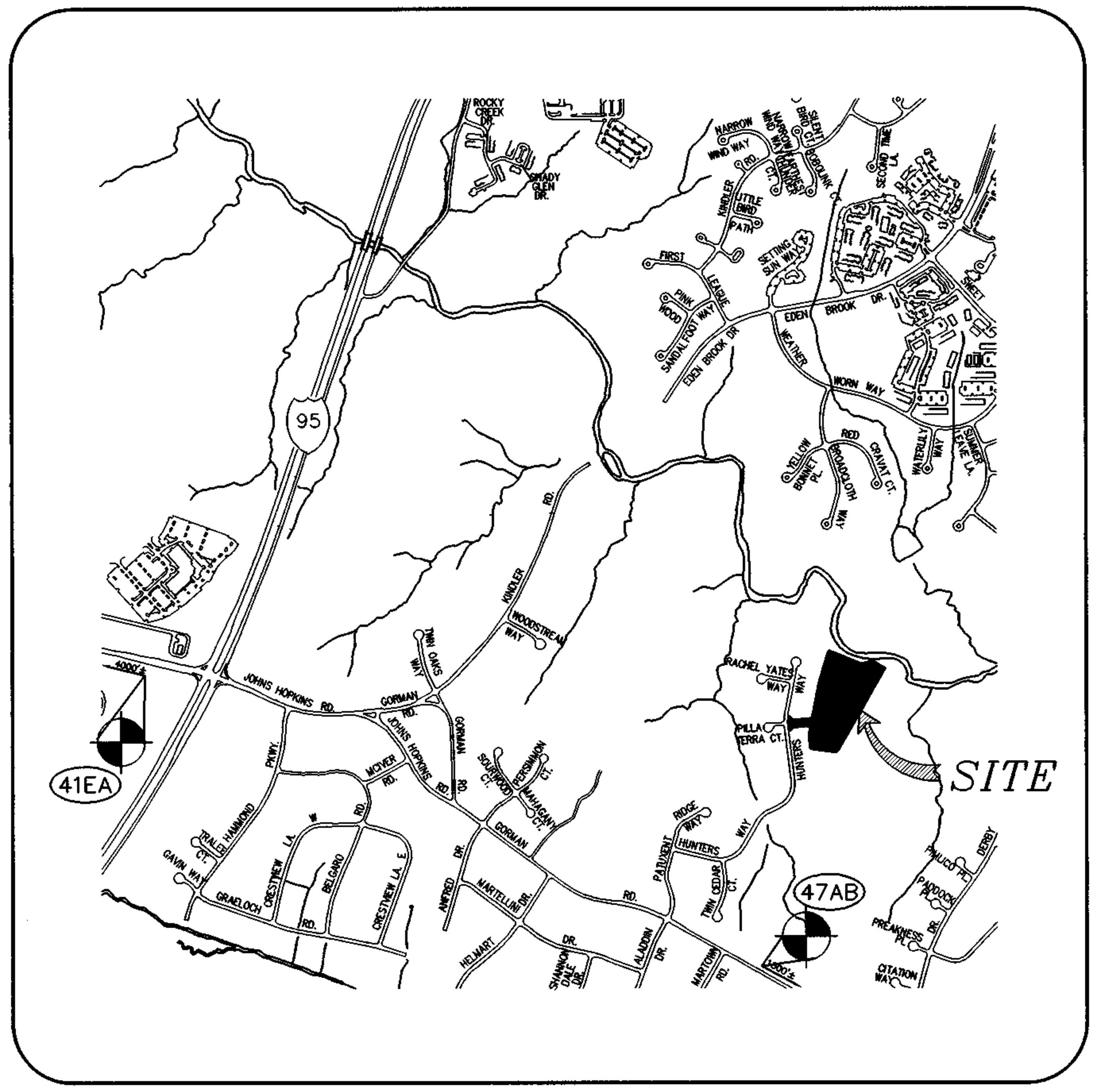
ROAD CONSTRUCTION PLANS
WARFIELDS RANGE II
LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69
WARFIELDS RANGE, SECTION 2, AREA 4
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SHEET INDEX	
COVER SHEET	1
ROAD PLAN AND PROFILES	2
ROAD PLAN AND PROFILES	3
FILLET PROFILES	4
GRADING, EROSION AND SEDIMENT CONTROL PLAN	5
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	6
STORMDRAIN PROFILES	7
STORMWATER MANAGEMENT PROFILES AND DETAILS	8
STORMWATER MANAGEMENT DETAILS	9
STORMWATER MANAGEMENT NOTES AND SPECIFICATIONS	10
DRAINAGE AREA MAP	11
LANDSCAPE PLAN	12
FOREST CONSERVATION PLAN	13



VICINITY MAP

SCALE: 1'=1000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS PRIOR TO ANY EXCAVATION WORK:

MISS UTILITY	1-800-257-7777
C&P TELEPHONE COMPANY	(410) 725-9976
HOWARD COUNTY BUREAU OF UTILITIES	(410) 313-4900
AT&T CABLE LOCATION DIVISION	(410) 393-3533
BALTIMORE GAS & ELECTRIC	(410) 685-0123
STATE HIGHWAY ADMINISTRATION	(410) 531-5533
HOWARD COUNTY DEPT. OF PUBLIC WORKS/ CONSTRUCTION INSPECTION DIVISION	(410) 313-1880

4. PROJECT BACKGROUND:

LOCATION:	TAX MAP 41, P/O PARCEL 454, BLOCK , LOT 69
ZONING:	R-20
ELECTION DISTRICT:	SIXTH
TOTAL ACRES:	7.00 ±AC.
AREA OF BUILDABLE LOTS:	4.35 ±AC
AREA OF OPEN SPACE REQUIRED:	30% x 7.00 AC = 2.10 ±AC
AREA OF OPEN SPACE PROVIDED:	2.13 ±AC
NON-CREDITED OPEN SPACE:	0.03 ±AC
NET OPEN SPACE PROVIDED:	2.10 ±AC
AREA OF RECREATIONAL OPEN SPACE:	N/A
AREA OF ROAD DEDICATION:	0.52 ±AC
NUMBER OF BUILDABLE LOTS:	13
NUMBER OF OPEN SPACE LOTS:	3
TOTAL NUMBER OF LOTS:	16
MINIMUM AREA OF BUILDABLE LOT:	14,000 SQ.FT.
DPZ FILE:	F-86-168; WP-87-132; S-99-14, P-00-11

5. DEED REFERENCE: LIBER 706, FOLIO 340.
6. TWO FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON AERIAL TOPOGRAPHIC SURVEY BY WINGS AERIAL MAPPING, INC. PERFORMED ON OR ABOUT FEBRUARY 2000.
7. HORIZONTAL AND VERTICAL DATUMS BASED ON (NAD'83) MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.

STA. 41EA	N 544,825.809	E 1,339,217.444
STA. 47AB	N 540,058.231	E 1,350,005.027

8. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
9. STORMWATER MANAGEMENT IS PROVIDED VIA THE METHOD OF DETENTION. STORMWATER MANAGEMENT WILL BE JOINTLY OWNED AND MAINTAINED BY HOWARD COUNTY AND THE HOA.
10. GEOTECHNICAL REPORT PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC., DATED OCTOBER 1999.
11. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
12. DRY WELLS OR OTHER APPROVED BEST MANAGEMENT PRACTICE SHALL BE APPLIED AT THE SITE DEVELOPMENT PLAN TO ANY ROOF DRAINAGE NOT MANAGED BY THE STORMWATER MANAGEMENT FACILITY FOR LOTS 81-86.
13. COMPACTION IN FILL AREAS TO BE 95% AS DETERMINED PER AASHTO T-180.
14. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
15. FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING, OF CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OR CONSERVATION EASEMENT ARE ALLOWED.
16. FOREST STAND DELINEATION PERFORMED BY ECO-SCIENCE PROFESSIONALS ON JANUARY 12, 1998.
17. PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
18. SLOPES IN EXCESS OF 25% EXIST AND ARE IDENTIFIED WHERE THEY EXCEED 20,000 SQ. FT.
19. ALL EXISTING STRUCTURES TO BE REMOVED.

19. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 1.16 ACRES (50,529.6 SQ. FT. AT $10,105.92), REFORESTATION IN THE AMOUNT OF 0.17 ACRES (7,405.2 SQ. FT. AT $3,702.60), AND BY THE PURCHASE OF CREDITS EQUAL TO 1.41 ACRES AT THE FOREST MITIGATION BANK LOCATED ON WINKLER PROPERTY. FOREST CONSERVATION SURETY IN THE AMOUNT OF $13,808.52 FOR RETENTION AND REFORESTATION HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.

20. THE 4'X10' TRASH PAD (4" IN DEPTH) WITHIN THE PUBLIC RIGHT OF WAY SHALL BE MAINTAINED BY THE OWNERS OF LOTS 81-89 PERSUANT TO THE DECLARATION OF RIGHTS OF ACCESS AND MAINTENANCE OBLIGATIONS RECORDED AMONG THE LAND RECORDS FOR HOWARD COUNTY, MARYLAND.

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.

