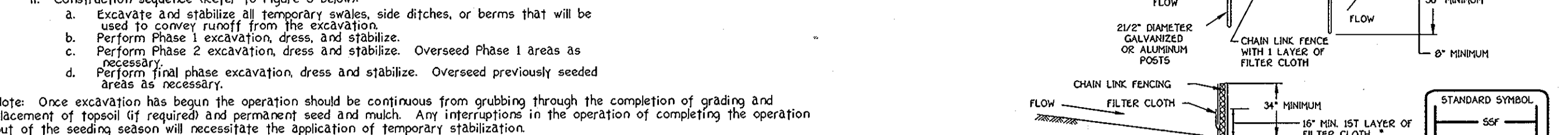
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GRID: RR-16  
TAX MAP NO. 22  
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: JUNE 20, 2005  
SHEET 8 OF 13

**OWNERS**  
J. DAVID MULLINIX  
ELIZABETH C. MULLINIX  
14420 HOWARD ROAD  
DAYTON, MARYLAND, 21036

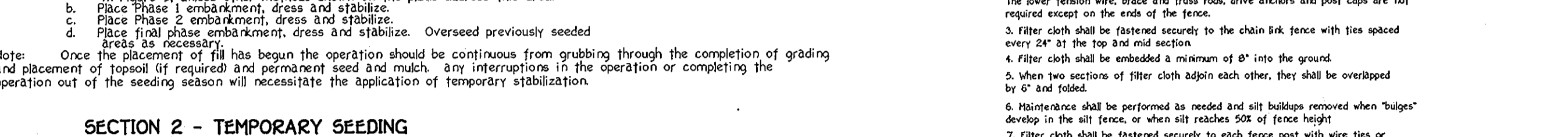
**DEVELOPER**  
J. THOMAS SCRIVER INC.  
8808 CENTRE PARK DRIVE  
SUITE 209  
COLUMBIA, MARYLAND, 21145

**OWNER'S REPRESENTATIVE**  
PATRICIA LEE SCHWARZ  
13394 FOLLY QUARTER ROAD  
ELICOTT CITY, MARYLAND, 21042-1247

**SUPER SILT FENCE**  
NOT TO SCALE  
NOTE: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER.  
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 4" fence shall be used substituting 42" fabric and 6" length posts.  
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, base and trust rods, drive anchors and post caps are not required except on the ends of the fence.  
3. Filter cloth shall be fastened around the chain link fence with ties spaced every 24" at the top and mid section.  
4. Filter cloth shall be embedded a minimum of 6" into the ground.  
5. When two sections of filter cloth abut each other, they shall be overlapped by 6" and fastened.  
6. Maintenance shall be performed as needed and all silt buildup removed when "bulges" develop in the filter cloth or when silt reaches 50% of fence height.  
7. Filter cloth shall be fastened around each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class:  
Tensile Strength 50 (bar/in) Test: HST 509  
Tensile Modulus 20 (bar/in) Test: HST 509  
Flow Rate 63 gal ft / minute (max) Test: HST 322  
Filtering Efficiency 75% (min) Test: HST 322



**STABILIZED CONSTRUCTION ENTRANCE**  
NOT TO SCALE  
CONSTRUCTION SPECIFICATIONS  
1. Length - minimum of 50' (40' for single residence lot).  
2. Width - 10' minimum, should be fitted at the existing road to provide a turning radius.  
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. \*\*The plant authority may not require single family residences to use geotextile.  
4. 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.  
5. 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 mountable berm around the pipe. The pipe shall be located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.  
6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.  
7. Where ends of geotextile fabric come together, they shall be overlapped, fitted and stapled to prevent sediment passage.  
8. Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.



**SILT FENCE**  
NOT TO SCALE  
CONSTRUCTION SPECIFICATIONS  
1. Fence posts shall be a minimum of 30" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square minimum cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard 1/2" or 3/4" section weighing not less than 1.00 pound per linear foot.  
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class C:  
Tensile Strength 50 (bar/in) Test: HST 509  
Tensile Modulus 20 (bar/in) Test: HST 509  
Flow Rate 63 gal ft / minute (max) Test: HST 322  
Filtering Efficiency 75% (min) Test: HST 322  
3. Where ends of geotextile fabric come together, they shall be overlapped, fitted and stapled to prevent sediment passage.  
4. Silt fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.



**SEEDING SUMMARY**  
Table 25: Temporary Seeding Summary  
Table 26: Permanent Seeding Summary

**ENGINEER'S CERTIFICATE**  
I, Howard County Engineer, certify that this Plan for Erosion And Sediment Control Represents a Reasonable and Feasible Plan Based On My Personal Knowledge Of The Site And That All Responsible Personnel Involved In The Preparation Of This Plan Were Licensed Professional Engineers With The State Of Maryland.  
Signature: [Signature] Date: 9/29/05

**DEVELOPER'S CERTIFICATE**  
I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary.  
Signature: [Signature] Date: 9/29/05

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.  
Signature: [Signature] Date: 11/22/05  
U.S.D.A. - Natural Resources Conservation Service

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.  
Signature: [Signature] Date: 11/22/05  
District: Howard Soil Conservation District

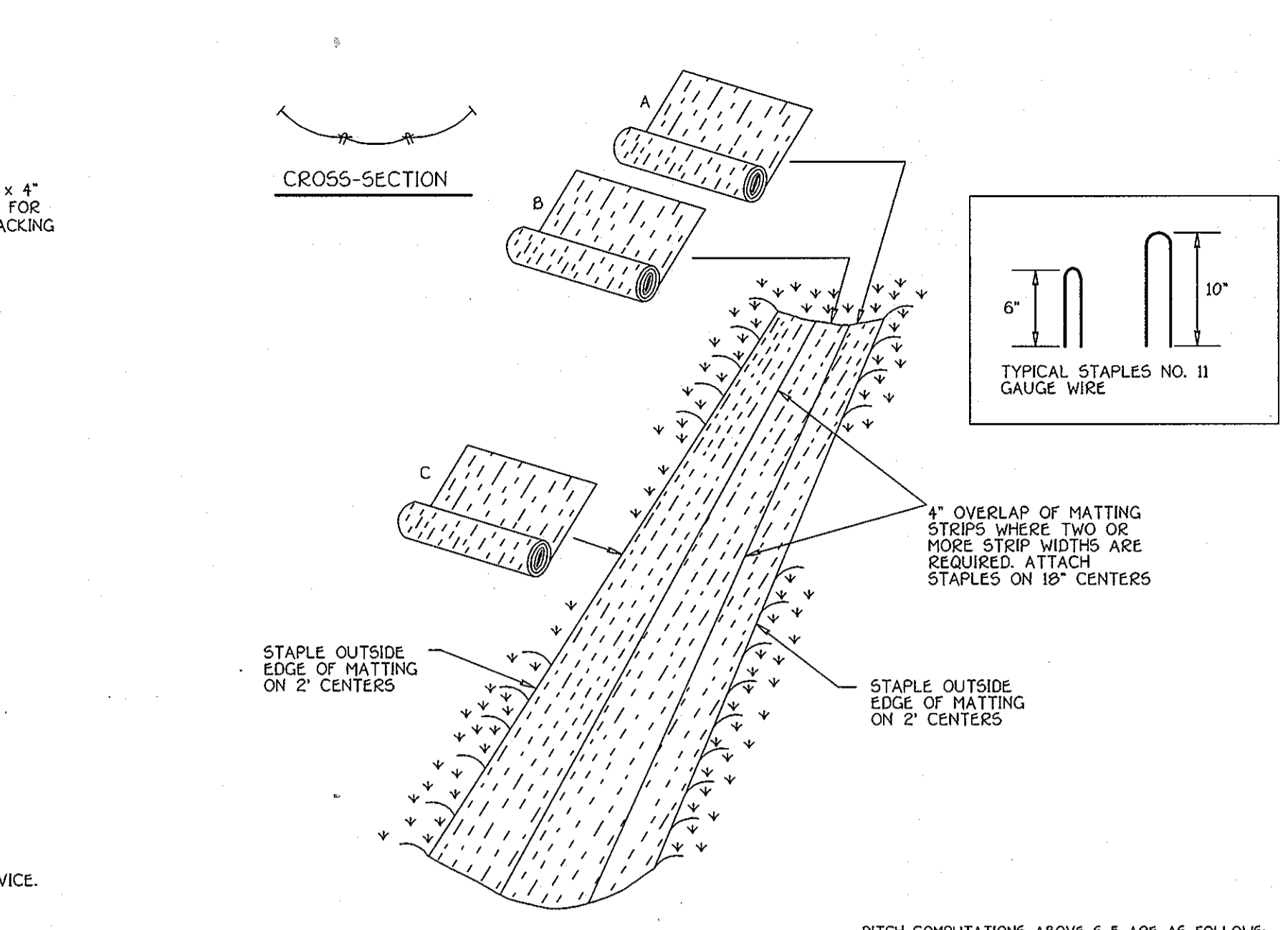
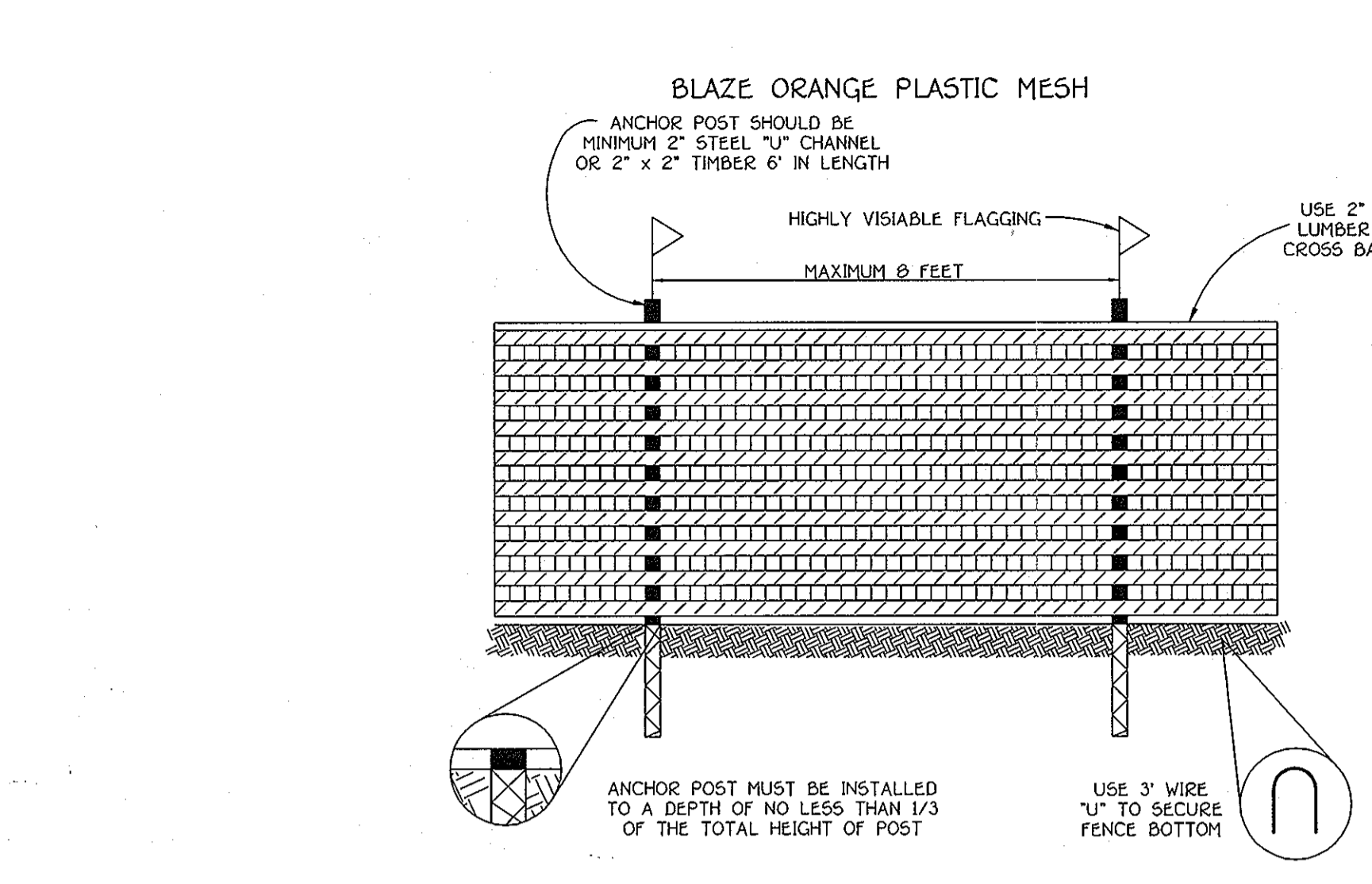
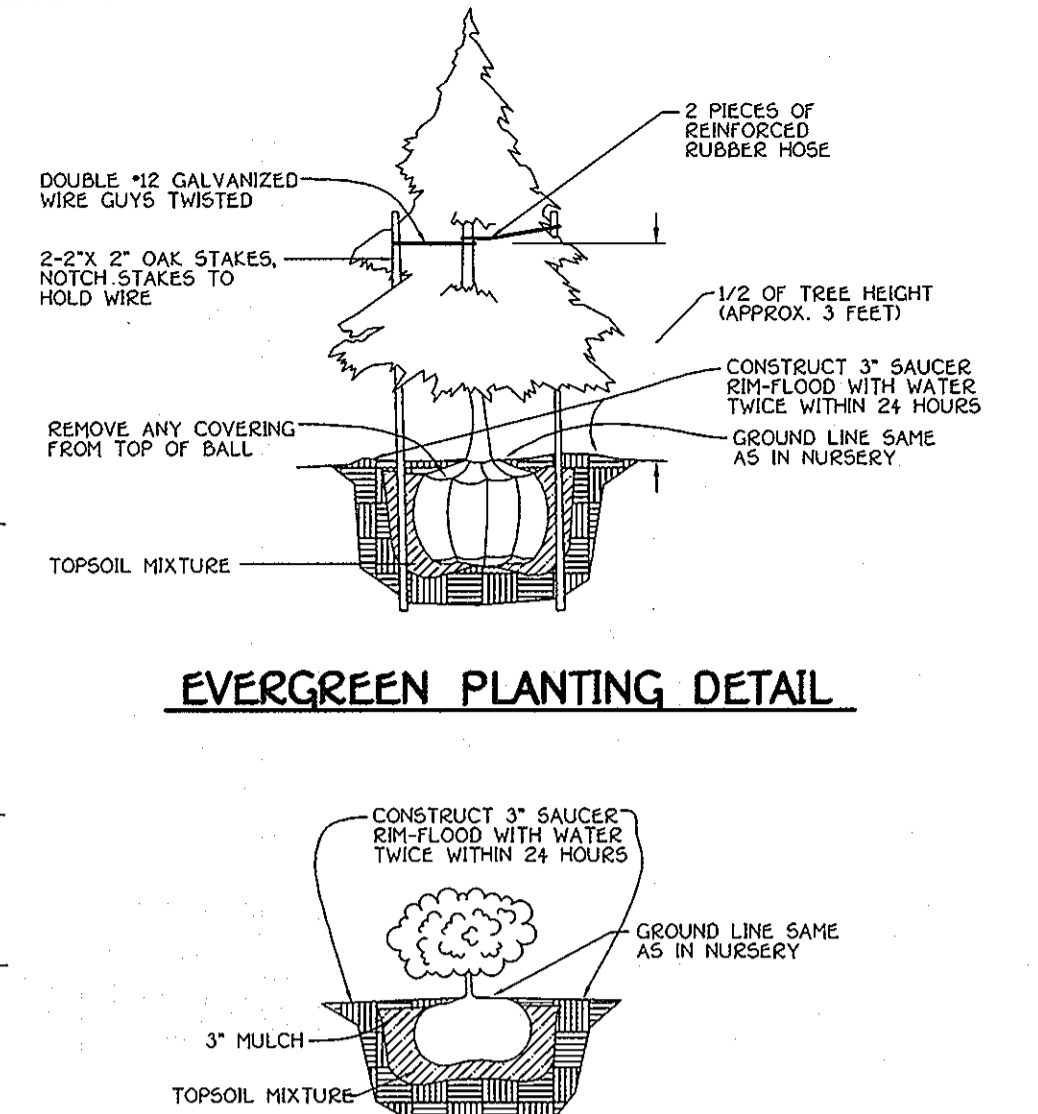
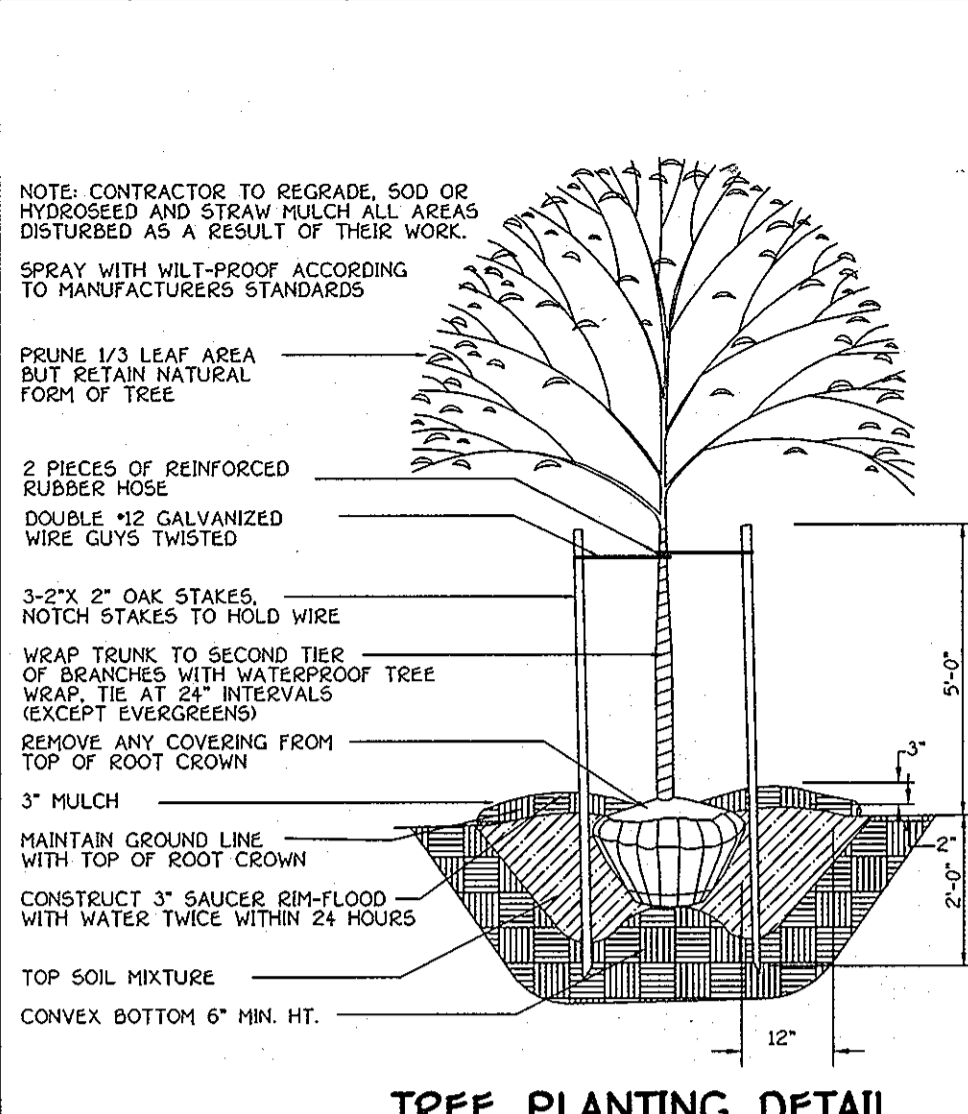
Approved: Department Of Planning And Zoning  
Signature: [Signature] Date: 12/7/05  
Chief, Division Of Land Development

Approved: Department Of Planning And Zoning  
Signature: [Signature] Date: 12/7/05  
Chief, Development Engineering Division

Approved: Howard County Department Of Public Works  
Signature: [Signature] Date: 12-1-05  
Chief, Bureau Of Highways

**AS BUILT**





**PLANTING SPECIFICATIONS**

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, free from defects, decay, distorting roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no heeled-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specification shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Area", hereinafter "Landscape Guidelines" approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all agenda.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and "Miss Utility" a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Bid shall be based on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications.

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plant list precedence.

All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds 2 percent slope.

Planting mix shall be as follows: Deciduous Plants - Two parts Topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - Two parts Topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

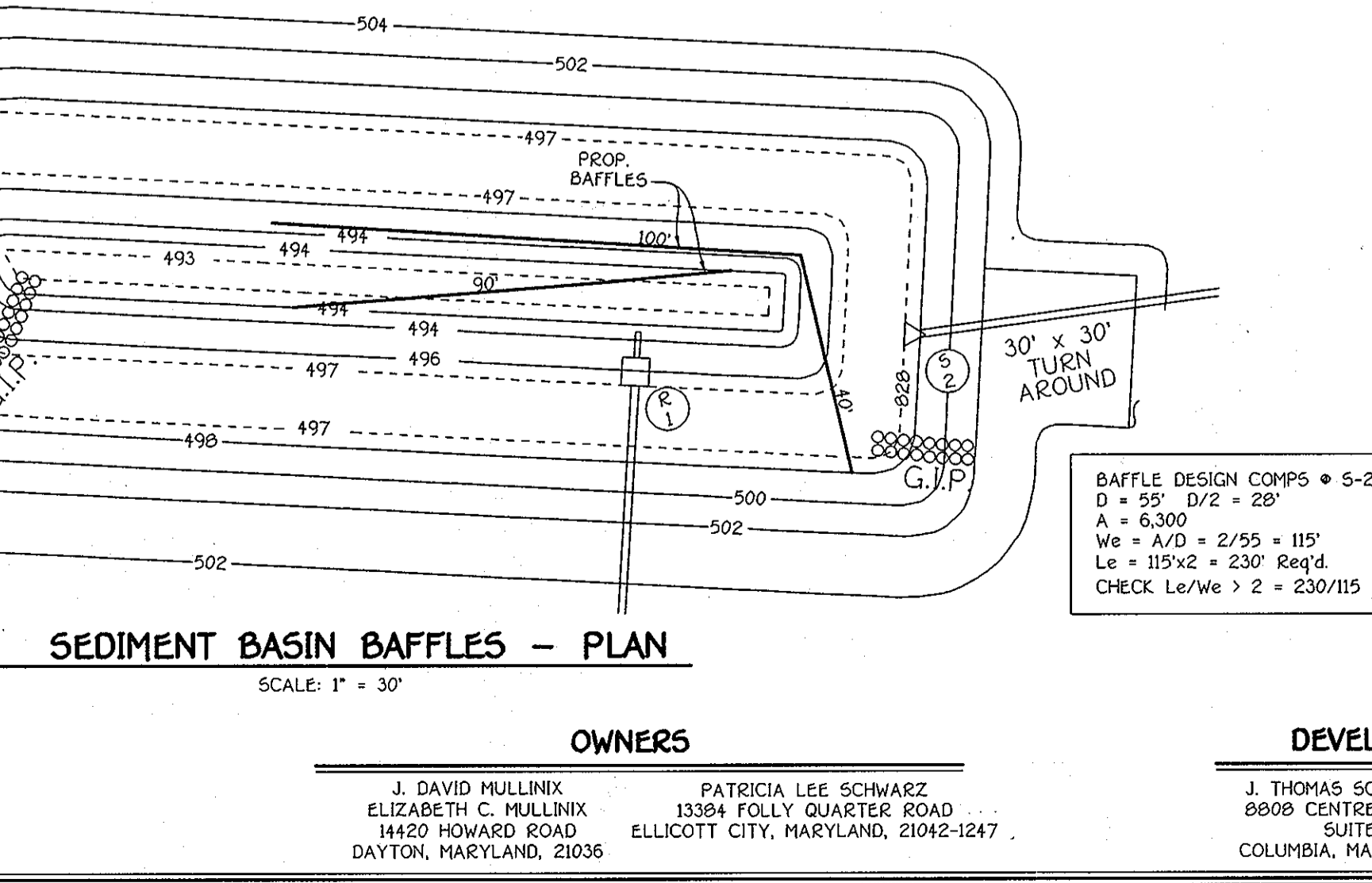
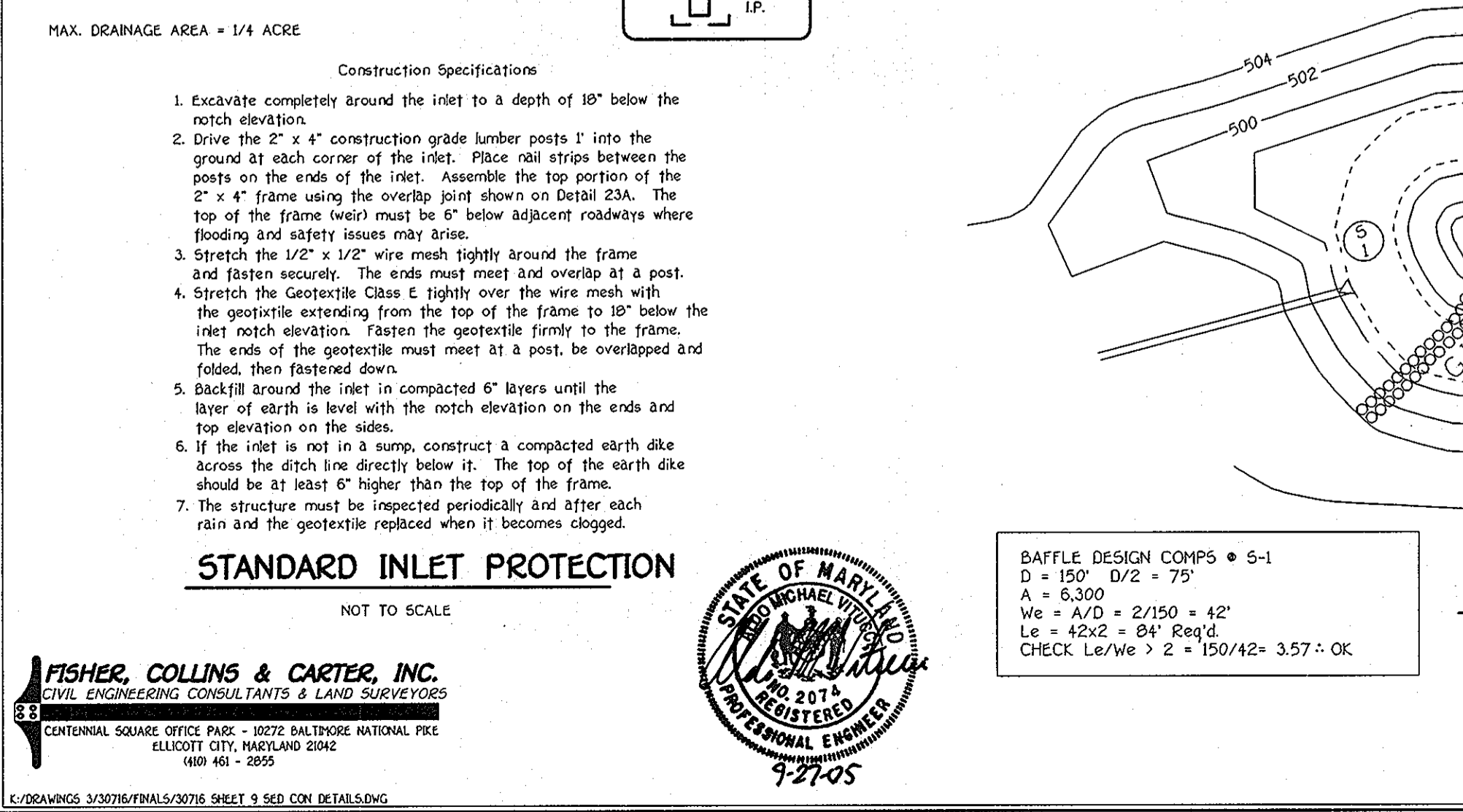
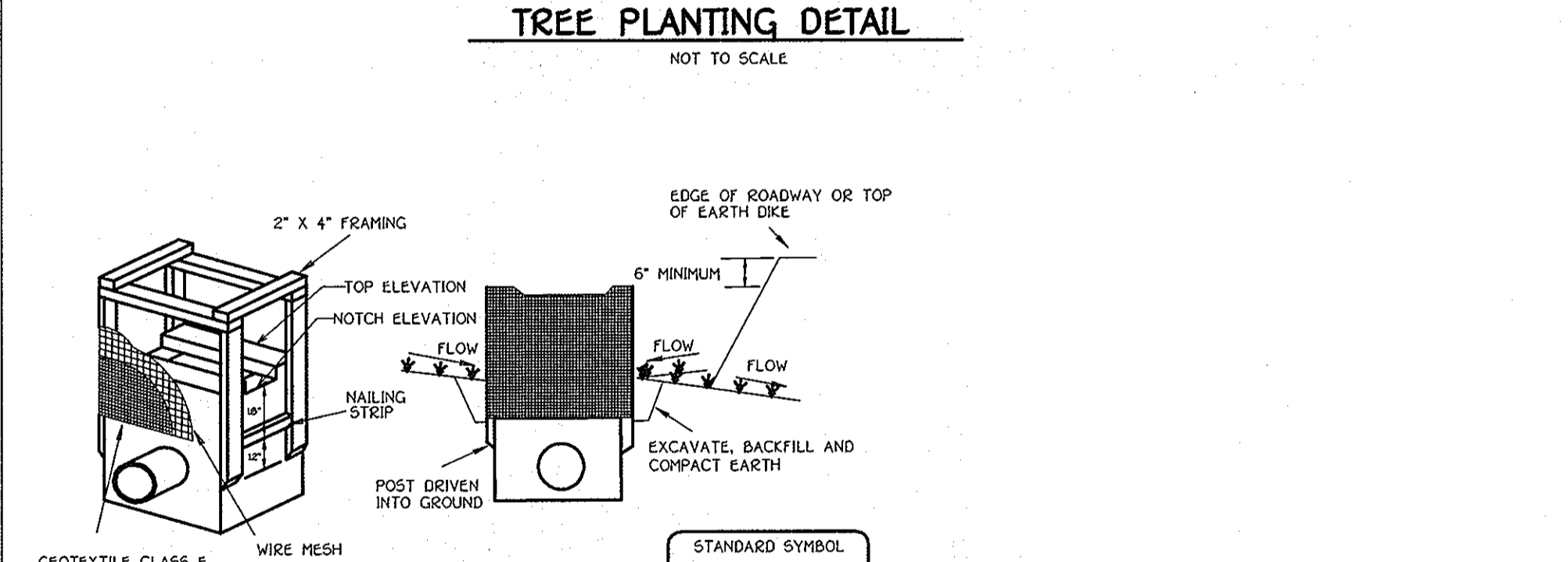
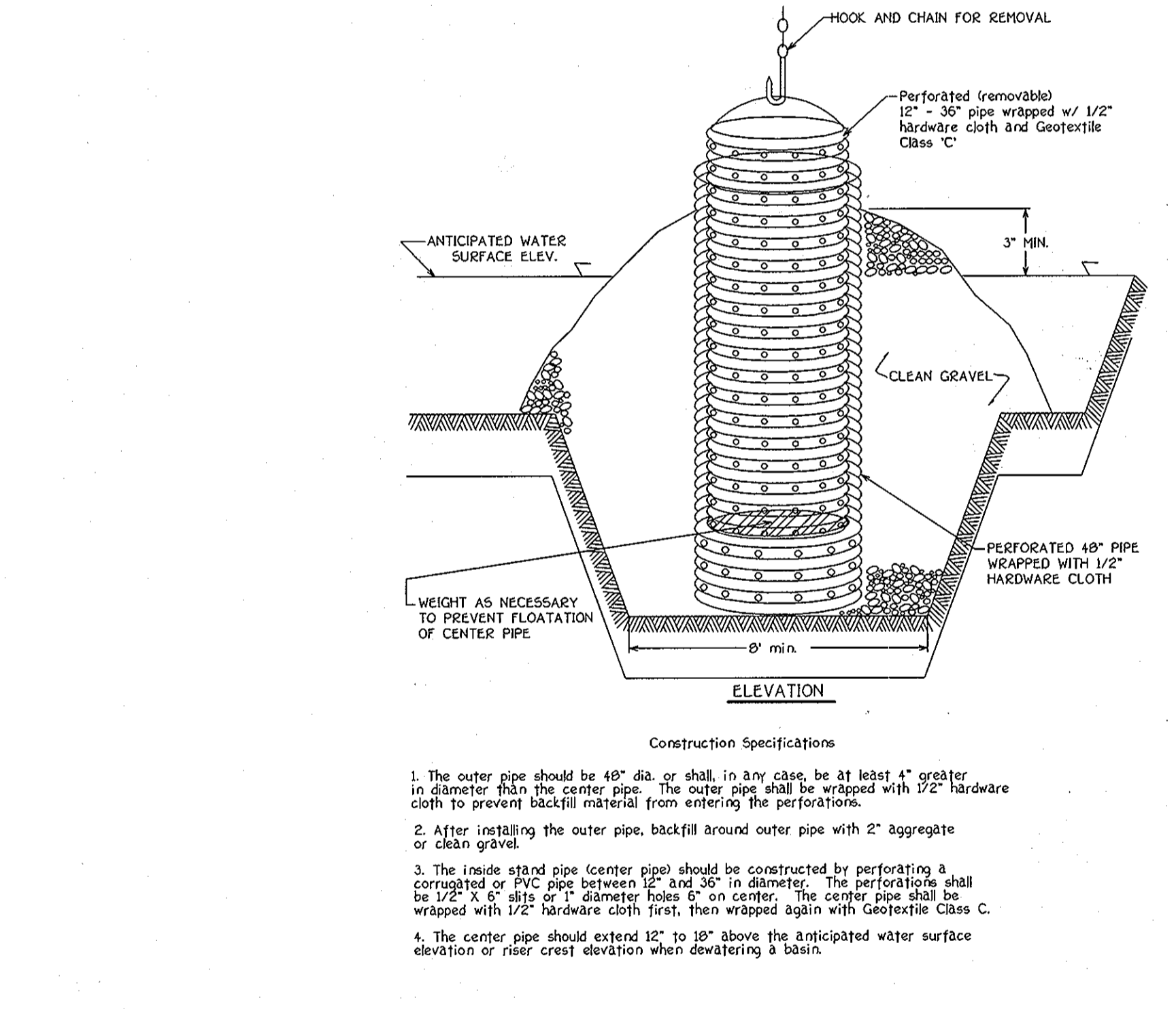
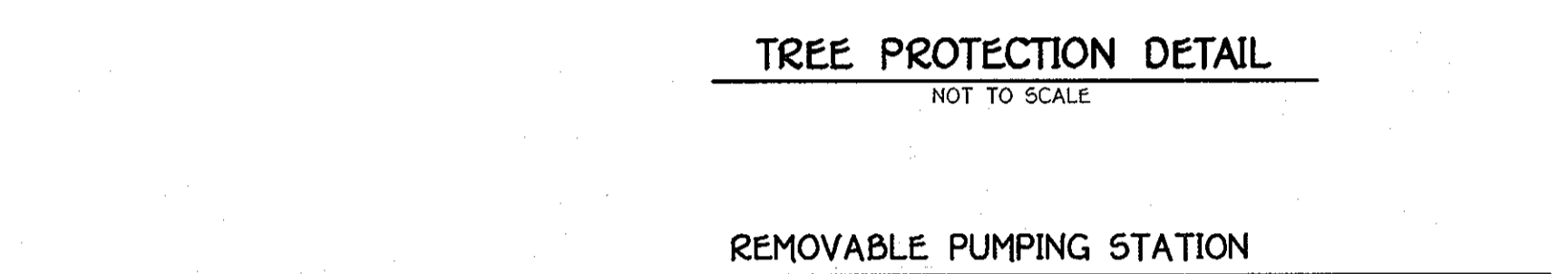
Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded.