______________________ P.E. NO.: __________

SIGNATURE DATE: __________

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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] 7-17-01

SIGNATURE OF DEVELOPER DATE

James L Newburn

PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 7/17/01

SIGNATURE OF ENGINEER DATE

R. JACOB HIKMAT

PRINTED NAME OF ENGINEER

STATE OF MARYLAND R. JACOB HIKMAT 17942 PROFESSIONAL ENGINEER

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] 8/9/01

USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[signature] 8/9/01

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] for 8/10/01

CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

[signature] 8/24/01

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 8/15/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

F:\98108\DWG\FINAL\ROAD\108-COVER

OWNER
THE ESTATE OF JANET PHELPS
C/O DONALD WYVELL
8706 CARRIAGE HILLS DRIVE
COLUMBIA, MD 21046

DEVELOPER
WARFIELDS RANGE ASSOCIATES, LLC
5570 STERRETT PLACE, SUITE 201
COLUMBIA, MD 21044
(410) 997-3815

project	date
98108	JULY 2001
illustration	engineering
KR/SA	KR
scale	approval
NTS	

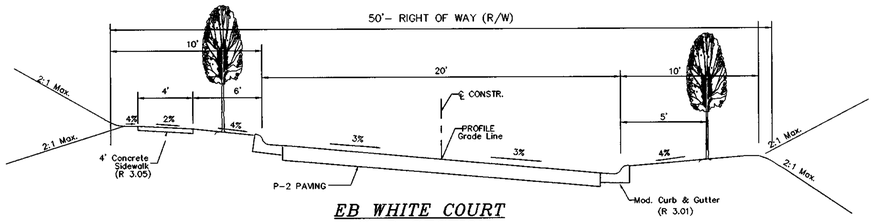
no.	description	date
0	SUBMITTED TO HOWARD COUNTY FOR SIGNATURE	7/19/01
	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

COVER SHEET

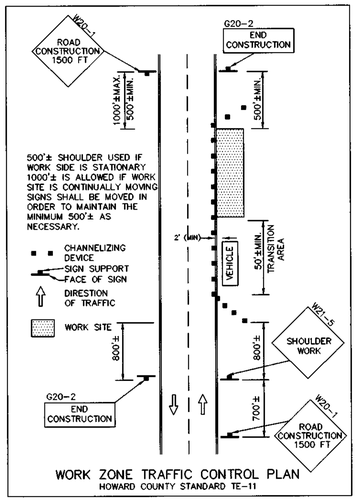
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

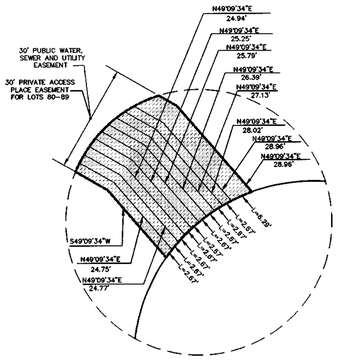


EB WHITE COURT
ROAD SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
NOT TO SCALE

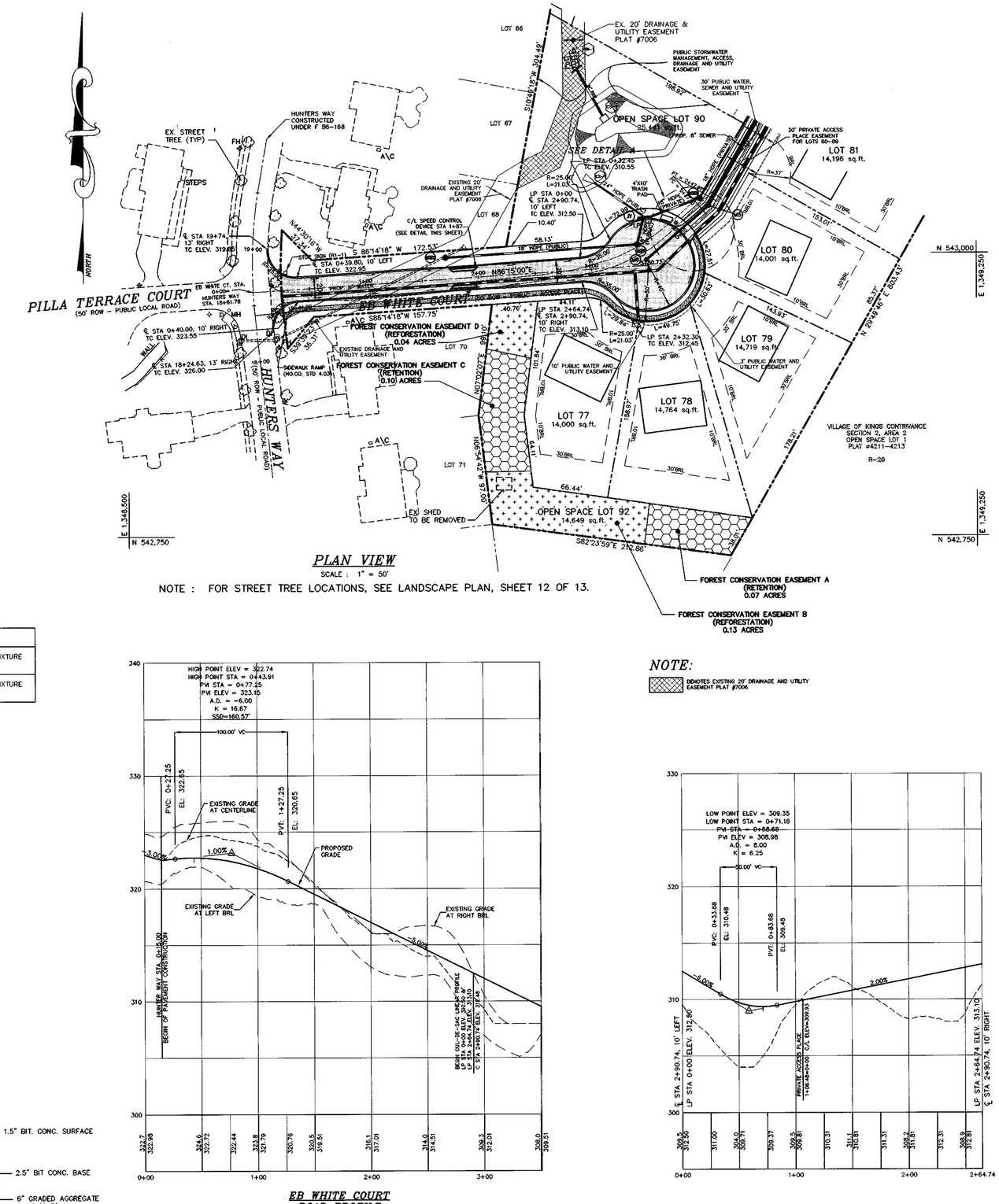


WORK ZONE TRAFFIC CONTROL PLAN
HOWARD COUNTY STANDARD TE-11



DETAIL A
SCALE: 1"=20'

STREET LIGHT SCHEDULE		
*	EB WHITE COURT PUBLIC ACCESS PLACE STATION 1+90, 12.0' RIGHT	100 WATT HPS VAPOR COLONIAL POST TOP FIXTURE MOUNTED ON A 14' FIBERGLASS POLE
*	EB WHITE COURT PRIVATE ACCESS PLACE STATION 0+3.00, 12' LEFT	100 WATT HPS VAPOR COLONIAL POST TOP FIXTURE MOUNTED ON A 14' FIBERGLASS POLE

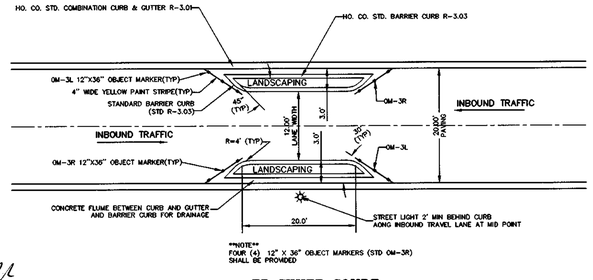


PLAN VIEW
SCALE : 1" = 50'

NOTE : FOR STREET TREE LOCATIONS, SEE LANDSCAPE PLAN, SHEET 12 OF 13.

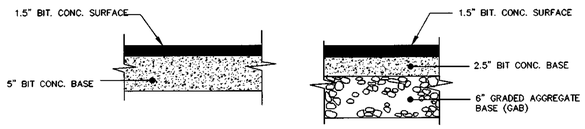
EB WHITE COURT
CUL-DE-SAC PROFILE
CLASSIFICATION: PUBLIC ACCESS PLACE

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL



EB WHITE COURT
SPEED CONTROL DEVICE
(PUBLIC ACCESS PLACE)

SCALE
NOT TO SCALE



PAVING SECTION P-2

SCALE
NOT TO SCALE

EB WHITE COURT
ROAD PROFILE
CLASSIFICATION: PUBLIC ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

NOTE:

DENOTES EXISTING 20' DRAINAGE AND UTILITY EASEMENT PLAT #7006

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/29/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

8/17/01

no.	description / revisions	date

project	98108	date	JULY 2001
illustration		engineering	SJD
scale	KR/SJD	approval	
	AS SHOWN		

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDUVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

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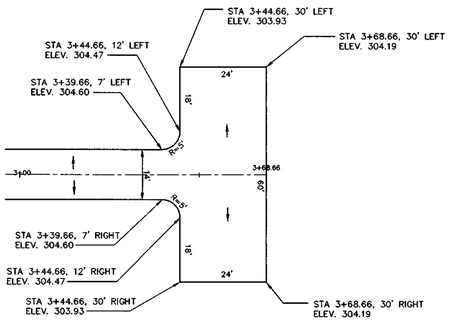
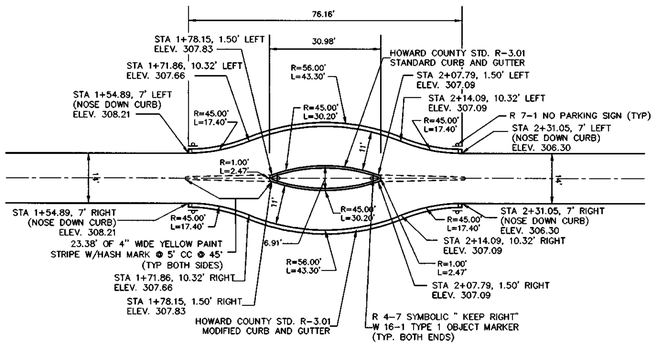


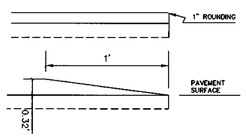
EB WHITE COURT
TEE TURN-AROUND DETAIL
(PRIVATE ACCESS PLACE)

SCALE : 1" = 20'