This plan is intended for landscape use only. See other plan sheets for more information on grading, sediment control, layout, etc.

**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.
- PROTECTIVE SIGNAGE MAY ALSO BE USED.
- DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.



**SEQUENCE OF CONSTRUCTION**

**PHASE ONE**

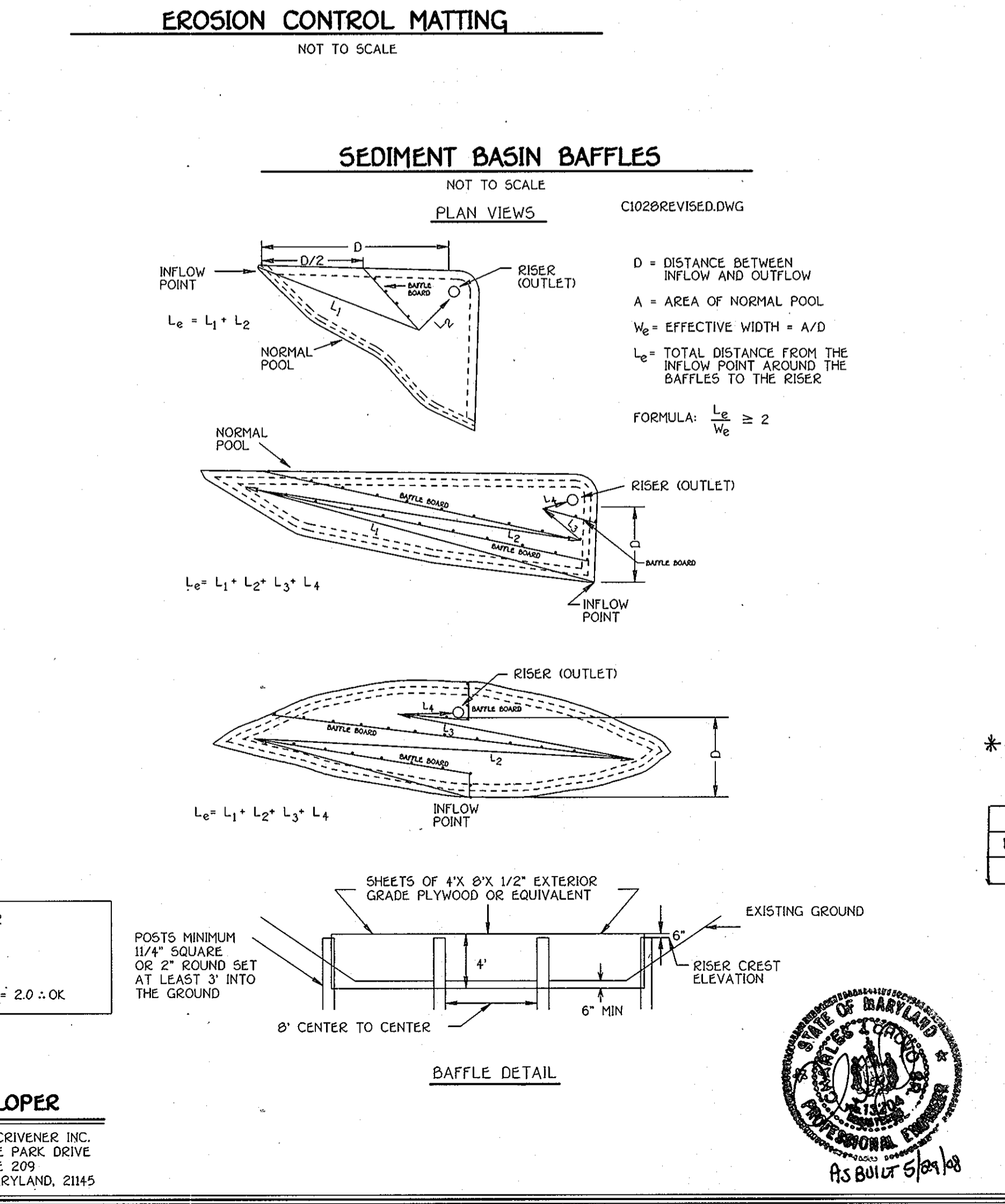
- OBTAIN A GRADING PERMIT.
- NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STARTING WORK.
- INSTALL ALL TREE PROTECTION FENCE FOR TREES TO BE UNDISTURBED AS INDICATED ON THE PLANS (1 DAY).
- INSTALL STABILIZED CONSTRUCTION ENTRANCE (3 DAYS)
- NOTE: THE FOLLOWING S.O.C. 4 - 5 SHALL OCCUR WITHIN A 5-DAY CLEAR WEATHER FORECAST WITH THE PERMISSION FROM INSPECTOR BEFORE PROCEEDING.
- INSTALL SILT FENCE, EARTH DIKES & MOUNTABLE BERM. INSTALL CULVERTS FROM S-4 TO S-5 AND GRADE IN DITCHES ALONG FOLLY QUARTER ROAD. GRADE ALONG FOLLY QUARTER ROAD FOR APPROPRIATE ROAD IMPROVEMENTS. RELOCATE ANY UTILITY PIPES IF NECESSARY. SAW CUT FOLLY QUARTER ROAD AND INSTALL PAVING SECTION PER APPROPRIATE IMPROVEMENTS. (2 WEEKS)
- NOTE: CONTRACTOR TO STABILIZE ANY DISTURBED AREA BY THE END OF EACH DAY WITH TOPSOIL, E.C.H. AND PERMANENT SEED MIX.
- WORKING DOWNSTREAM TO UPSTREAM BEGIN STORM DRAIN CONSTRUCTION FROM CONNECTION TO EXISTING TRIPLE CELL CULVERT UP TO I-6. REMOVE THE EXISTING 18" CULVERT UNDER FOLLY QUARTER ROAD WHEN WORK REACHES VICINITY OF H-3. INSTALL INLET. SEE BELOW.
- RECEIVE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING.

**PHASE TWO**

- CLEAR & GRUB FOR SEDIMENT BASIN/SUM POND. INSTALL SEDIMENT BASIN/SUM POND WITH OUTFALL TO I-6 AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF SEDIMENT BASIN/SUM POND EMBANKMENT. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF THE FACILITY. (2 WEEKS)
- CLEAR AND GRUB THE REMAINDER OF THE SITE. (3 DAYS)
- GRADE SITE TO THE PROPOSED SUB-GRADE AND INSTALL THE STORM DRAIN SYSTEMS. STABILIZE ALL SLOPES IMMEDIATELY UPON COMPLETION OF GRADING. INSTALL S-1 THRU I-2 & S-2 THRU I-5. GRADE DITCH AT REAR OF LOT 4 & ON THE EAST SIDE OF LOT 4 AS SHOWN ON THE PLANS. DO NOT BLOCK INLETS AS STORM DRAIN SYSTEM WILL BE USE TO CONVEY SEDIMENT TO BASIN. (2 WEEKS)
- CONSTRUCT ROAD BASE COURSE FOR INTERNAL SUBDIVISION ROAD. (1 WEEK)
- WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES AND THE POND HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL DESIGN GRADE. STABILIZE ALL REMAINING AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (2 WEEKS)
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.

**NOTE:**  
THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. REMOVE SEDIMENT FROM THE POND WHEN THE CLEANOUT ELEVATION HAS BEEN REACHED. ALL SEDIMENT MUST BE PLACED UPSTREAM OF THE APPROVED TRAPPING DEVICE.

\* 5 Cont. WORK WITHIN FOLLY QUARTER ROAD SHALL FOLLOW THE TRAFFIC MAINTENANCE PLANS AND BE SCHEDULED BETWEEN 6am to 3pm. FOR LANE CLOSURES.



**ENGINEER'S CERTIFICATE**

I Herewith Certify That This Plan For Erosion And Sediment Control Represents A Feasible And Workable Plan Based On My Personal Knowledge Of The Site And That It Was Prepared In Accordance With The Standards And Practices Of The Professional Engineering Board of the State of Maryland.

Signature: [Signature] DATE: 9-27-05

**DEVELOPER'S CERTIFICATE**

"I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary."

Signature Of Developer: [Signature] DATE: 9/27/05

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements: [Signature] DATE: 11/22/05

U.S.D.A. - Natural Resources Conservation Service

Approved This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District: [Signature] DATE: 11/22/05

District: Howard Soil Conservation Dist.

Approved Department Of Planning And Zoning: [Signature] DATE: 12/7/05

Chief, Division Of Land Development: [Signature]

Chief, Development Engineering Division: [Signature] DATE: 12/6/05

Approved: Howard County Department Of Public Works: [Signature] DATE: 12-1-05

Chief, Bureau Of Highways: [Signature]

**SEQUENCE OF CONSTRUCTION**

**PHASE ONE**

- OBTAIN A GRADING PERMIT.
- NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 24 HOURS BEFORE STARTING WORK.
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- RECEIVE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING.

**PHASE TWO**

- CLEAR & GRUB FOR SEDIMENT BASIN/SUM POND. INSTALL SEDIMENT BASIN/SUM POND WITH OUTFALL TO I-6 AND SILT FENCE AS INDICATED ON THE PLANS. NO BLASTING WILL BE PERMITTED FOR THE EXCAVATION OF SEDIMENT BASIN/SUM POND EMBANKMENT. WHERE NECESSARY, RIPPING AND JACK HAMMERING SHOULD BE UTILIZED IN THE EXCAVATION OF THE FACILITY. (2 WEEKS)
- CLEAR AND GRUB THE REMAINDER OF THE SITE. (3 DAYS)
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- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.

**NOTE:**  
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\* 5 Cont. WORK WITHIN FOLLY QUARTER ROAD SHALL FOLLOW THE TRAFFIC MAINTENANCE PLANS AND BE SCHEDULED BETWEEN 6am to 3pm. FOR LANE CLOSURES.

NO	REVISIONS	DESCRIPTION	DATE
1	REVISE STORM DRAIN FROM I-6 TO THE EX. 7-11" x 5'-7" C.M.P.A.	7-19-06	

**SEDIMENT CONTROL NOTES AND DETAILS**

**BUCKSKIN OAKS**

LOTS 1 THRU 4, OPEN SPACE LOT 5, BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C' (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINX PROPERTY, PLAT NO. 14449)

ZONED: RR-DEO

TAX MAP NO. 22 GRID NO. 15 PART OF PARCEL NO. 73 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND DATE: JUNE 20, 2005

SHEET 9 OF 13

F 05-61

# STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for Practice MD-370. All references to AASHTO and ASTM specifications apply to most recent revision.

### Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately 12 inches above the surface. For dry streamwater 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. If 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" across or other objectionable materials. Fill material for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and shall have at least 30% passing the No. 20 sieve. Consideration must be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special design 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 thick layers. Before compaction layers which are to be continuous over the entire length of the fill. The most permeable borrow materials shall be placed at the bottom of the embankment. The principal spillway shall be installed concurrently with fill placement and not excavated into the embankment.

### Compaction

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

### Cut Off Trench

The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

### Embankment Core

The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

### Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

### 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 stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate and maintain all necessary pumps and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation and other parts of the work free from water as required or directed by the engineer in writing. The contractor shall be responsible for any damage caused by the water during construction. All temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction to drainage. Whatever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated soils and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water surps from which the water shall be pumped.

### Pipe Conduits

All pipes shall be circular in cross section.

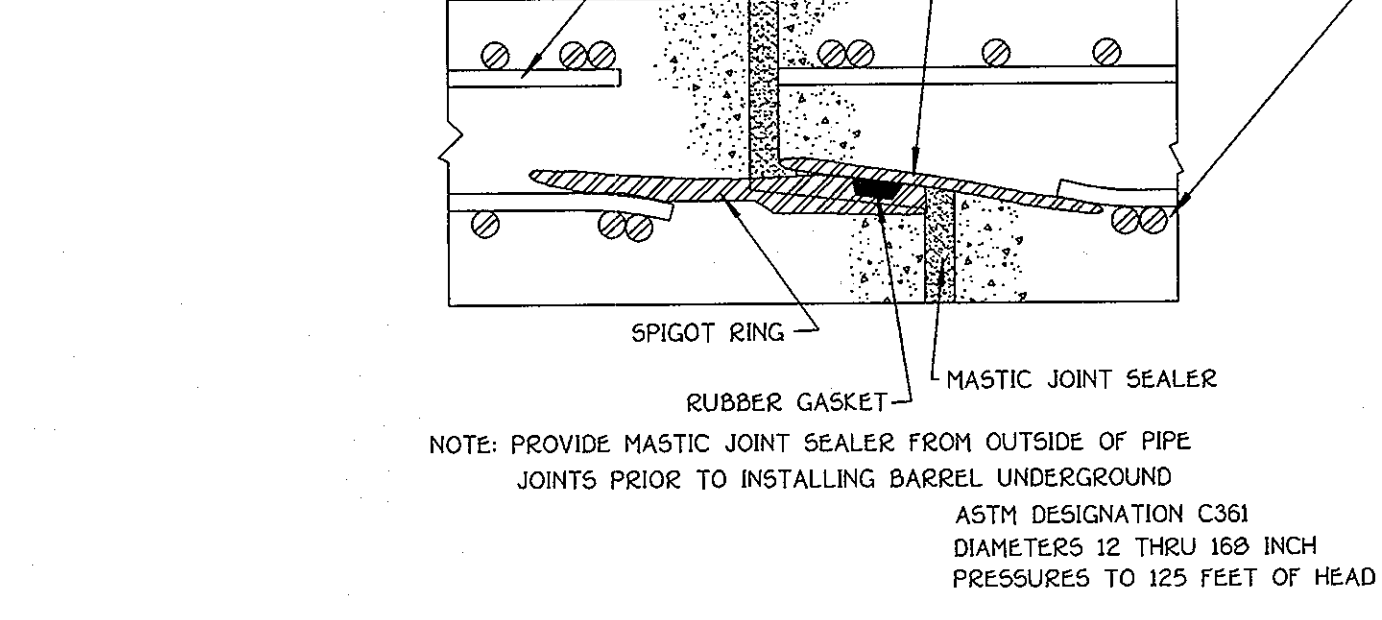
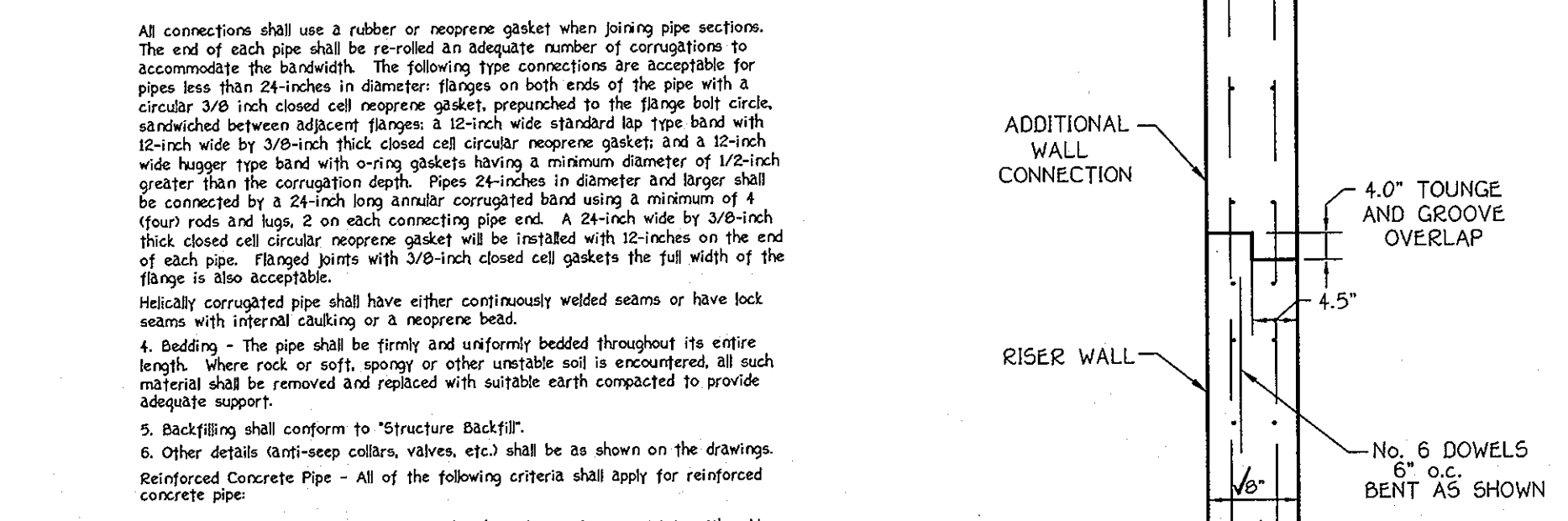
Corrugated Metal Pipe - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - Polymer Coated steel pipe - Steel pipes with polymer coatings shall have a minimum coating thickness of 0.01 inch (0.25 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-245 & M-246 with watertight coupling bands or flanges.
2. Materials - Aluminum Coated Steel Pipe - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flexible fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-270 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be primed with one coat of zinc chromate primer or two coats of asphalt.
3. Connections - All connections with pipes must be completely watertight. The drain pipe or lateral connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

4. Coupling bands, anti-seep collars, end sections, etc. must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.
5. Connections - All connections with pipes must be completely watertight. The drain pipe or lateral connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

### Notes:

1. CONCRETE SHALL BE MSHA MIX NO. 3 (FC > 3,500 P.S.I.)
2. REINFORCING STEEL: GRADE 60
3. FOR WALLS OF STRUCTURE SHALL UTILIZE L.M. SCOTFIELD CO. T-9025 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL REINFORCING SPICES SHALL BE LAP SPICES OF 30 BAR DIA UNLESS OTHERWISE SHOWN.



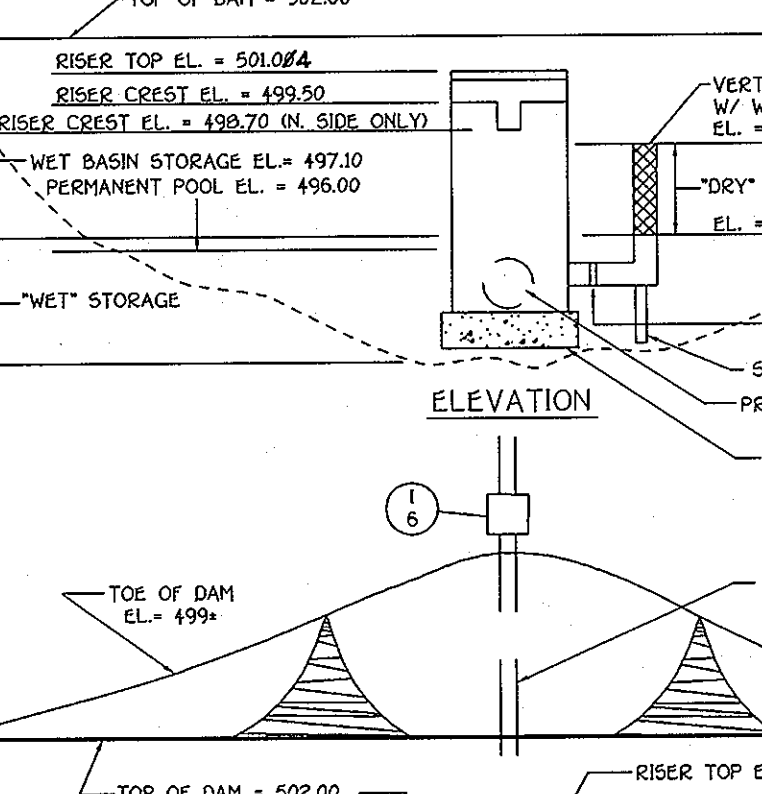
CONCRETE PIPE JOINT DETAIL  
NOT TO SCALE

KEYED JOINT DETAIL  
WALL SECTION TO WALL SECTION  
NOT TO SCALE

## OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITIES FOR BMP POND #1

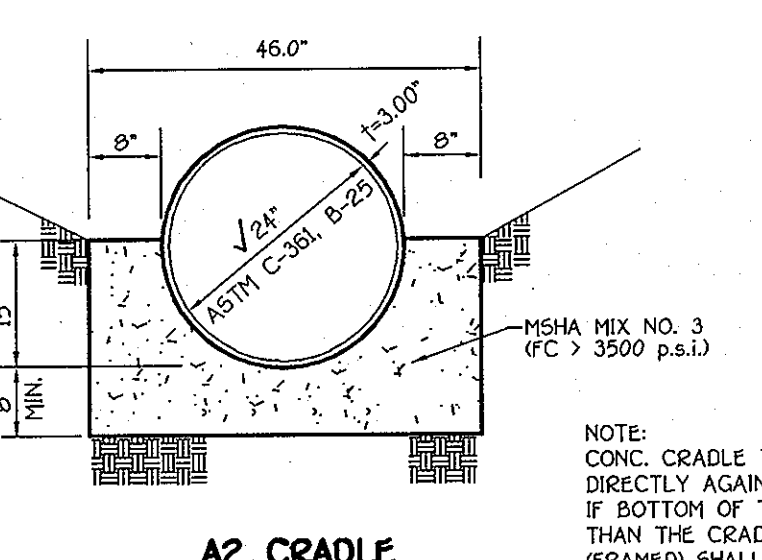
- ### ROUTINE MAINTENANCE
1. Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the pond is functioning properly.
  2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes and maintenance access should be mowed as needed.
  3. Debris and litter shall be removed during regular mowing operations and as needed.
  4. Visible signs of erosion in the pond as well as the rip-rap or gabion outlet arch shall be repaired as soon as it is noticed.
- ### NON-ROUTINE MAINTENANCE
1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspected during routine maintenance operations.
  2. Sediment shall be removed from the pond, and forebay, no later than the capacity of the pond or forebay, is half full of sediment, or, when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works.

## VERTICAL DRAW-DOWN DEVICE NOT TO SCALE



## OPERATION AND MAINTENANCE CONSTRUCTION SPECIFICATIONS

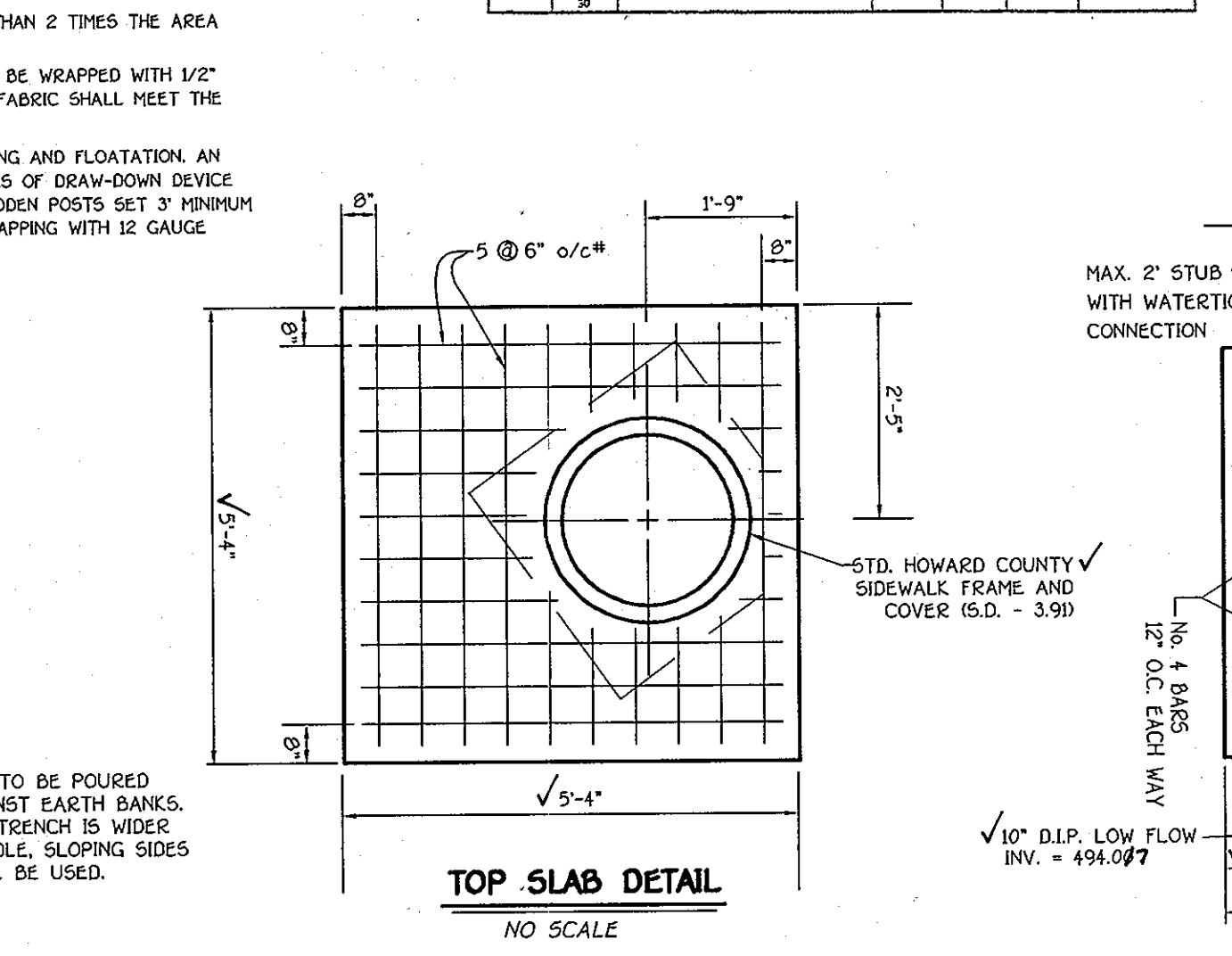
1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. THE PREPARED POSITION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE OR 1" BY 4" SQUARE OR 2" ROUND WOODEN POSTS SET 3" MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE.