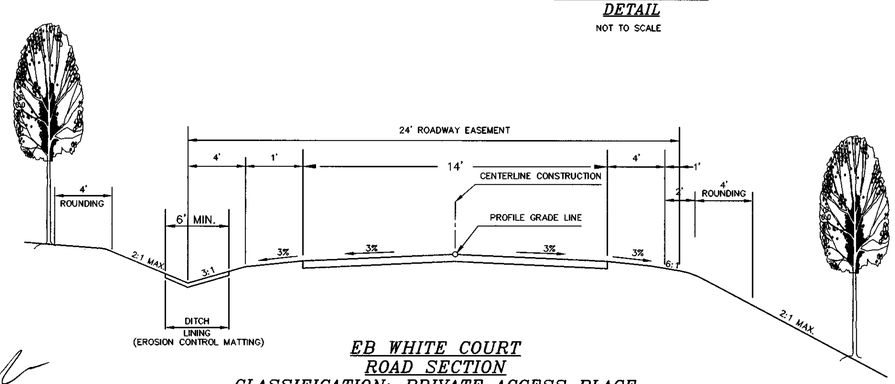
EB WHITE COURT
CENTRAL MEDIAN ISLAND DETAIL
(PRIVATE ACCESS PLACE)

SCALE : 1" = 20'



NOSE DOWN CURB
DETAIL

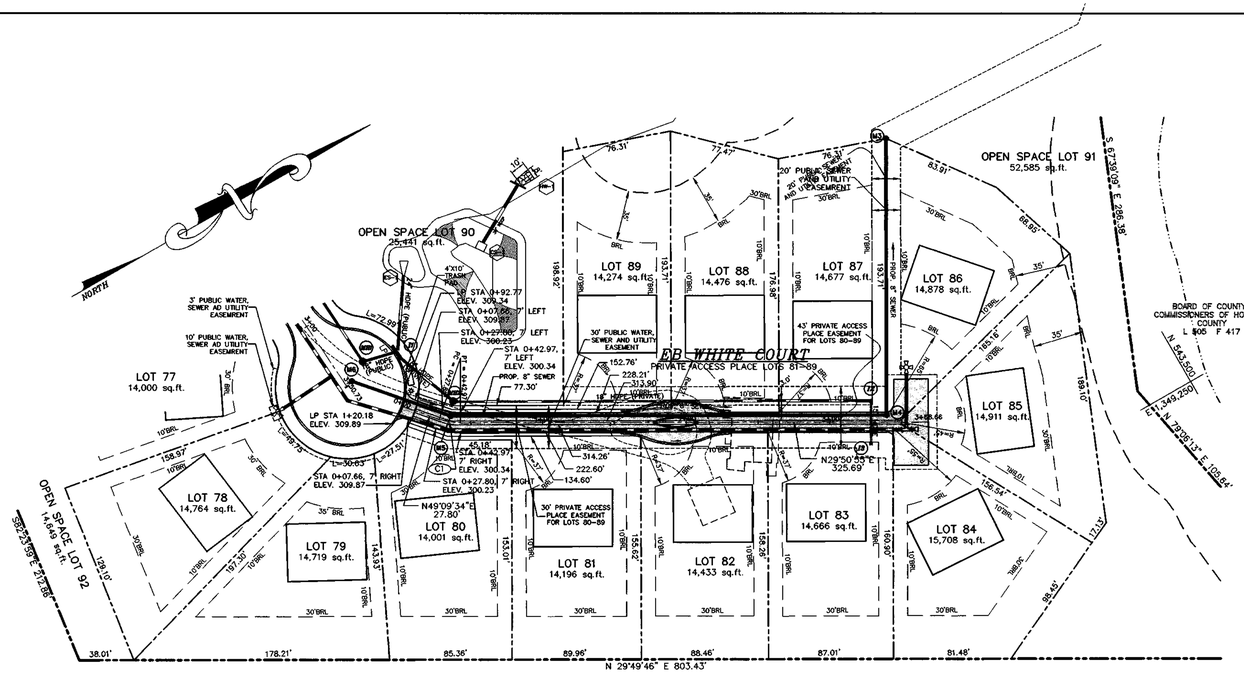
NOT TO SCALE



EB WHITE COURT
ROAD SECTION
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
NOT TO SCALE

7/17/01

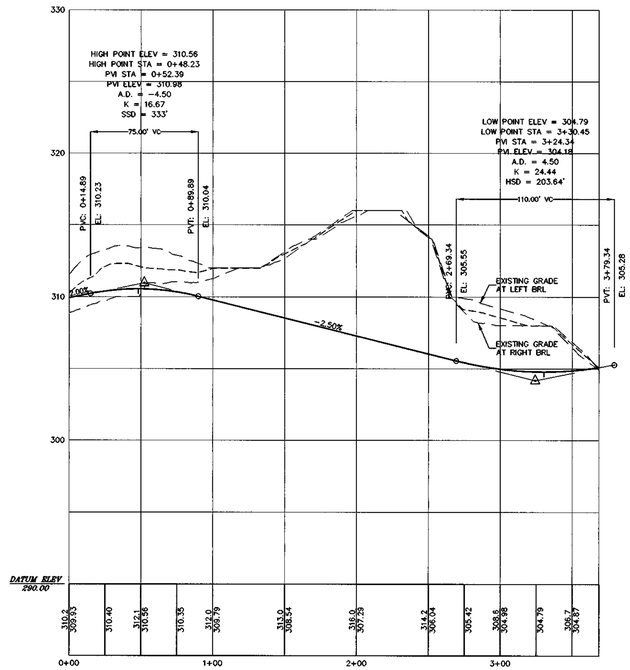


PLAN VIEW

SCALE : 1" = 50'

NOTE : FOR STREET TREE LOCATIONS, SEE LANDSCAPE PLAN, SHEET 12 OF 13.

N 542,750
E 1,349,250



EB WHITE COURT
ROAD PROFILE
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	DELTA	CHORD
C1	45.00'	15.17'	7.66'	19°18'39"	N39°30'14"E 15.09'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 9/19/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 9/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/15/01

project 98108 | date JULY 2001
illustration KR/SJD | engineering SJD
scale AS SHOWN | approval

no.	description / revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILE

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(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

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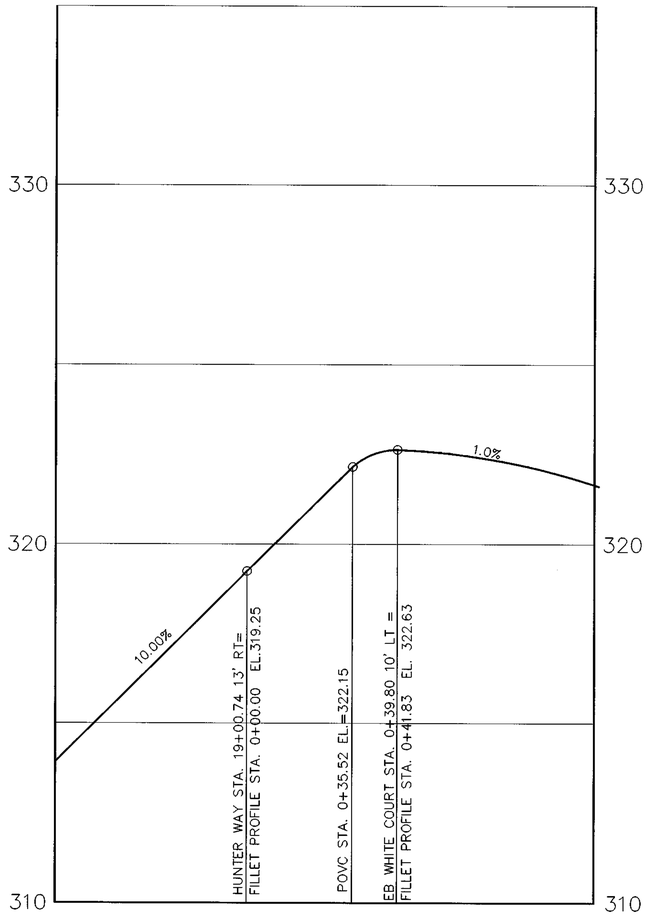
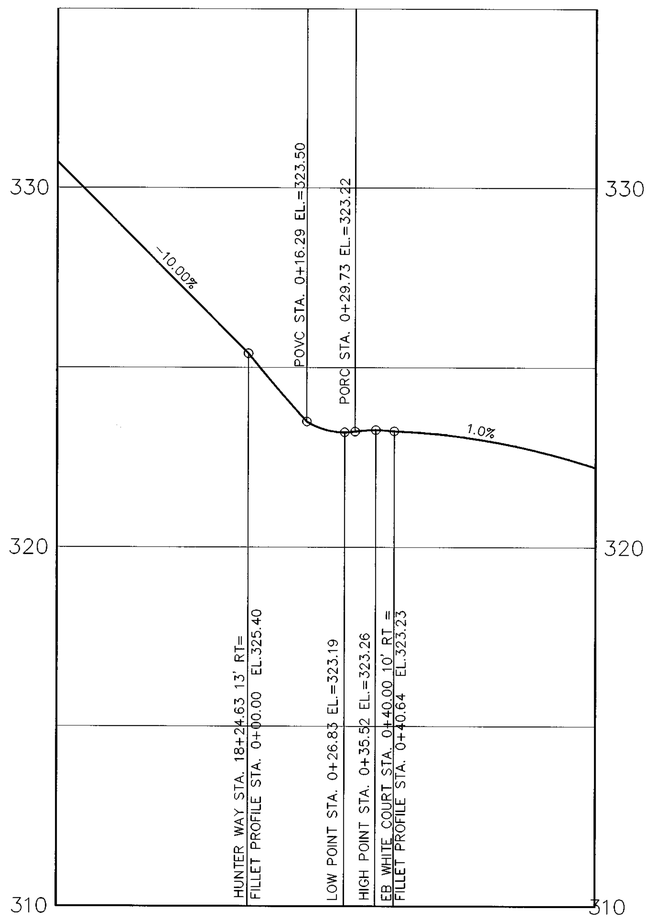


HUNTERS WAY LEFT TURN TO EB WHITE COURT

SCALE: HOR. 1" = 20'
VER. 1" = 2'



HUNTERS WAY RIGHT TURN TO EB WHITE COURT

SCALE: HOR. 1" = 20'
VER. 1" = 2'

6/28/01

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 8/14/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