CORE TRENCH DETAIL  
NOT TO SCALE

PENNDAN & BROWNE, INC. BORING LOG									
CLIENT: WASHINGTON STATE DEPARTMENT OF TRANSPORTATION		PROJECT: BUCKSKIN OAKS		DATE: 11/14/05					
BORING NO.	DATE	TOTAL DEPTH (FEET)	ELEVATION (FEET)	LOCATION: SEE SHEET					
10		11.87	498.70	SEE SHEET					
11		11.87	498.70	SEE SHEET					
12		11.87	498.70	SEE SHEET					
13		11.87	498.70	SEE SHEET					
14		11.87	498.70	SEE SHEET					
15		11.87	498.70	SEE SHEET					
16		11.87	498.70	SEE SHEET					
17		11.87	498.70	SEE SHEET					
18		11.87	498.70	SEE SHEET					
19		11.87	498.70	SEE SHEET					
20		11.87	498.70	SEE SHEET					

PENNDAN & BROWNE, INC. BORING LOG									
CLIENT: WASHINGTON STATE DEPARTMENT OF TRANSPORTATION		PROJECT: BUCKSKIN OAKS		DATE: 11/14/05					
BORING NO.	DATE	TOTAL DEPTH (FEET)	ELEVATION (FEET)	LOCATION: SEE SHEET					
21		11.87	498.70	SEE SHEET					
22		11.87	498.70	SEE SHEET					
23		11.87	498.70	SEE SHEET					
24		11.87	498.70	SEE SHEET					
25		11.87	498.70	SEE SHEET					
26		11.87	498.70	SEE SHEET					
27		11.87	498.70	SEE SHEET					
28		11.87	498.70	SEE SHEET					
29		11.87	498.70	SEE SHEET					
30		11.87	498.70	SEE SHEET					



TOP SLAB DETAIL  
NOT TO SCALE

OWNER: J. DAVID MULLINX, ELIZABETH C. MULLINX, 14420 HOWARD ROAD, DAYTON, MARYLAND, 21036

DEVELOPER: J. THOMAS SCRIVENER INC., 8800 CENTRE PARK DRIVE, SUITE 209, COLUMBIA, MARYLAND, 21145

## Embankment and Cut-off Trench Construction

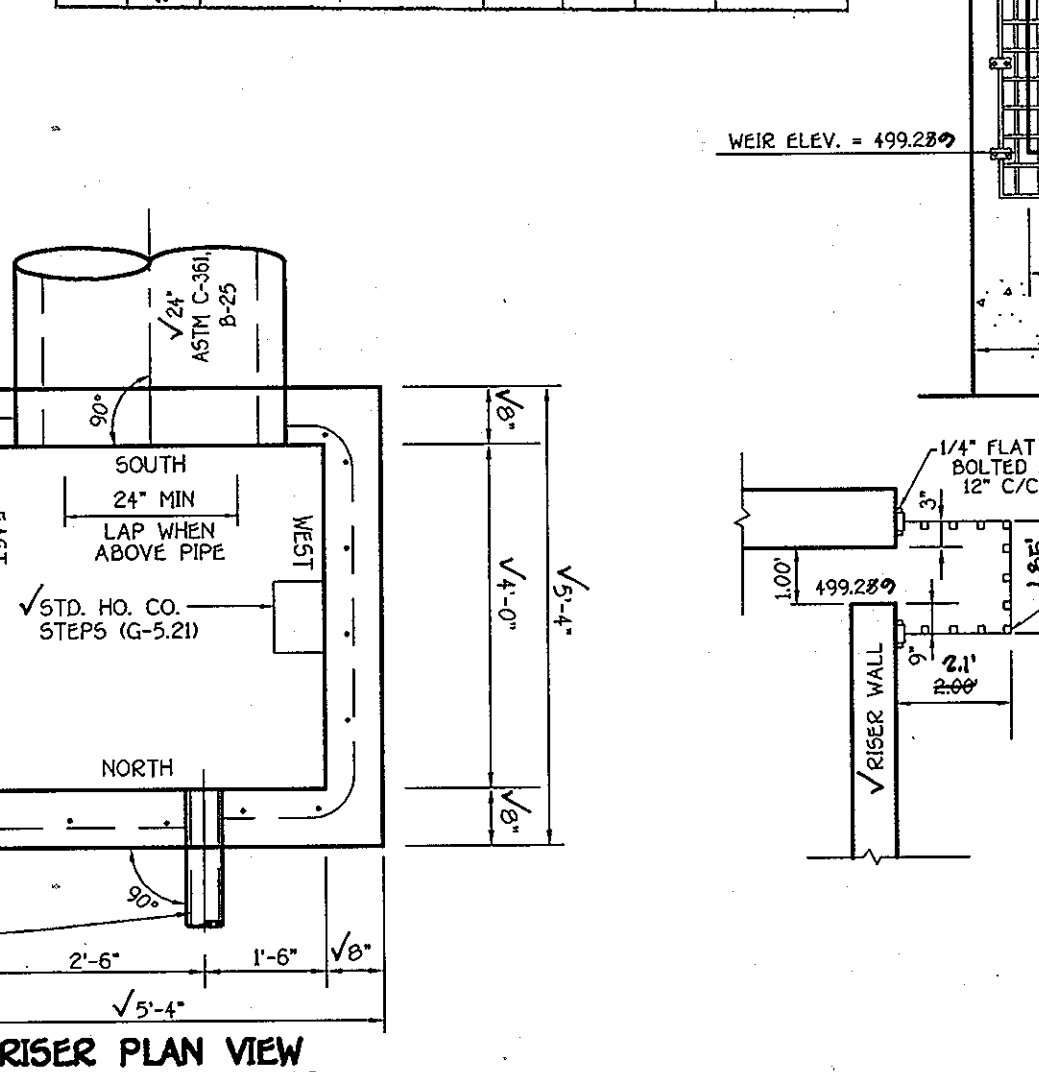
THE AREA OF THE PROPOSED SWM POND SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNDESIRABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOURED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOURED OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILLING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTON OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 37B SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL.

IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR HIGHER CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT AND CORE TRENCH. BASED ON OUR VISUAL CLASSIFICATIONS IT APPEARS THAT SOME OF THE ON-SITE SOILS, ESPECIALLY THE NEAR SURFACE SOILS, WILL BE SUITABLE FOR USE AS CORE TRENCH MATERIAL. IT IS RECOMMENDED THAT ADDITIONAL EXPLORATION AND LABORATORY TESTING BE PERFORMED PRIOR TO POND CONSTRUCTION TO IDENTIFY AND QUANTIFY POTENTIAL BORROW AREAS FOR CORE TRENCH MATERIAL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED WITH MD 5C5 37B SPECIFICATIONS.

PENNDAN & BROWNE, INC. BORING LOG									
CLIENT: WASHINGTON STATE DEPARTMENT OF TRANSPORTATION		PROJECT: BUCKSKIN OAKS		DATE: 11/14/05					
BORING NO.	DATE	TOTAL DEPTH (FEET)	ELEVATION (FEET)	LOCATION: SEE SHEET					
31		11.87	498.70	SEE SHEET					
32		11.87	498.70	SEE SHEET					
33		11.87	498.70	SEE SHEET					
34		11.87	498.70	SEE SHEET					
35		11.87	498.70	SEE SHEET					
36		11.87	498.70	SEE SHEET					
37		11.87	498.70	SEE SHEET					
38		11.87	498.70	SEE SHEET					
39		11.87	498.70	SEE SHEET					
40		11.87	498.70	SEE SHEET					

PENNDAN & BROWNE, INC. BORING LOG									
CLIENT: WASHINGTON STATE DEPARTMENT OF TRANSPORTATION		PROJECT: BUCKSKIN OAKS		DATE: 11/14/05					
BORING NO.	DATE	TOTAL DEPTH (FEET)	ELEVATION (FEET)	LOCATION: SEE SHEET					
41		11.87	498.70	SEE SHEET					
42		11.87	498.70	SEE SHEET					
43		11.87	498.70	SEE SHEET					
44		11.87	498.70	SEE SHEET					
45		11.87	498.70	SEE SHEET					
46		11.87	498.70	SEE SHEET					
47		11.87	498.70	SEE SHEET					
48		11.87	498.70	SEE SHEET					
49		11.87	498.70	SEE SHEET					
50		11.87	498.70	SEE SHEET					



RISER PLAN VIEW  
NOT TO SCALE

OWNER: J. DAVID MULLINX, ELIZABETH C. MULLINX, 14420 HOWARD ROAD, DAYTON, MARYLAND, 21036

DEVELOPER: J. THOMAS SCRIVENER INC., 8800 CENTRE PARK DRIVE, SUITE 209, COLUMBIA, MARYLAND, 21145

By The Developer:

I/We Certify That All Development And/Or Construction Will Be Done According 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. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.

Signature of Developer: *William Cron*  
Date: 9/21/05

By The Engineer:

I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Compliance With The Requirements Of The Howard Soil Conservation District. I Have Verified That The Plans Meet The Requirements Of The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion.

Signature of Engineer: *[Signature]*  
Date: 9/27/05

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small-Pond Construction, Soil Erosion And Sediment Control.

Signature of Reviewer: *[Signature]*  
Date: 10/22/05

USA-Natural Resources Conservation Service

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Signature of Reviewer: *[Signature]*  
Date: 12-1-05

Approved Department Of Public Works  
Chief, Bureau Of Highways

Signature of Reviewer: *[Signature]*  
Date: 12/3/05

Approved Department Of Planning And Zoning  
Chief, Division Of Land Development  
Signature of Reviewer: *[Signature]*  
Date: 12/6/05

Chief, Development Engineering Division

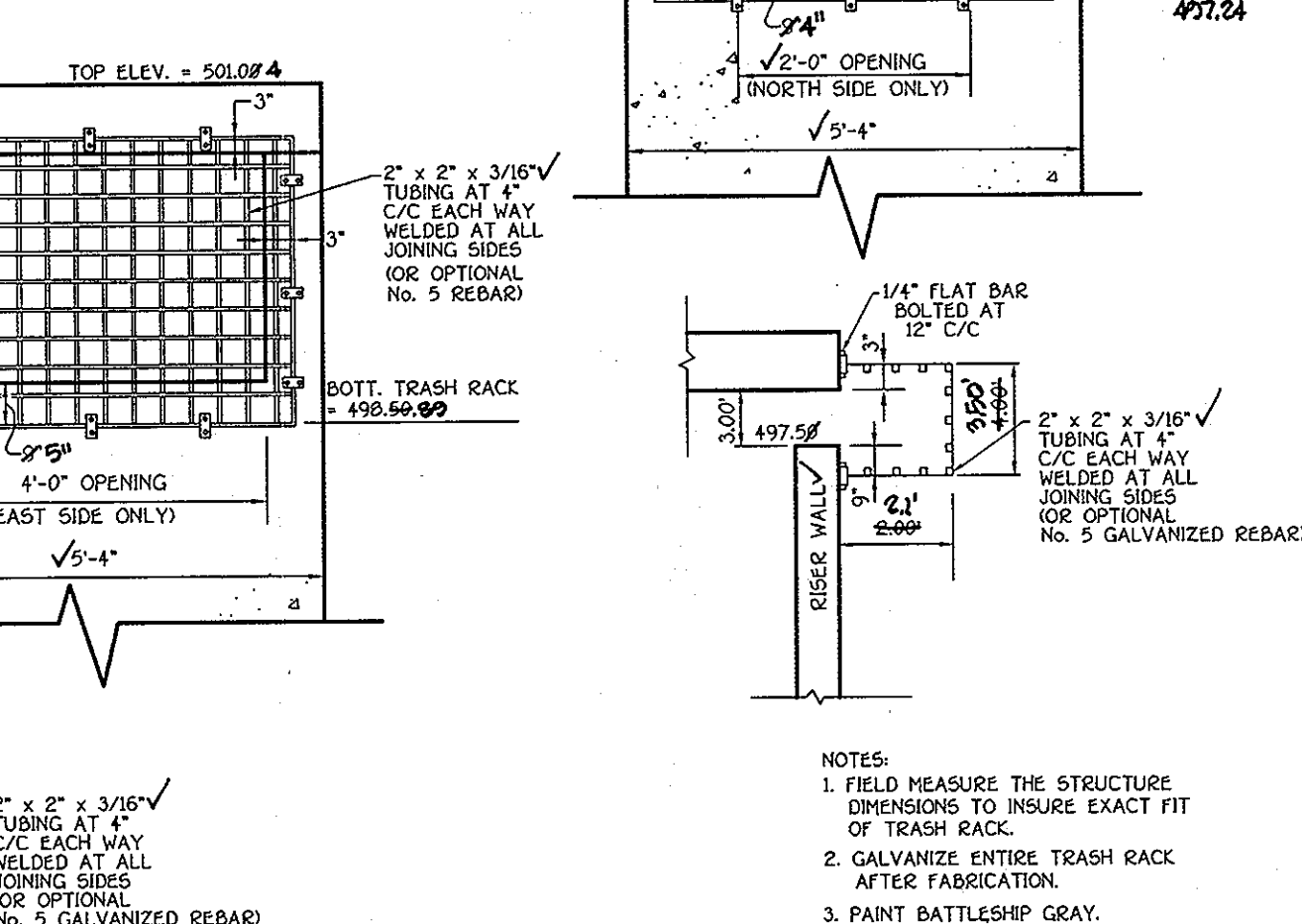
AS-BUILT CERTIFICATION

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.

Signature: *[Signature]*  
Date: 12/20/05

P.E. No. 578188  
Date: 5/24/88

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.



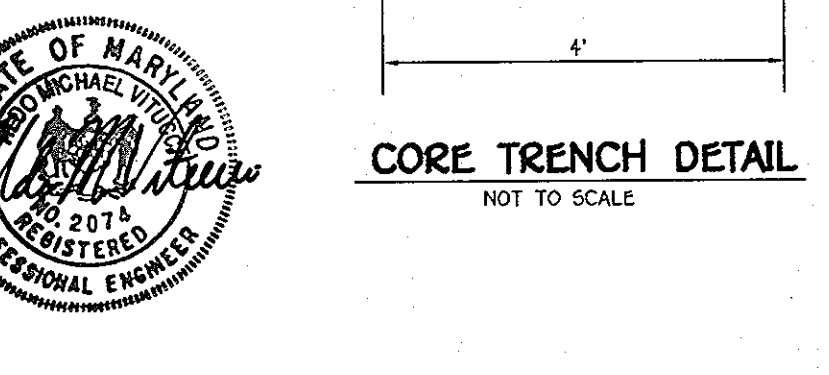
TRASH RACK 'A' DETAIL  
NO SCALE

## STORMWATER MANAGEMENT NOTES AND DETAILS

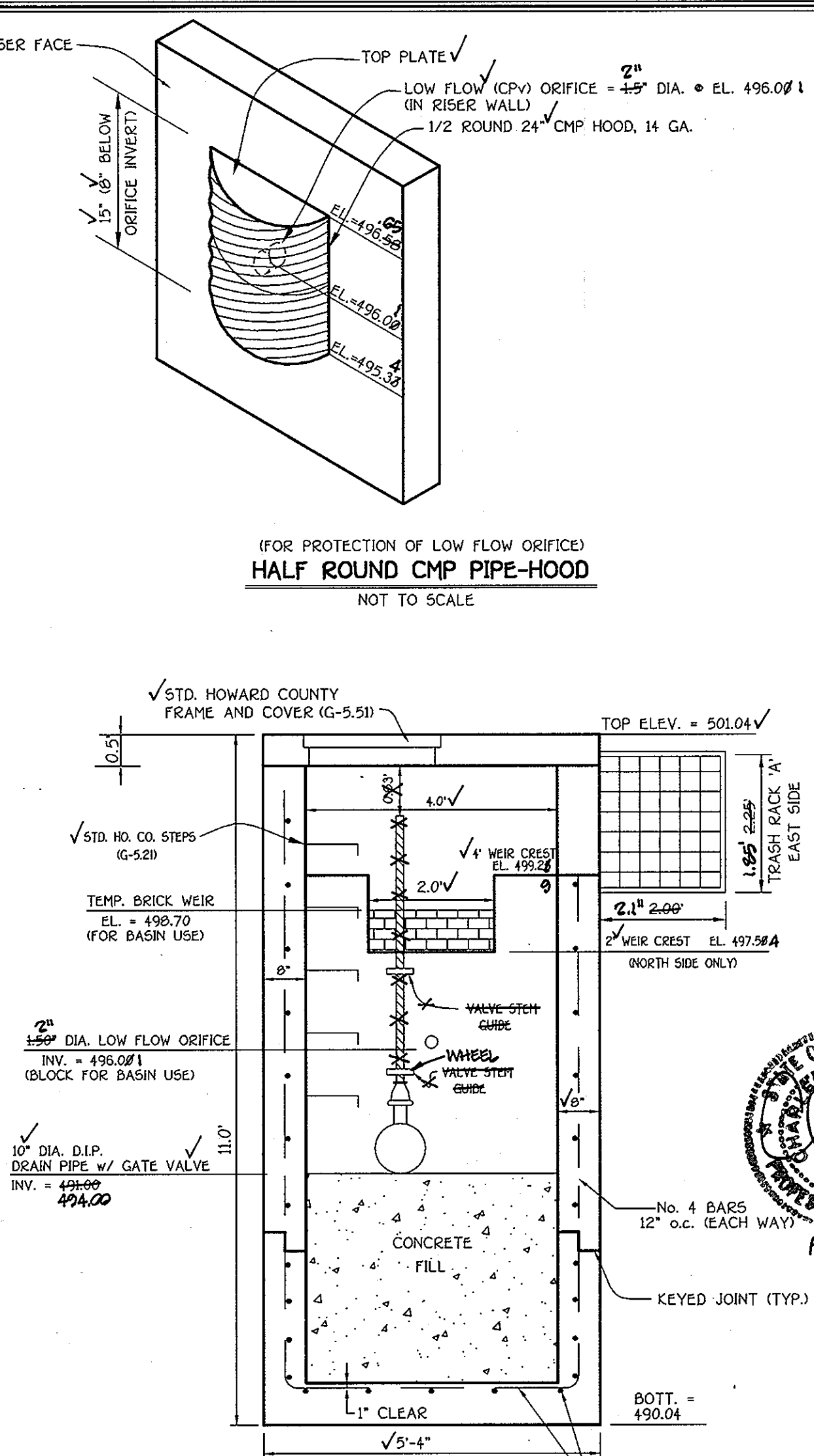
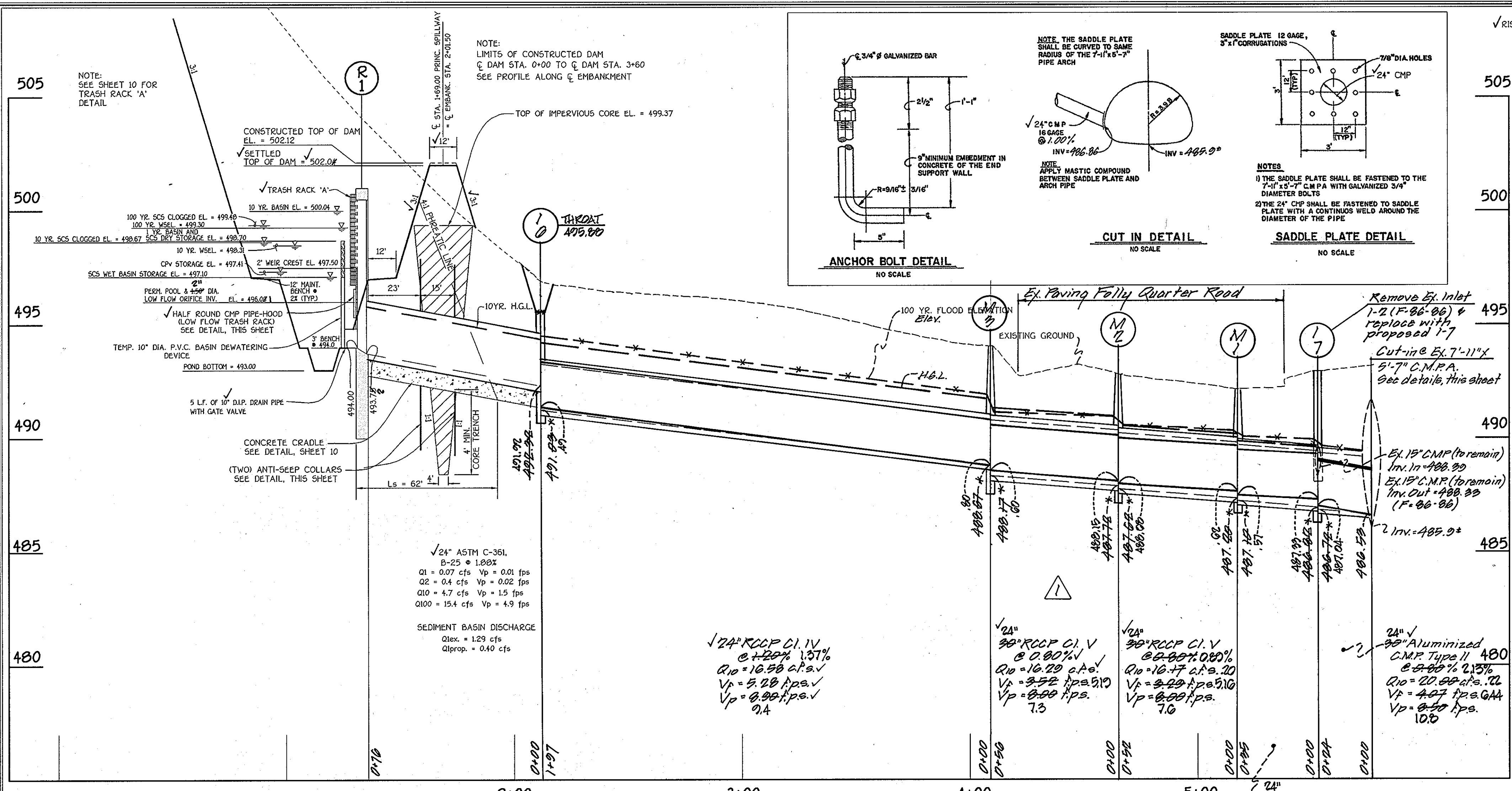
# BUCKSKIN OAKS

LOTS 1 THRU 4, OPEN SPACE LOT 5,  
BUILDABLE PRESERVATION PARCEL 'A' AND  
NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
(A RESUBDIVISION OF LOT 5 - J. DAVID MULLINX PROPERTY, PLAT NO. 14449)

ZONED: RR-D0  
TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: JUNE 20, 2005  
SHEET 10 OF 13



# AS BUILT



By the Developer:

1/3" Certify that All Development And/Or Construction Will Be Done According 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. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An As-Built Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.

Signature Of Developer: **William Gram** 9/15/05 Date

Printed Name Of Developer: **William Gram**

By The Engineer:

1/3" Certify that I am a Licensed Professional Engineer In The State Of Maryland, And That My Personal Knowledge Of The Site Conditions, This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Reviewed The Plans And Specifications, And I Certify That They Conform To The Requirements Of The Howard Soil Conservation District. I Shall Engage A Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An As-Built Plan Of The Pond Within 30 Days Of Completion.

Signature Of Engineer: **Alan M. Mullinix** 9/27/05 Date

Printed Name Of Engineer: **Alan M. Mullinix**

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction, Soil Erosion And Sediment Control.

Signature Of Reviewer: **Jim Hays** 11/22/05 Date

Printed Name Of Reviewer: **Jim Hays**

USDA-Natural Resources Conservation Service

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Signature Of Reviewer: **Steph. Kelly** 11/22/05 Date

Printed Name Of Reviewer: **Steph. Kelly**

Howard Soil Conservation District

Approved: Department Of Public Works  
**William R. Mahan** 12-1-05 Date  
 Chief, Bureau Of Highways

Approved: Department Of Planning And Zoning  
**Chris Starnes** 12/2/05 Date  
 Chief, Division Of Land Development

Approved: Department Of Planning And Zoning  
**Michael W. ...** 12/10/05 Date  
 Chief, Development Engineering Division