108-Fillet

project 98108 | date APR 2001
illustration SAA | engineering KR/SAA
scale 1"=50' | approval

no.	description revisions	date

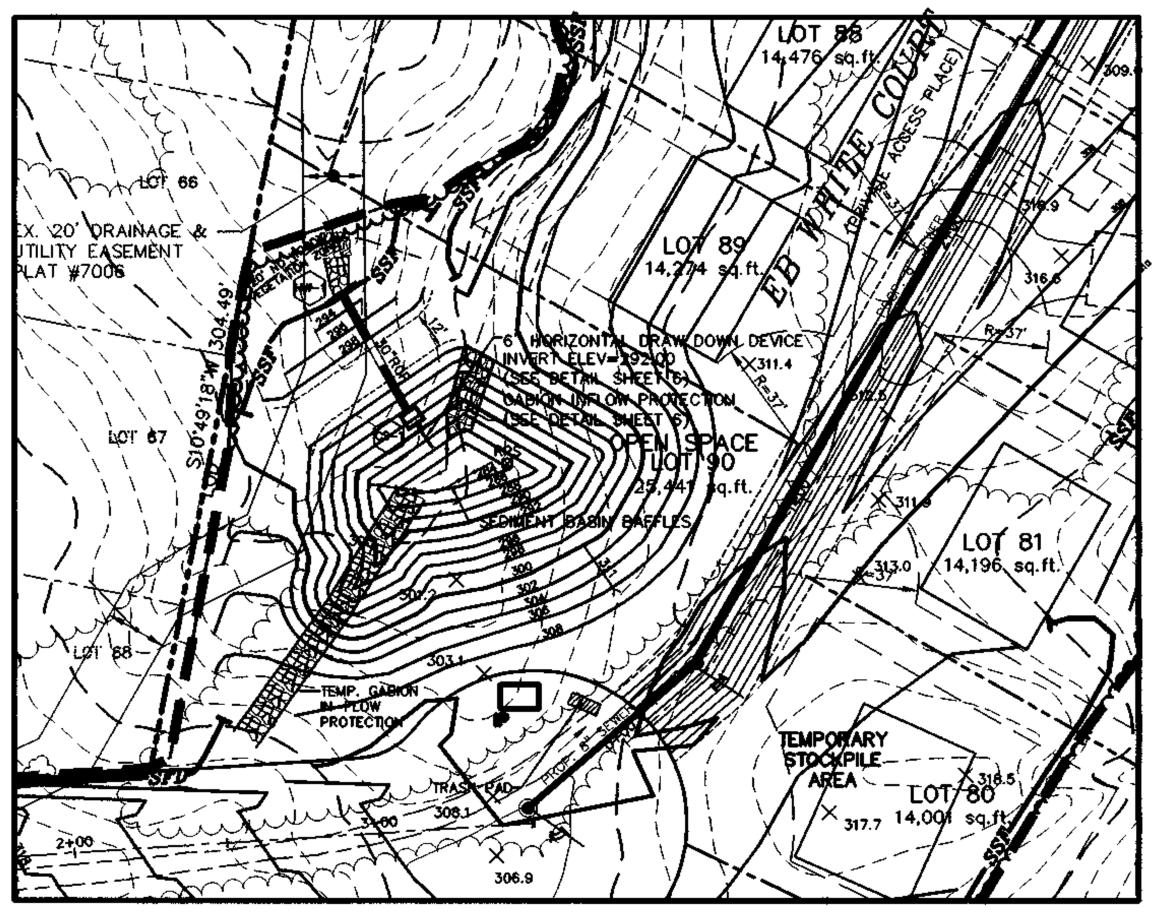
WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

FILLET PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5527 Wash. (410) 997-0298 Fax.

F-01-28

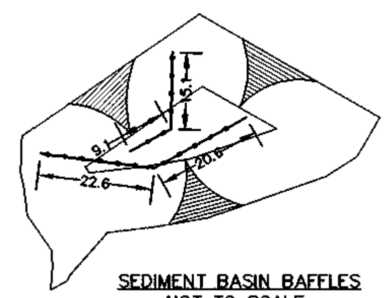


SEDIMENT BASIN DETAIL

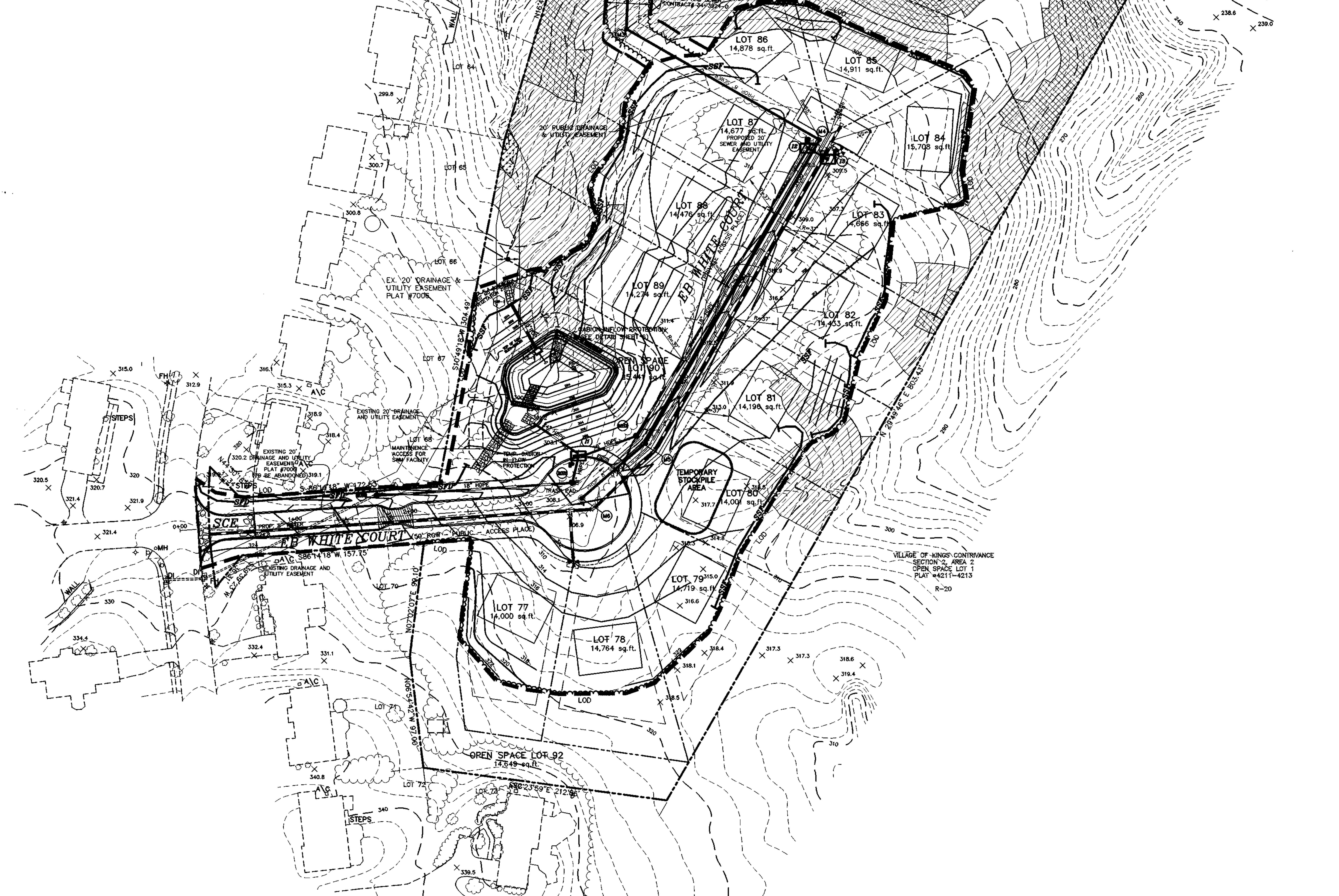
SCALE : 1" = 50'

SEDIMENT BASIN # 1

MAX. DRAINAGE AREA:	5.5 AC
TOP OF EMBANKMENT:	300.00
WEIR CREST EL:	296.30
BOTTOM OF BASIN:	284.00
WET STORAGE REQUIRED:	9,900
WET STORAGE PROVIDED:	10,725 C.F. (AT ELEV. 292.00)
DRY STORAGE REQUIRED:	9,900 C.F.
DRY STORAGE PROVIDED:	27,600 C.F. (AT ELEV. 296.30)
CREST LENGTH = 6.5'	
Q2 PRE = 4.3 CFS	
Q2 POST = 1.7 CFS	



SEDIMENT BASIN BAFFLES
NOT TO SCALE



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.

________________ P.E. NO.: ________
SIGNATURE DATE: ________

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L. Newburn 7-17-01
SIGNATURE OF DEVELOPER DATE
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

7/17/01
SIGNATURE OF ENGINEER DATE
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

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.

Jim Myers / cs. 8/9/01
USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

8/9/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8/10/01
CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

Cindy Hamilton 8/24/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

108-grade

NOTE

FOR DETAILS OF STORMWATER MANAGEMENT FACILITY SEE SHEET 8

project	date
98108	JULY 2001
illustration	engineering
KR	KR/MMP
scale	approval
1"=50'	

no.	description revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING , DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
1) PREFERRED – APPLY 2 TONS PER ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING , APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1000 SQ.FT.).
2) ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING – FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE 1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LOBS. PER ACRE (.05 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) – 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) – USE SOD. OPTION (3) – SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONE/ACRE WELL ANCHORED STRAW.
MULCHING – APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.
MAINTENANCE – INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, FOR NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.)
SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU NOVEMBER 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

STANDARD 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 NAY CONSTRUCTION, (313-1855).
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 THERETO.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 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 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC.51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) 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:	7.00	ACRES
AREA DISTURBED:	4.20	ACRES
AREA TO BE ROOFED OR PAVED:	1.50	ACRES
AREA TO BE VEGITATIVELY STABILIZED:	2.70	ACRES
TOTAL CUT:	9,500	CU. YDS.
TOTAL FILL:	9,500	CU. YDS.
TOTAL WASTE/BORROW AREA LOCATION:	(NOT REQUIRED)	

THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY.
CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITY MEASUREMENTS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

STANDARD 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
  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 SPECIFICATION. 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. PROCEDURES: OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN
  ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSON-SON 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 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
  i. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN <u>20.0 VEGETATIVE STABILIZATION</u> – SECTION i – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

IV. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
  i. TOPSOIL 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 TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A pH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PERSCRIBED TO RAISE THE pH TO 6.5 OR HIGHER.
    b. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 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 (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

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

  ii. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN <u>20.0 VEGETATIVE STABILIZATION</u> – SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLLICATION
  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, ALBEIT 4" – 8" HIGHER IN ELEVATION.
  iii. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. 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 SEEDBED PREPARATION.

VI. 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 BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
    a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS WHO 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 LEASE 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHOURUS, 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.
  iv. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILLIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT (1 DAY)
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT LOCATION SHOWN. (1 DAY)
3. INSTALL TREE PROTECTIVE FENCES AS SHOWN ON THE FOREST CONSERVATION PLAN. (1 DAY)
4. INSTALL SEDIMENT CONTROL MEASURES (SILT FENCES). (1 DAY)
5. CONSTRUCT SEDIMENT BASIN. PROCEED ONLY UPON APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. (5 DAYS)
6. GRADE SITE. (6 DAYS)
7. CONSTRUCT STORM DRAIN SYSTEM AND BLOCK WITH INLET PROTECTION. (3 DAYS)
8. BRING SITE TO FINAL GRADE AND PAVE ROAD. (5 DAYS)
9. STABILIZE ALL DISTURBED AREAS. (3 DAYS)
10. CONTRACTOR SHALL FLUSH STORMDRAIN SYSTEMS AND CLEAN POND. (2 DAYS)
11. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASIN TO STORMWATER MANAGEMENT FACILITY. (2 DAYS)
12. WHEN ALL CONTRIBUTING DRAINAGE AREAS TO SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE REMAINING DISTURBED AREAS. (3 DAYS)

STATE OF MARYLAND – R. JACOB HIKMAT – 17942 – PROFESSIONAL ENGINEER

AS-BUILT CERTIFICATION

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

______ P.E. NO.: ______

SIGNATURE DATE: ______

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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] 7-17-01
SIGNATURE OF DEVELOPER DATE
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 5/01/01
SIGNATURE OF ENGINEER DATE
R Jacob Hikmat
PRINTED NAME OF ENGINEER

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.

Jim Myers /cs. 8/9/01
USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE

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

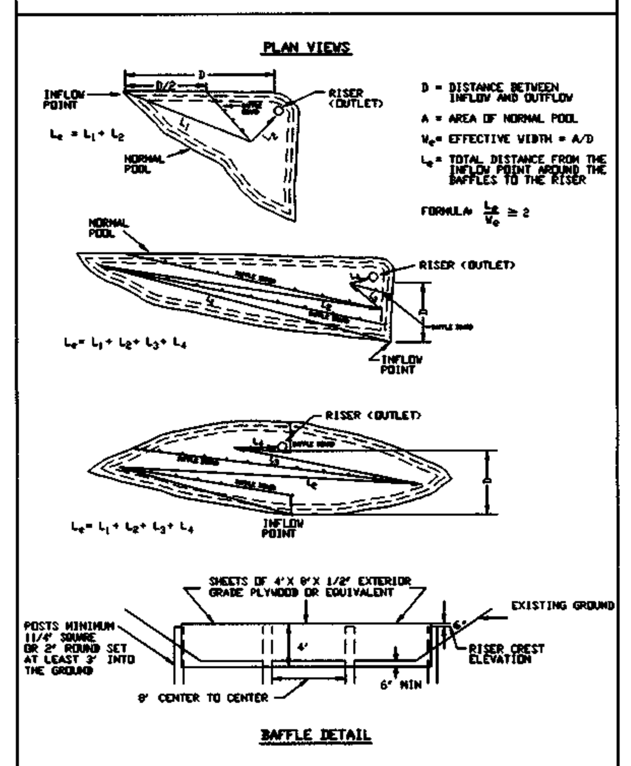
[signature] 8/9/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 8/10/01
CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
Cindy Hamilton 8/24/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[signature] 8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

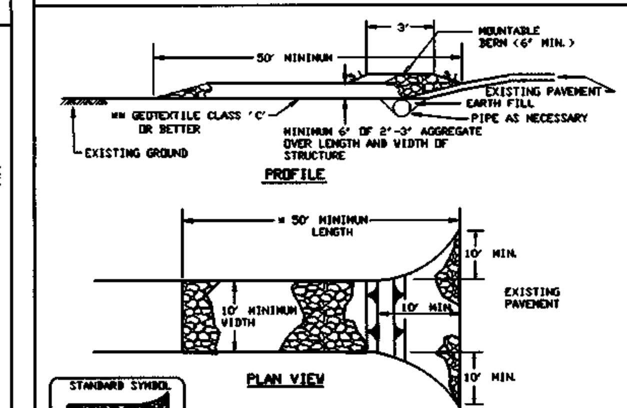
F:\98108\DWG\FINAL\ROADS\108-SED-NO

DETAIL 18 - SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 18 - 28	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

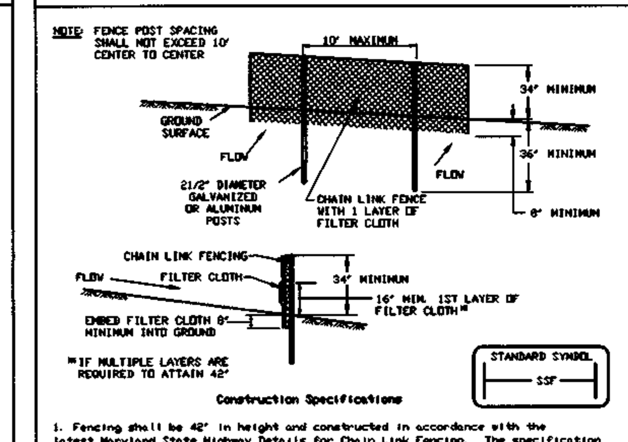


Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).
2. Width – 10' minimum, should be flared 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 plan approval 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" deep 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 with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

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

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

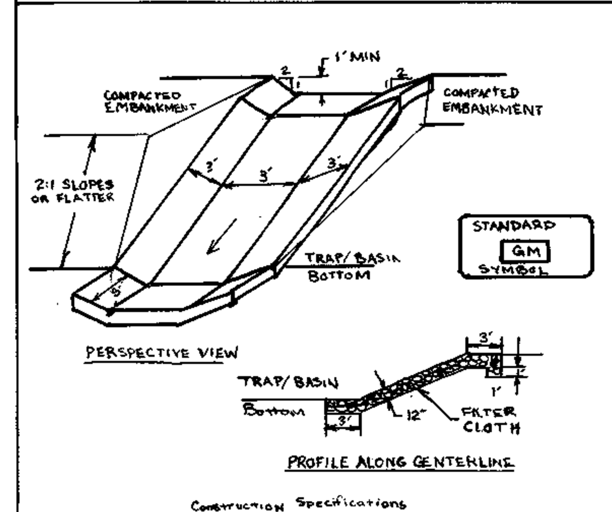
SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 - GABION INFLOW PROTECTION

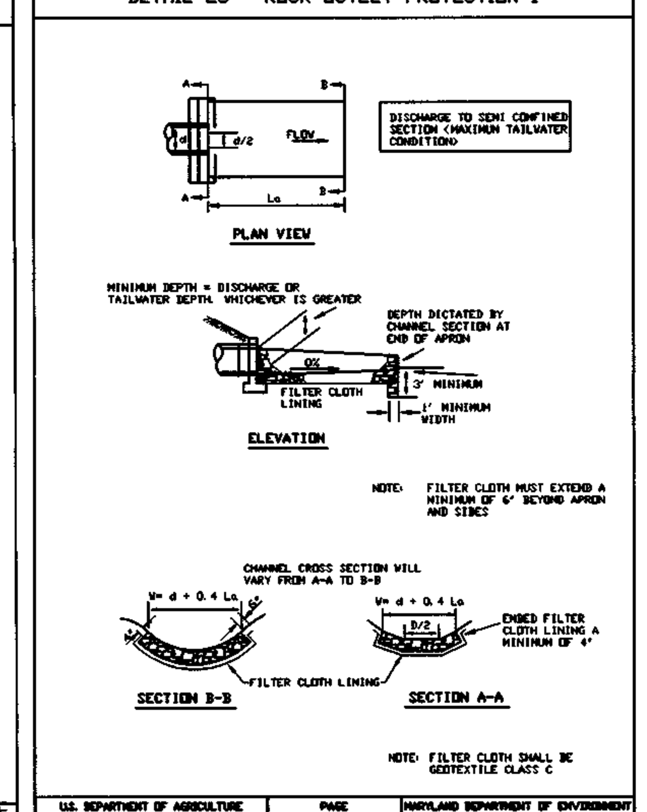


Construction Specifications

1. Gabion Inflow protection Shall Be constructed of 9'x3'x3' Gabion Baskets Forming a trapezoidal Cross Section 1' deep, with 2:1 Sideslopes, 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. Gabion Shall be installed In accordance with manufacturer's Recommendations.
5. Gabion Inflow protection Shall be used where Concentrated Flow is present on Slopes Greater than 4:1.

US DEPT. of AGRICULTURE Soil Conservation Service	PAGE B-7-2	MD. DEPT. of ENVironment WATER MANAGEMENT ADMIN.