AS-BUILT CERTIFICATION

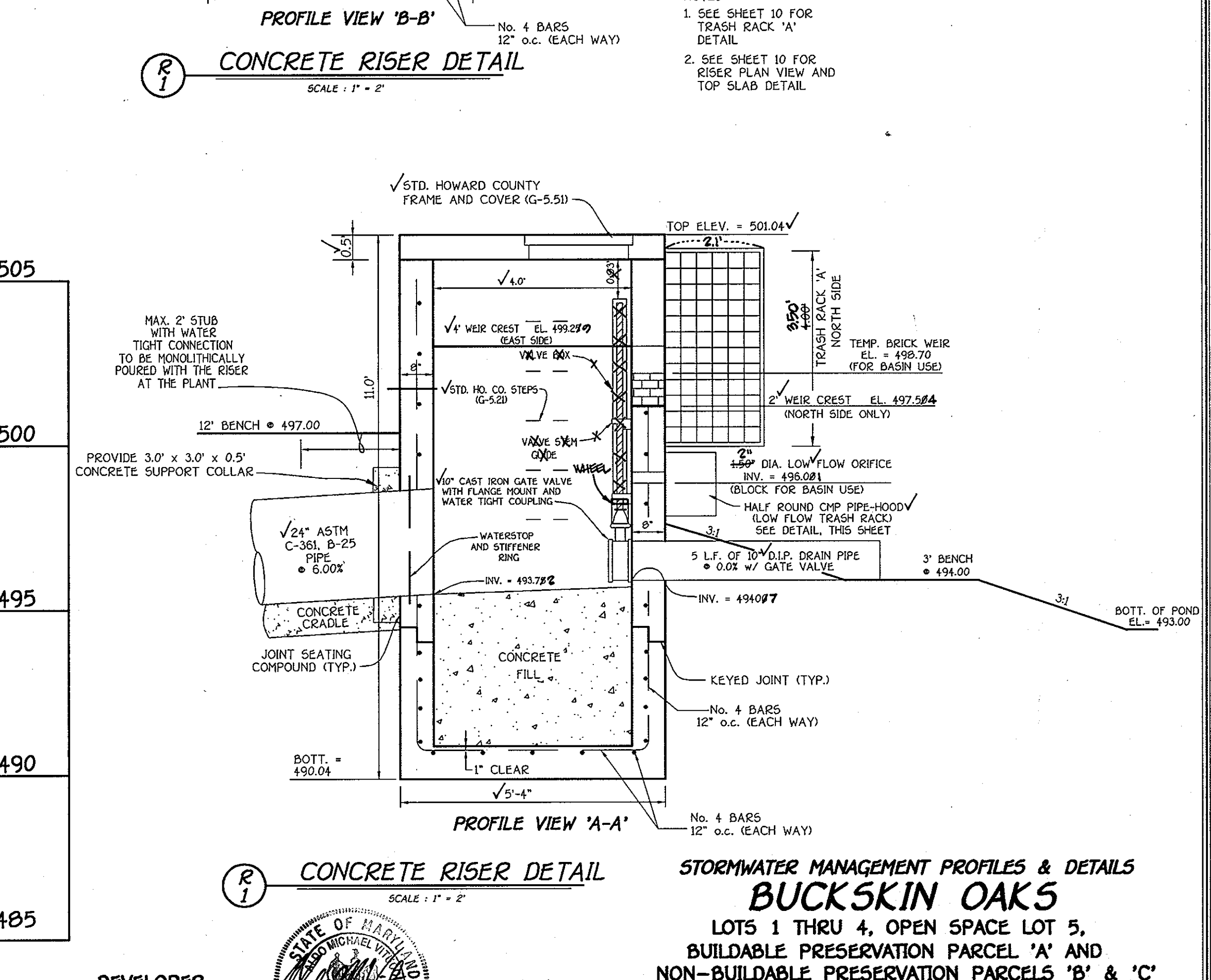
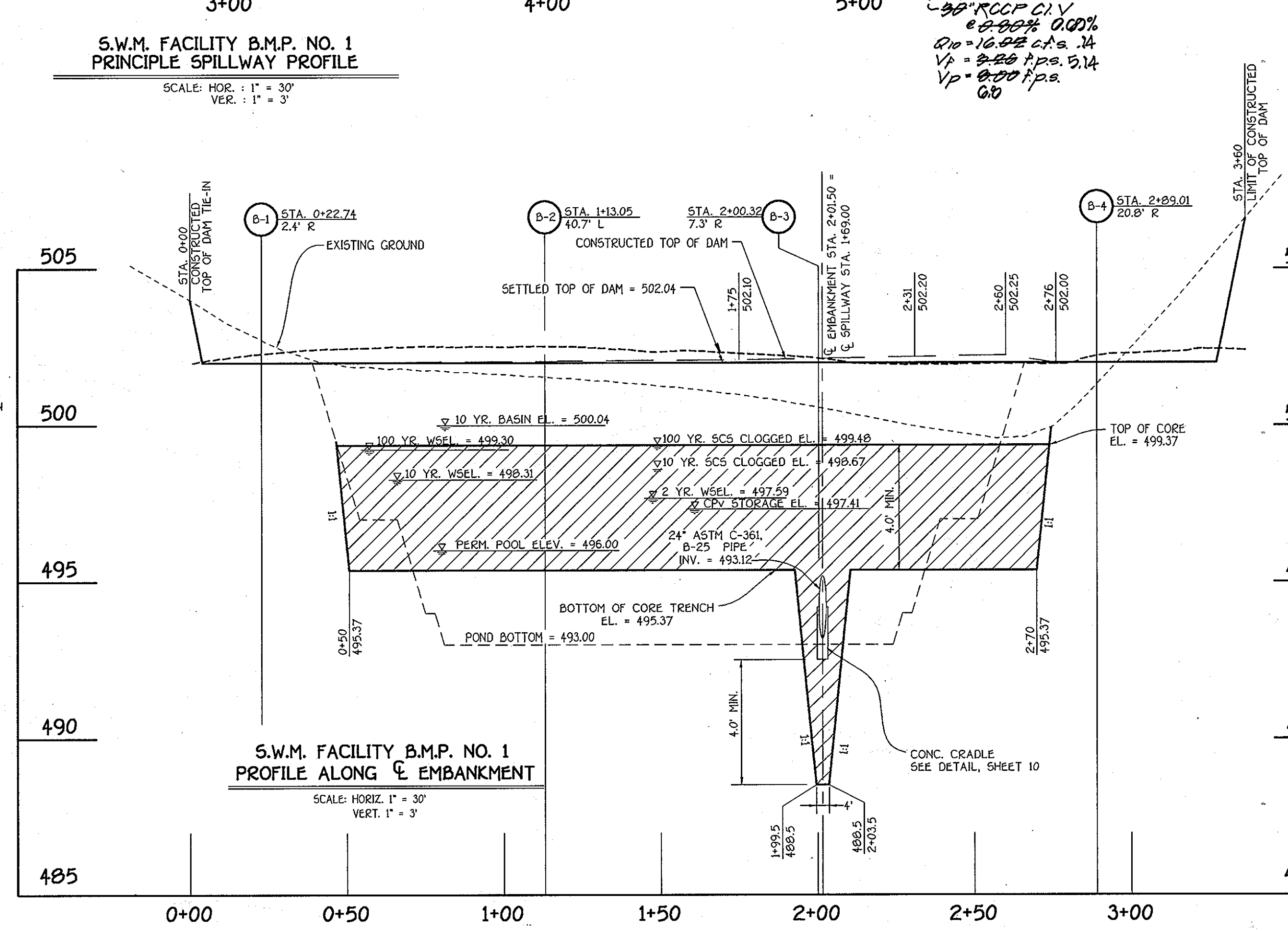
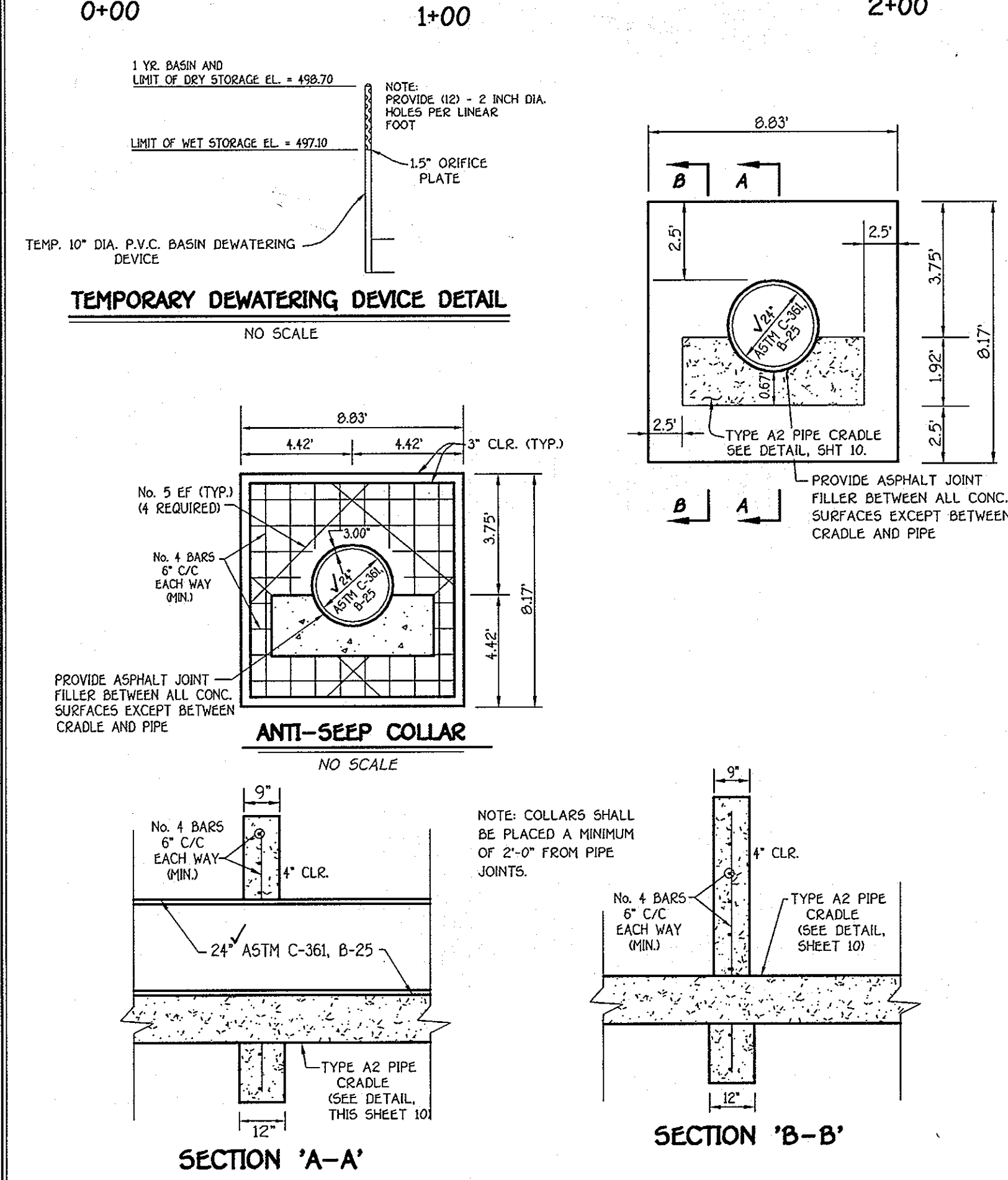
1/3" I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The As-Built Plans And Meets The Approved Plans And Specifications.

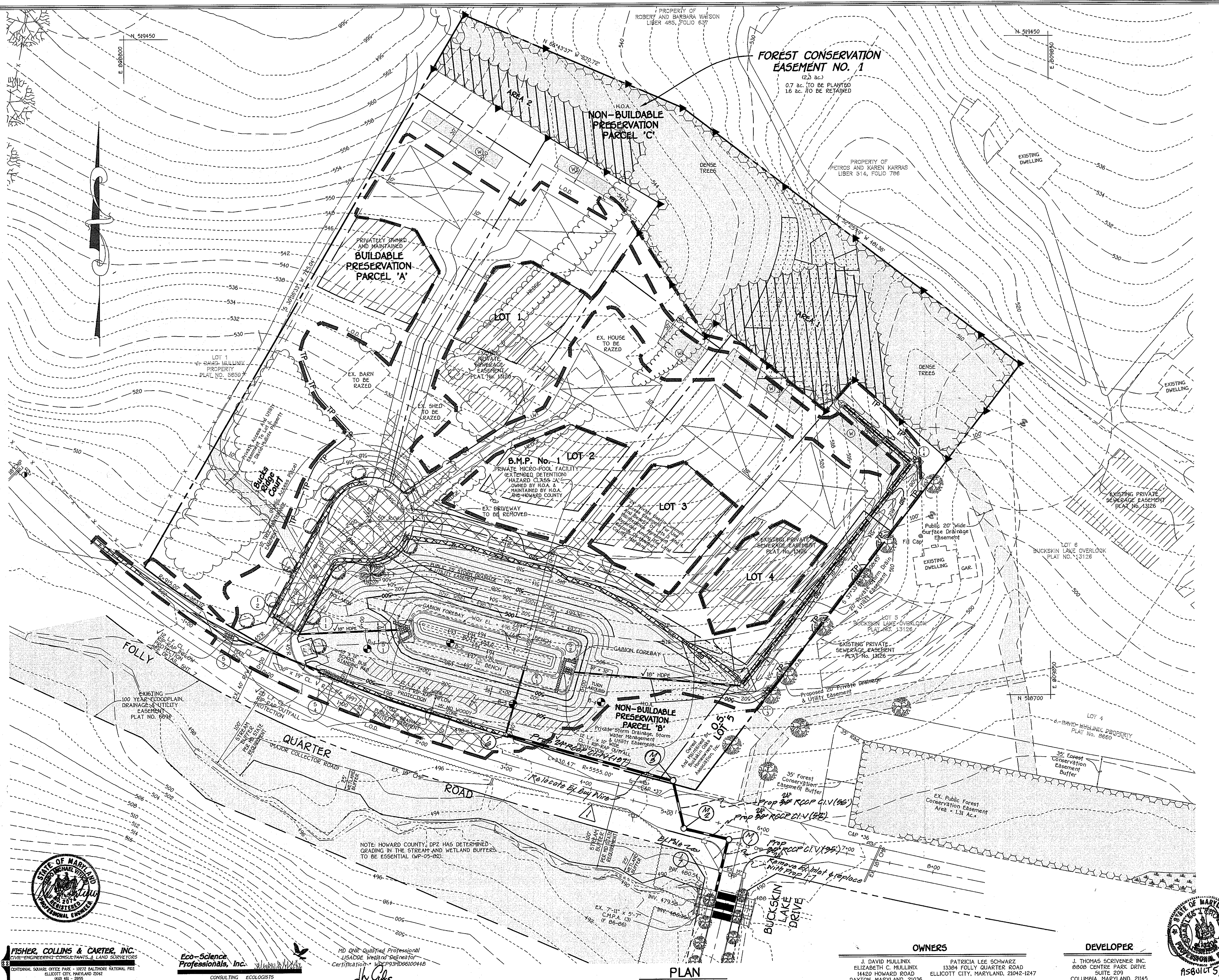
Signature: **Alan M. Mullinix** 12/20/05 Date

Printed Name: **Alan M. Mullinix** 5/23/08 Date

Certify Means To State Or Declare A Professional Opinion Based Upon On-Site Inspections And Material Tests Which Are Conducted During Construction. The On-Site Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Release Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

NOTES:  
 1. SEE SHEET 10 FOR TRASH RACK 'A' DETAIL  
 2. SEE SHEET 10 FOR RISER PLAN VIEW AND TOP SLAB DETAIL





Approved: Department Of Public Works  
 Chief Bureau Of Highways  
 Date: 12-1-05

Approved: Department Of Planning And Zoning  
 Chief, Division Of Land Development  
 Date: 12/7/05

Chief, Development Engineering Division  
 Date: 12/6/05

No.	Revision	Date
1	Revise storm drain from 1-6 to the Ex. 7'-11" x 5'-7" CMPA.	7-19-06

**LEGEND**

- FOREST CONSERVATION SIGNAGE
- TREE PROTECTION FENCE
- FOREST CONSERVATION AREA TO BE PLANTED
- FOREST CONSERVATION EASEMENT

NOTE: HOWARD COUNTY, DPZ HAS DETERMINED GRADING IN THE STREAM AND WETLAND BUFFERS TO BE ESSENTIAL (WP-05-02).

**PLAN**

SCALE: 1" = 50'

**OWNERS**

J. DAVID MULLINX  
 ELIZABETH C. MULLINX  
 1420 HOWARD ROAD  
 DAYTON, MARYLAND, 21036

PATRICIA LEE SCHWARZ  
 13354 FOLLY QUARTER ROAD  
 ELLICOTT CITY, MARYLAND, 21042-1247

**DEVELOPER**

J. THOMAS SCRIVENER INC.  
 8808 CENTRE PARK DRIVE  
 SUITE 209  
 COLUMBIA, MARYLAND, 21145

**FOREST CONSERVATION PLAN**  
**BUCKSKIN OAKS**  
 LOTS 1 THRU 4, OPEN SPACE LOT 5,  
 BUILDABLE PRESERVATION PARCEL 'A' AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
 (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINX PROPERTY, PLAT NO. 14449)

ZONED: RR-DEO  
 TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 12 OF 13

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERS, ARCHITECTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 18272 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21114  
 (410) 661-2855

**Eco-Science Professionals, Inc.**  
 CONSULTING ECOLOGISTS

MD QWR-Qualified Professional  
 USACE Wetland Designer  
 Certification: W-093106100418  
 JOHN P. CANOLES



**AS BUILT**

**FCE Planting Area # 1 - 0.5 acres**

Planting units required: 350  
Planting units proposed: 350.5

Qty	Species	Size	Spacing	Total Units
1	Acer rubrum - Red maple	1" cal.	15' o.c.	
2	Quercus alba - White oak	1" cal.	15' o.c.	
3	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		10.5
25	Acer rubrum - Red maple	2-3' whip	11' o.c.	
5	Cercis canadensis - Red bud	2-3' whip	11' o.c.	
5	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
35	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
30	Prunus serotina - Black cherry	2-3' whip	11' o.c.	
25	Robinia pseudo-acacia - Black locust	2-3' whip	11' o.c.	
20	Quercus alba - White oak	2-3' whip	11' o.c.	
25	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
170	Total whip plantings (2 planting units per tree)	FCA unit credit		340
		Total Unit Credit		350.5

**FCE Planting Area # 2 - 0.2 acres**

Planting units required: 140  
Planting units proposed: 142.5

Qty	Species	Size	Spacing	Total Units
1	Acer rubrum - Red maple	1" cal.	15' o.c.	
2	Quercus alba - White oak	1" cal.	15' o.c.	
3	Total 1" caliper trees (3.5 planting units per tree)	FCA unit credit		10.5
10	Acer rubrum - Red maple	2-3' whip	11' o.c.	
3	Cercis canadensis - Red bud	2-3' whip	11' o.c.	
3	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
10	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
10	Prunus serotina - Black cherry	2-3' whip	11' o.c.	
10	Robinia pseudo-acacia - Black locust	2-3' whip	11' o.c.	
10	Quercus alba - White oak	2-3' whip	11' o.c.	
10	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
66	Total whip plantings (2 planting units per tree)	FCA unit credit		132
		Total Unit Credit		142.5

**Planting Notes -**

Whip plantings to be spaced on 11 foot centers, shelters will be required as per Howard County policy. Plantings should be installed in rows to facilitate future maintenance. The planting rows should be created in a curvilinear fashion to avoid a grid appearance.

One inch caliper plants should be installed along edge of planting area to serve as demarcation of boundary. Spacing should be approximately 15 feet.