DETAIL 25 - ROCK OUTLET PROTECTION I



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

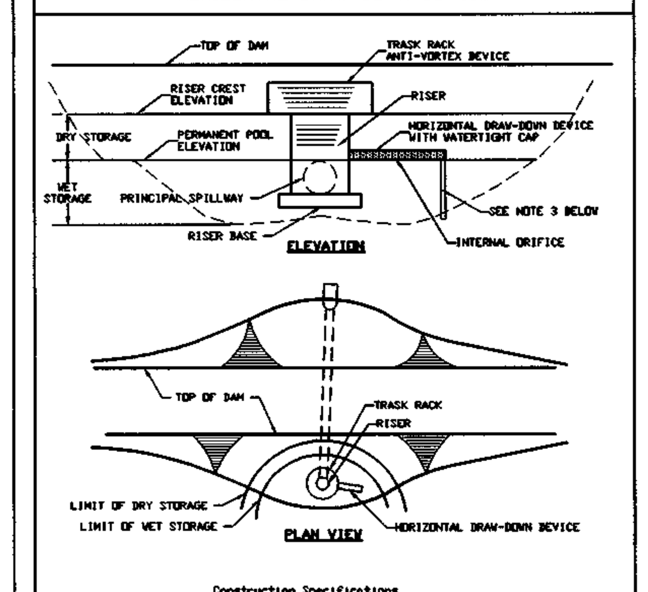
ROCK OUTLET PROTECTION

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 6A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BASIN DRAW DOWN SCHEMATIC HORIZONTAL DRAW DOWN DEVICE

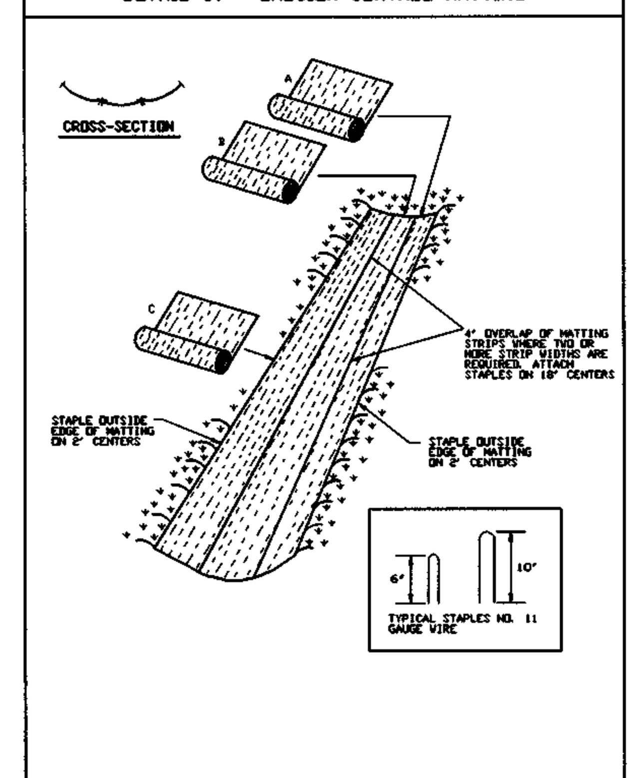


Construction Specifications

1. The total area of the preforations must be greater than 4 times the area of the internal orifice.
2. The preforated portion of the draw-down deviceshall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet specifications for Geotextile Class E.
3. Provide support of draw-down device to prevent sagging and flotation. 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 guage minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 18 - 29	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

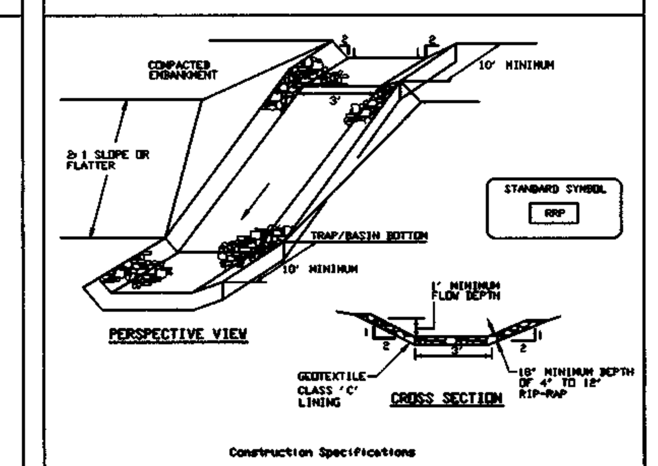
Construction Specifications

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

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 5 - RIP-RAP INFLOW PROTECTION

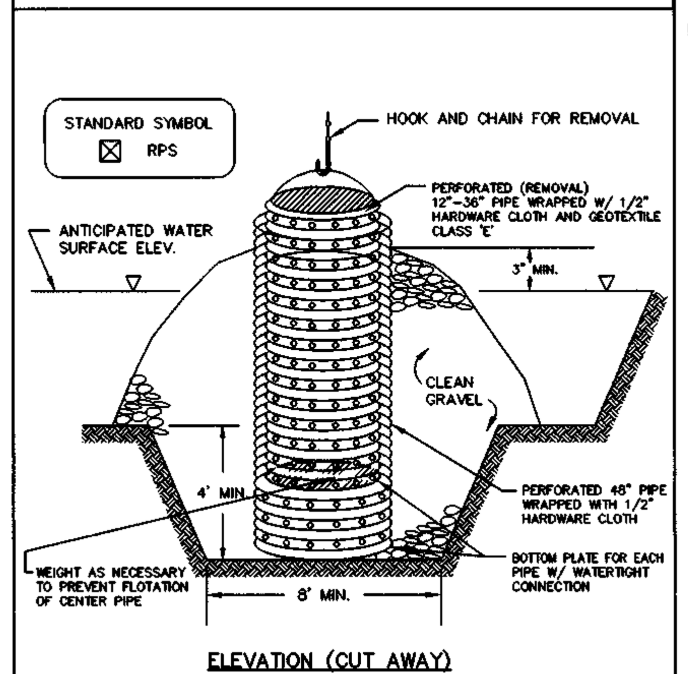


Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 6 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A - REMOVABLE PUMP STATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SPECIFICATIONS FOR REMOVABLE PUMP STATION

12.0 DEWATERING SPECIFICATIONS
FOR
REMOVABLE PUMPING STATION

Description of Practice

A temporary sturcture which is used to remove water from exacvated areas, sediment traps and basins.

Purpose

The pumping staton provides a device that fiters sediment laden water for pumping to a suitable discharge area.

Conditions Where Practice Applies

The pumping station will be used to dewater sediment traps and basins for maintenance or removal.

Design Criteria

A design is not requierd but construction must conform to the general criteria outlined on the next page.

A perforated vertical stand pipe is placed inside another pipe. The outside pipe is then enveloped by a cone of washed 2" aggreagate. Water is then pumped from the center of the inside pipe to a suitable dischage area.

Water pumped from the standpipe should discharge into a sediment traop, sediment basin of stabilized area. If water from the sump pit will be pumped directley to a storm drainage system, geotextile fabric and wire mesh must be wrapped around the standpipe to ensure clean water discharge.

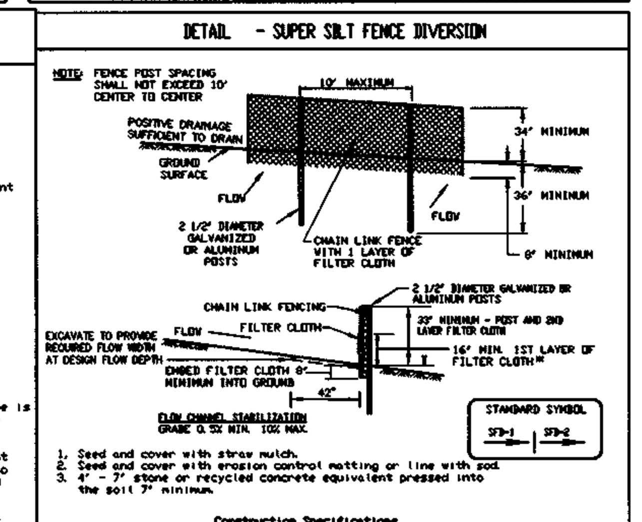
Water pumped from the standpipe should discharge into a sediment trap, sediment basin or stabilized area.

Construction Specifications

1. the inner pipe shall be constructed by perforating a 12" to 36" diameter pipe with a watertight cap on the bottom end and wrapping it with 1/2" hardware cloth and Geotexrile Class E. The perforations shall be 1/2"X6" slits or 1" diameter holes 6" on center.
2. The outer pipe shall be at least 4" larger in diameter than the inside pipe. Both the inner and outer pipes should extend 12" to 18" above the riser crest elevation, or anticipated high water elevation.
3. Filter material ranging from clean gravel (minimum fines) to #57 stone (1 1/2" maximum diameter) should be backfilled around the outer pipe.
4. The suction hose from the pump shall be placed inside the inner pipe to begin dewatering. the discharge hose shall be placed in a stabilized areas downslope of unstabilized area to prevent erosion. Meadow or wooded areas are preferred discharge locations, but storm drains and paved areas are acceptable.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL - SUPER SILT FENCE DIVERSION



1. Seed and cover with straw mulch.
2. Seed and cover with erosion control matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

Construction Specifications

Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

1. The poles do not need to set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Filter cloth and erosion control matting shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when 'bulges' develop in the silt fence.

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

SUPER FENCE DIVERSION

Construction Specifications (Continued)

7. All temporary SFD dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grade less than 1%.
8. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
9. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
10. All trees, brush, stumps, obstructions and other objectional material shall be removed and disposed of so as not to interfere withe the proper funtioning of the dike.
11. The dike shall be excavated or shaped to lin, 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.
12. Fill shall be compacted by earth moving equipment.
13. All earth removed and not needed for construction shall be placed so that it will not interfere withe the functioning of the dike.
14. Inspection and maintenance must be provided periodically and after each rain event.

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

project	date
98108	APR 2001
illustration	engineering
KR/SA	
scale	approval
NTS	

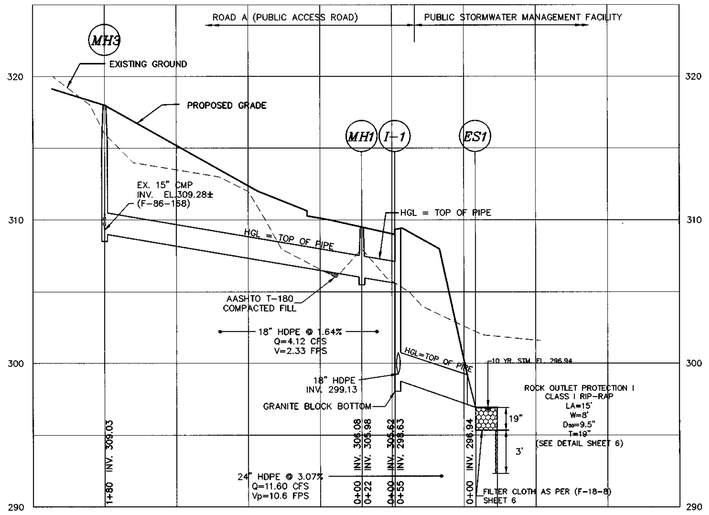
no.	description	date
	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

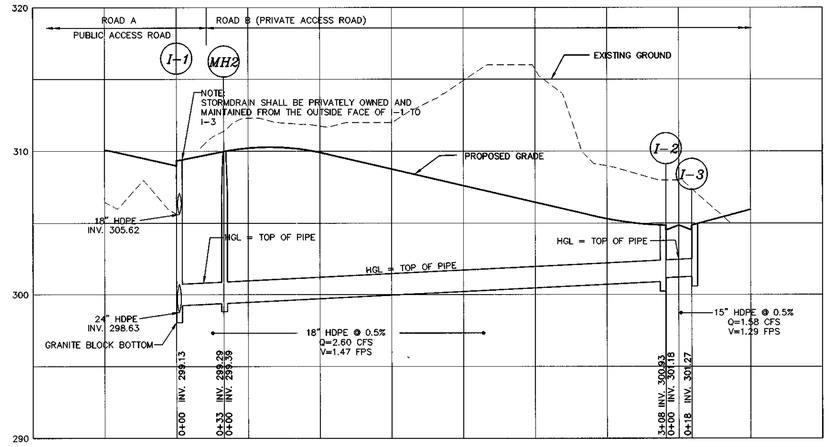
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28



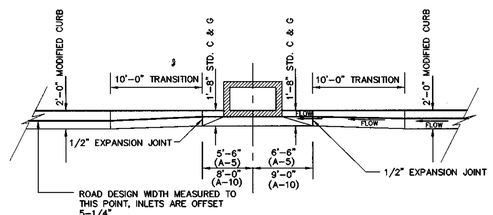
STORM DRAIN PROFILE – MH3 TO ES1

HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



STORM DRAIN PROFILE – I3 TO I1

HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



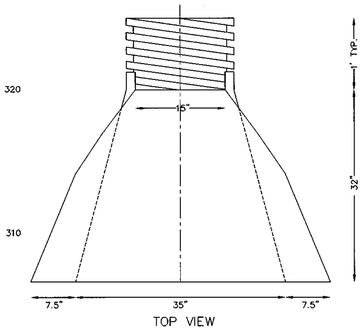
CURB TRANSITION – INLETS

NTS

STRUCTURE SCHEDULE

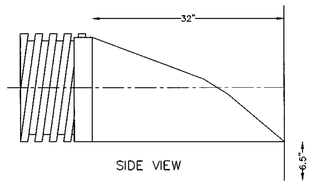
NO.	LOCATION*	TOP**	INV. IN	INV. OUT	COMMENTS
I-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+48.86 – 40.88' LEFT	309.03	305.62 299.13	298.63	INLET TYPE A-10 (HO. CO. STD SD 4.02) – PUBLIC
I-2	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 34+24.34 – 7' LEFT	304.52	301.18	300.93	INLET TYPE K (HO. CO. STD SD 4.12) – PRIVATE
I-3	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 34+24.34 – 7' RIGHT	304.52	----	301.27	INLET TYPE K (HO. CO. STD SD 4.12) – PRIVATE
MH-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+42 – 18.9' LEFT	309.50	306.08	305.98	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PUBLIC
MH-2	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 0+35.39 – 14.57' LEFT	310.00	299.39	299.29	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PRIVATE
MH-3	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 1+72 – 18.9' LEFT	318.00	309.28±	309.03	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PUBLIC
ES-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+07.72 – 76.00' LEFT	----	----	296.94	24" ø HDPE END SECTION (SEE DETAIL) – PUBLIC

* LOCATIONS SHOWN ARE AT L OF INLET AT FACE OF CURB
** ELEVATIONS MEASURED TO CENTER OF ALL INLETS
** ALL "A" TYPE STRUCTURES ARE 2.5' WIDE UNLESS OTHERWISE NOTED



INSTALLATION INSTRUCTIONS

1. SPREAD THE END SECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.
2. INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
3. PLACE BACKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.



18" HDPE END SECTION
(PART NO. 1810 NP)

NOT TO SCALE

PIPE SCHEDULE

	SIZE	LENGTH
PRIVATE	15" HDPE	18'
	18" HDPE	341'
PUBLIC	24" HDPE	55'
	18" HDPE	202'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

108-STORMDRAIN

project 98108 | date JUNE 2001 | engineering FL/KR | approval
illustration | scale 1"=50'

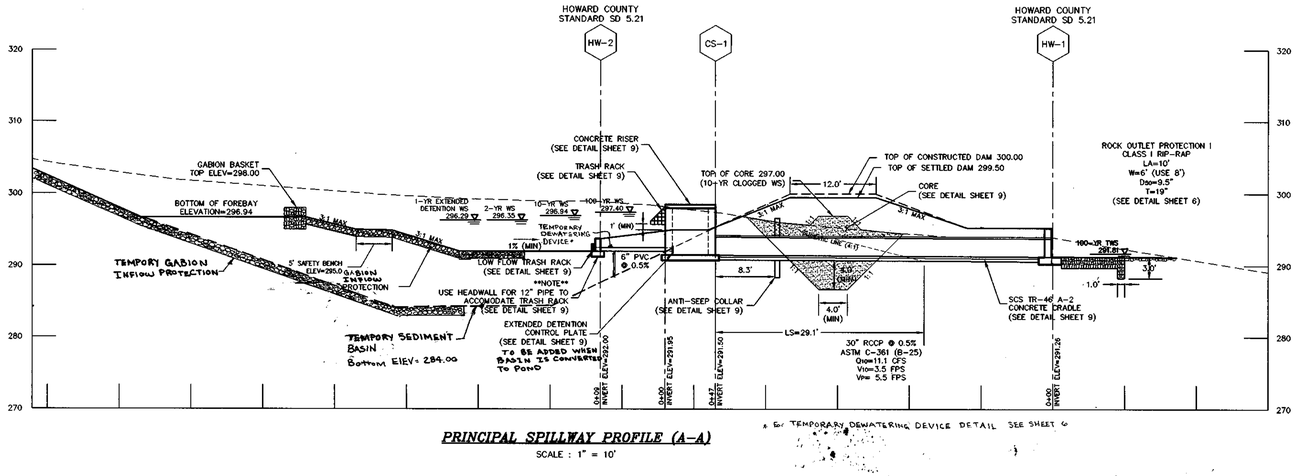
no.	description / revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORMDRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

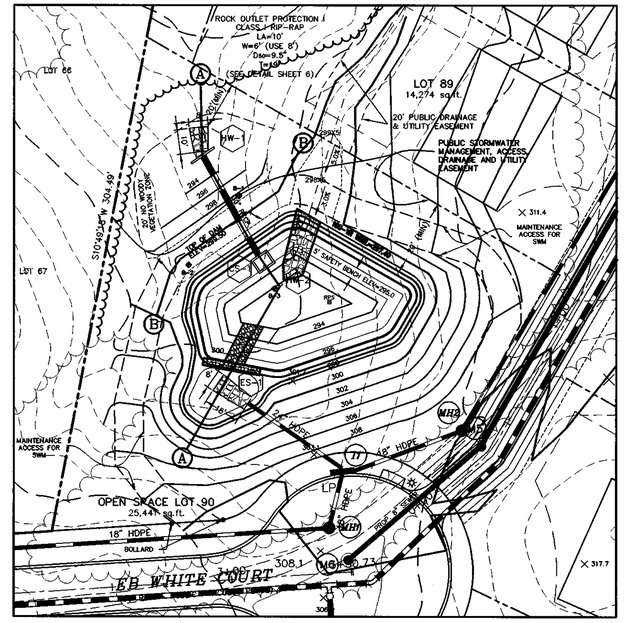
F 01-28



PRINCIPAL SPILLWAY PROFILE (A-A)

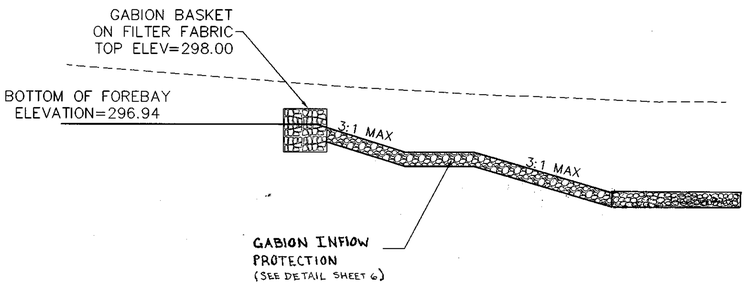
SCALE : 1" = 10'

DETENTION POND DATA
HAZARD CLASSIFICATION- "A"
DRAINAGE AREA- 5.5 ACRES
PROPOSED RCN- 71
PROPOSED TC- 0.25 HR.
WATER QUALITY TYPE- EXTENDED DETENTION
1 YEAR WS ELEVATION- 296.29
2 YEAR WS ELEVATION- 296.35
QOUT=1.0 CFS, QIN=5.4 CFS
10 YEAR WS ELEVATION- 296.94
QOUT=10.9 CFS, QIN=14.5 CFS
100 YEAR WS ELEVATION- 297.40
QOUT=24.9 CFS, QIN=25.9 CFS
OWNERSHIP- PRIVATE/PUBLIC
MAINTENANCE- PRIVATE/PUBLIC



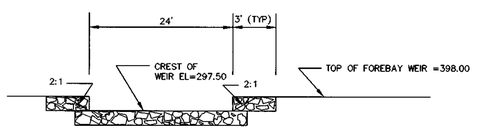
POND PLAN

SCALE : 1" = 30'



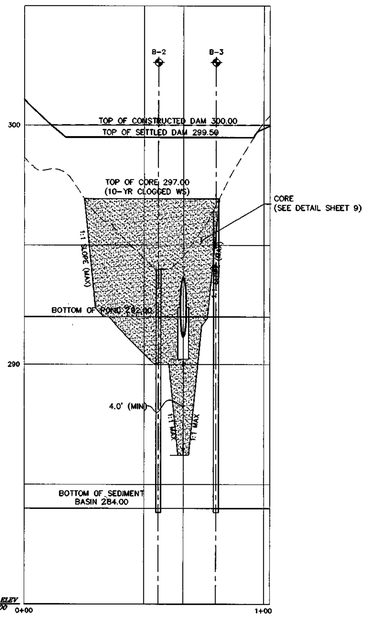
DETAIL OF FOREBAY WEIR

N.T.S.