**Planting/Soil Specifications**

- Installation of bareroot plant stock shall take place between March 15 - April 20; b&b/container stock March 15 - May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
- Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
- Bareroot plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
- Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plants shall be fertilized with Osmocote 9-6-12.
- Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
- All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

**Sequence of Construction**

- Sediment control shall be installed in accordance with general construction plan for site.
- Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
- Upon completion of the planting, signage shall be installed as shown.
- Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

**Maintenance of Plantings**

- Maintenance of plantings shall last for a period of 2 years.
- Plantings must receive 2 gallons of water, either through precipitation or watering, weekly during the 1st growing season, as needed. During second growing season, once a month during May-September, if needed.
- Invasive exotics and noxious weeds will be removed, as required, from planting areas mechanically and/or with limited herbicide application (see groundcover note where appropriate). Old field successional species will be retained.
- Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
- Dead branches will be pruned from plantings.

**Guarantee Requirements**

- A 75 percent survival rate of forestation plantings will be required at the end of 2 growing seasons. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season. Wild trees arising from natural regeneration may be counted up to 50 percent towards the total survival number if they are healthy, native species at least 12 inches tall.

**Surety for Forestation**

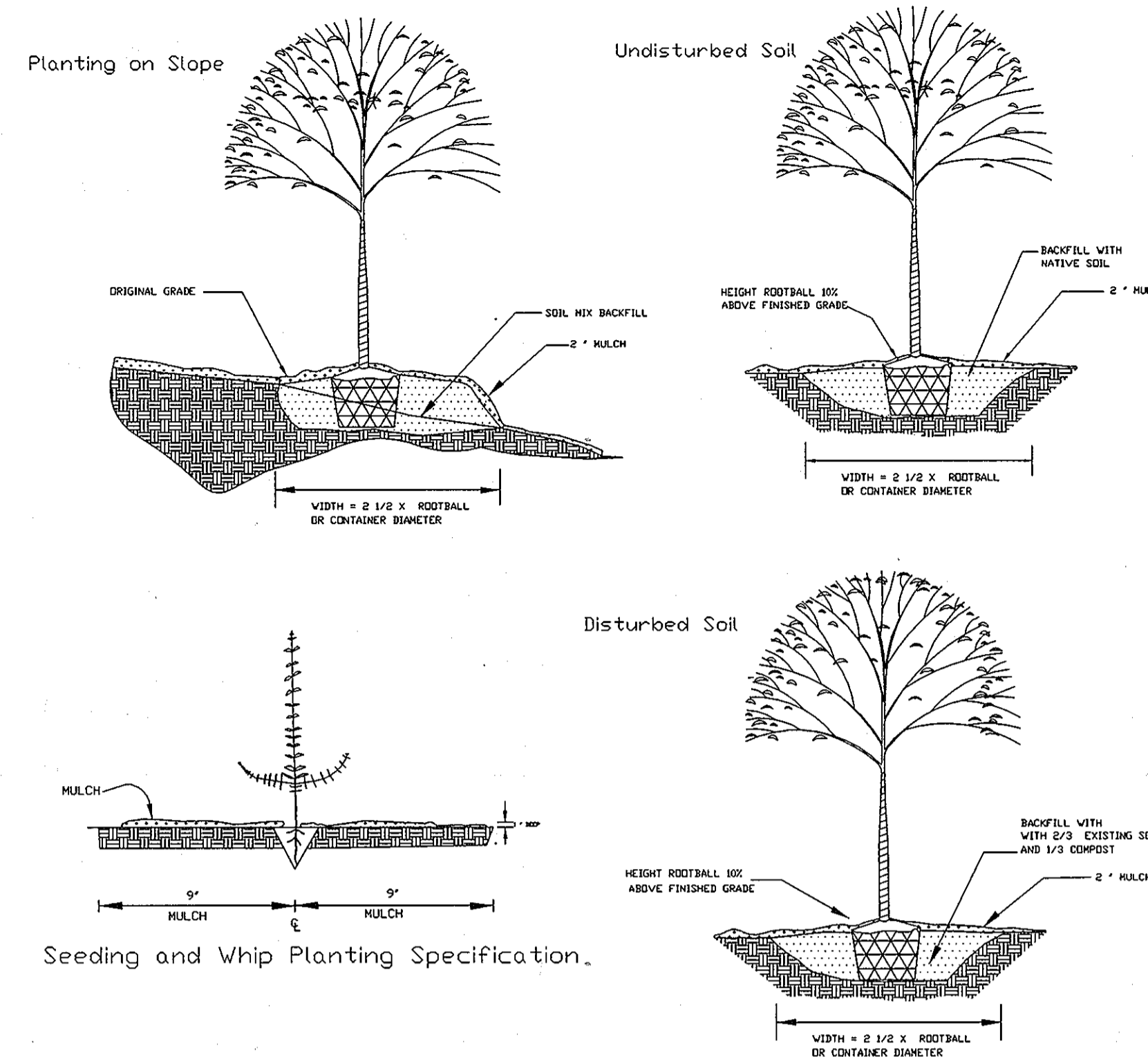
- The developer shall post a surety (bond, letter of credit) to ensure that forestation plantings are completed.

**Planting Notes**

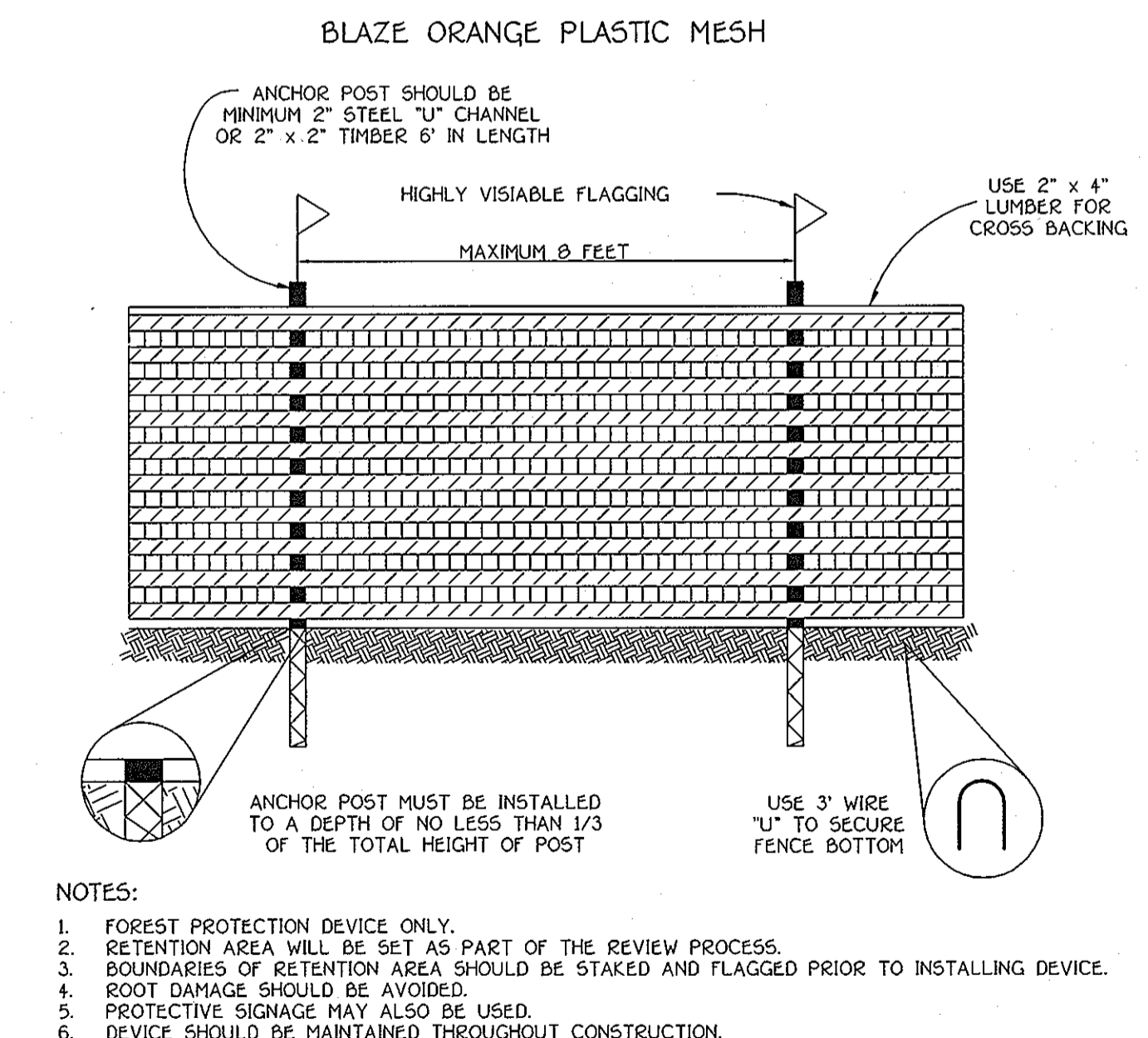
When possible, plants shall be installed within 24 hours of delivery. If installation cannot be performed within this time frame, plant stock shall be watered and protected from desiccation.

Application of herbicide, Round-up or equivalent, may be used to reduce plant competition from old field successional growth at the time of installation. Mowing, re-application of herbicide, or a combination thereof, may be used to control unwanted, competing vegetation.

Planting shall be installed within one year or two growing seasons of subdivision approval. Plantings shall be installed in accordance with the time schedule included in Note 1 of the planting /Seeding Specifications.



**CONTAINER GROWN AND B & B PLANTING TECHNIQUES**



**TREE PROTECTION DETAIL**  
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.
- PROTECTIVE SIGNAGE MAY ALSO BE USED.
- DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

Approved Department Of Public Works  
 Chief Bureau Of Highways  
 Date: 12-1-05

Approved Department Of Planning And Zoning  
 Chief, Division Of Land Development  
 Date: 12/3/05

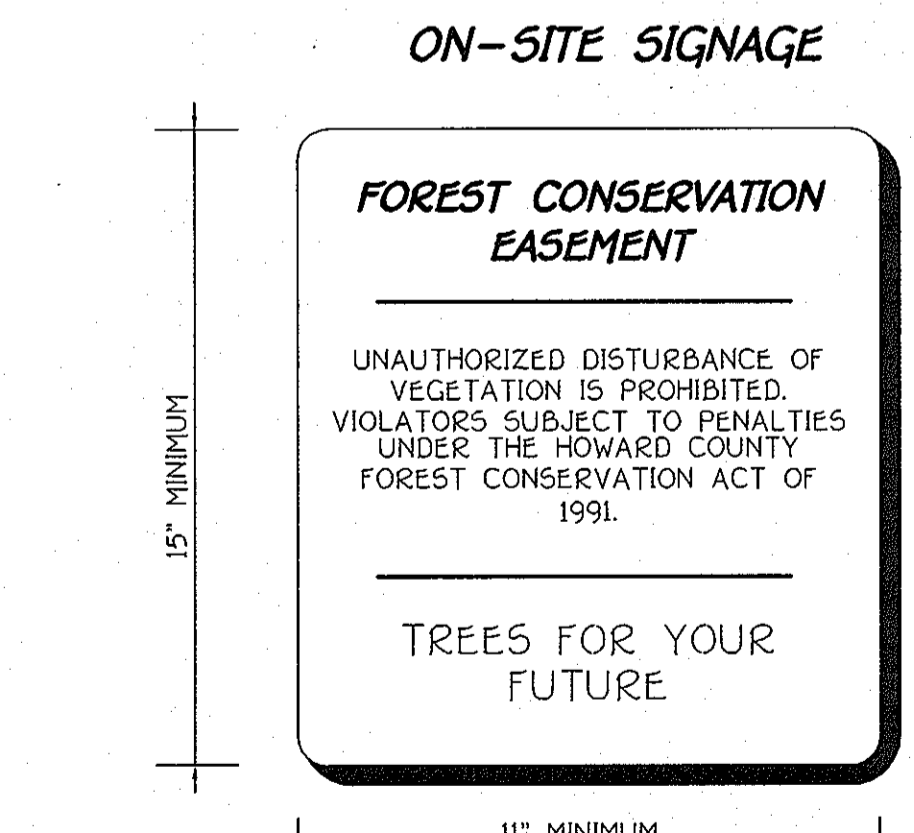
Chief, Development Engineering Division  
 Date: 12/16/05

**FCP NOTES**

- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
- PERMANENT SIGNAGE SHALL BE PLACED 50' - 100' APART ALONG BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
- THE FOREST CONSERVATION OBLIGATIONS INCURRED BY THIS SITE DEVELOPMENT PLAN HAVE BEEN MET THROUGH THE RETENTION, IN AN EASEMENT, OF 1.6 ACRES OF EXISTING FOREST AND THE FORESTATION OF 0.7 ACRES OF FOREST. A TOTAL OF 2.3 ACRES OF FOREST CONSERVATION EASEMENTS WILL BE CREATED FOR THIS PROJECT.  
TOTAL FOREST CONSERVATION EASEMENT AREA = 2.3 ACRES FOR A TOTAL FOREST SURETY OF \$29,185.20.

**FOREST CONSERVATION WORKSHEET  
VERSION 1.0**

BASIC SITE DATA:	
A. TOTAL TRACT AREA.....	11.5
B. AREA WITHIN 100 YEAR FLOODPLAIN.....	0.0
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION.....	0.0
D. NET TRACT AREA.....	11.5
LAND USE CATEGORY: RC-DEO	
INFORMATION FOR CALCULATIONS:	
E. AFFORESTATION THRESHOLD.....	20% x D = 2.3
F. FOREST CONSERVATION THRESHOLD.....	25% x D = 2.9
EXISTING FOREST COVER:	
G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN).....	1.6
H. AREA OF FOREST ABOVE CONSERVATION THRESHOLD.....	0.0
I. BREAK EVEN POINT: .....	-----
J. TOTAL AREA OF FOREST TO BE CLEARED.....	0.0
K. TOTAL AREA OF FOREST TO BE RETAINED.....	1.6
AFFORESTATION CALCULATIONS:	
L. NO FOREST CLEARING (afforestation threshold - existing forest).....	0.7



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PARK  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2855

**Eco-Science Professionals, Inc.**  
 CONSULTING ECOLOGISTS

MD DNS Qualified Professional  
 USACOE Wetland Designer  
 Certification # WDCE93MD06100448  
 JOHN P. CANOLES

**OWNERS**

J. DAVID MULLINIX  
 ELIZABETH C. MULLINIX  
 14420 HOWARD ROAD  
 DAYTON, MARYLAND, 21036

PATRICIA LEE SCHWARZ  
 13304 FOLLY QUARTER ROAD  
 ELLICOTT CITY, MARYLAND, 21042-1247

**DEVELOPER**

J. THOMAS SCRIVENER INC.  
 8008 CENTRE PARK DRIVE  
 SUITE 209  
 COLUMBIA, MARYLAND, 21145



**FOREST CONSERVATION NOTES AND DETAILS  
BUCKSKIN OAKS**  
 LOTS 1 THRU 4, OPEN SPACE LOT 5,  
 BUILDABLE PRESERVATION PARCEL 'A' AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' & 'C'  
 (A RESUBDIVISION OF LOT 5 - J. DAVID MULLINIX PROPERTY, PLAT NO. 14449)  
 ZONED: RR-DEO  
 TAX MAP NO. 22 GRID NO. 16 PART OF PARCEL NO. 73  
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: JUNE 20, 2005  
 SHEET 13 OF 13

**AS BUILT**