FOREBAY WEIR SECTION

N.T.S.



CENTERLINE EMBANKENT PROFILE (B-B)

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

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.

P.E. NO.: _____
SIGNATURE _____ DATE: _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 ANY ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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 _____ DATE 7-17-01
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER _____ DATE 7/17/01
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

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.

USDA - NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 8/9/01

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

HOWARD SOIL CONSERVATION DISTRICT _____ DATE 8/9/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS _____ DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 8/15/01

STATE OF MARYLAND R. JACOB HIKMAT 17042 PROFESSIONAL ENGINEER

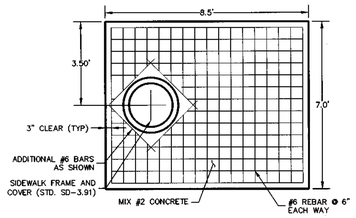
108-POND

project	date
98108	JUNE 2001
illustration	engineering
KR	KR
scale	approval
AS SHOWN	

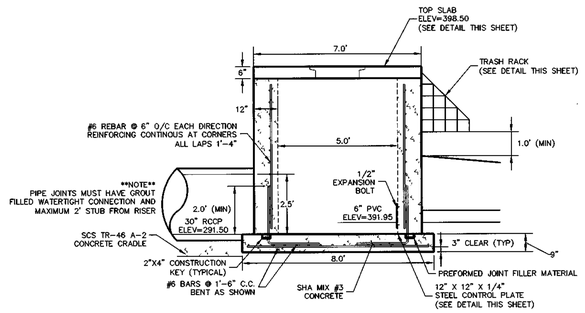
no.	description	date
	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT PROFILES AND DETAILS

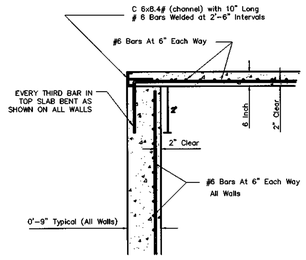
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax



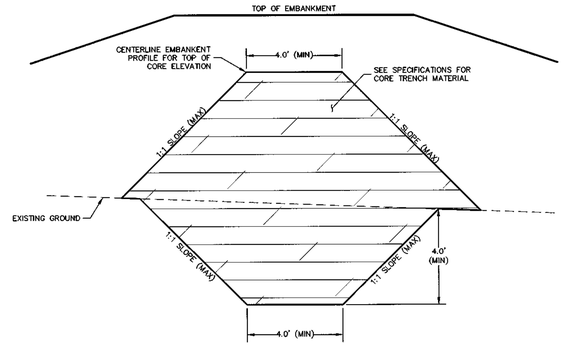
TOP SLAB DETAIL
SCALE : 1" = 3'



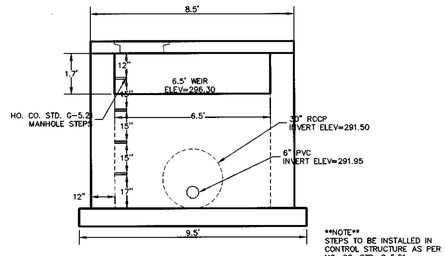
CONTROL STRUCTURE DETAIL (PROFILE)
SCALE : 1" = 3'



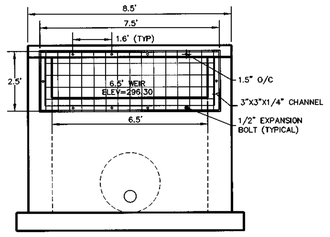
TOP SLAB CONNECTION DETAIL
NOT TO SCALE



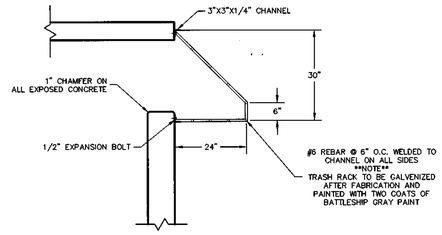
CORE TRENCH DETAIL
NOT TO SCALE



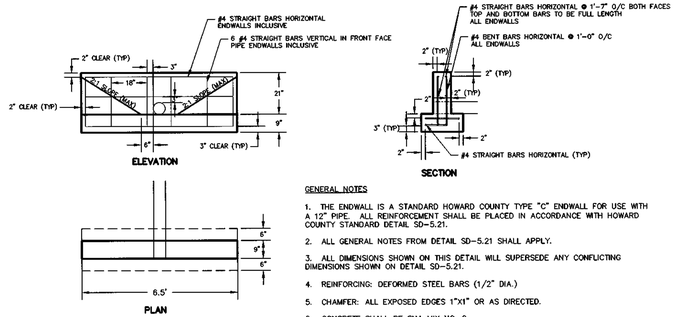
CONTROL STRUCTURE DETAIL (ELEVATION)
SCALE : 1" = 3'



TRASH RACK ELEVATION
SCALE : 1" = 3'



TRASH RACK DETAIL
SCALE : 1" = 2'



GENERAL NOTES

1. THE ENDWALL IS A STANDARD HOWARD COUNTY TYPE "C" ENDWALL FOR USE WITH A 12" PIPE. ALL REINFORCEMENT SHALL BE PLACED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL SD-5.21.
2. ALL GENERAL NOTES FROM DETAIL SD-5.21 SHALL APPLY.
3. ALL DIMENSIONS SHOWN ON THIS DETAIL WILL SUPERSEDE ANY CONFLICTING DIMENSIONS SHOWN ON DETAIL SD-5.21.
4. REINFORCING: DEFORMED STEEL BARS (1/2" DIA.)
5. CHAMFER: ALL EXPOSED EDGES 1"X1" OR AS DIRECTED.
6. CONCRETE SHALL BE SHA MIX NO. 2.

MODIFIED 12" TYPE "C" ENDWALL (SD 5-21)
NOT TO SCALE

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.

P.E. NO.: _____
SIGNATURE _____ DATE: _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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 _____ DATE 7-17-01
James L Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER, THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER _____ DATE 6/28/01
P. JACOB HINMAT
PRINTED NAME OF ENGINEER

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.

USDA - NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 8/9/01

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

HOWARD SOIL CONSERVATION DISTRICT _____ DATE 8/9/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

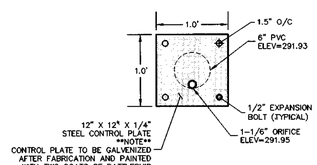
CHIEF BUREAU OF HIGHWAYS _____ DATE 8/16/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT _____ DATE 8/14/01

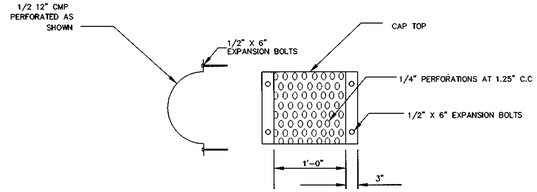
CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 8/15/01

108-pond

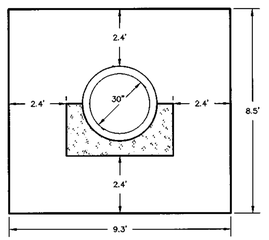


CONTROL PLATE DETAIL
SCALE : 1" = 1'

CONTROL PLATE TO BE INSTALLED UPON CONVERSION FROM SEDIMENT BASIN TO POND



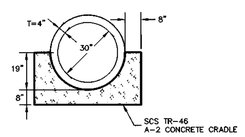
HALF SHELL TRASH RACK
NOT TO SCALE



NOTE
JOINT FILLER MATERIAL SHALL BE PLACED BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND THE CRADLE.

ANTI-SEEP COLLAR SHALL BE PLACED A MINIMUM OF 2' FROM ANY PIPE JOINT

ANTI-SEEP COLLAR DETAIL
SCALE : 1" = 3'



CONCRETE CRADLE DETAIL
NOT TO SCALE

project 98108 | date JUNE 2001 | engineering KR | approval
illustration KR | scale AS SHOWN

no.	description	date
	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

MD-378 POND SPECIFICATIONS (JANUARY 2000)

CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORM WATER 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 DRAIN AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL – THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT – AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION – THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH – THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE – THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURAL 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 COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7". TO ASSURE FLOWABILITY OF THE MATERIAL, ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.). TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPER OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

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.

_______________ P.E. NO.: _______________

SIGNATURE _______________ DATE: _______________

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L Newburn — 7-17-01
SIGNATURE OF DEVELOPER — DATE
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

7/17/01
SIGNATURE OF ENGINEER — DATE
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

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.

Jim Myers / CS. — 8/9/01
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

8/9/01
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8/10/01
CHIEF BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

Cindy Hamilton — 8/21/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

108-POND

PIPE CONDUIT

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

I. MATERIALS – (POLYMER COATED STEEL PIPE) – STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.

MATERIALS – (ALUMINUM COATED STEEL PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. 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 PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS – (ALUMINUM PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-21 L WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. 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.

3. CONNECTIONS – ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL 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.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF ½ INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEARNS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS – REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING – REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE – BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE – THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS – PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D1785 OR ASTM D-2241 CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" – 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING –THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

DRAINAGE DIAPHRAGMS – WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

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 PUMPING 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 FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER 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 SLOPES 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 SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

OPERATION AND MAINTENANCE

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER ALL 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 PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.

3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AS NEEDED.

4. VISIBLE SIGNS OF EROSION ON THE POND, RIP-RAP, OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND (DAM, RISER, AND 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/OR FOREBAY, WHEN ONE HALF THE TOTAL CAPACITY OF THE POND AND/OR FOREBAY IS FULL OF SEDIMENT, OR DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

HILLIS – CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name: Warfields Range SWM — Boring #: B-1
Location: Elkridge, Maryland — Job #: 99392A

SAMPLER
Datum: ___ — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman: Lamont Smith
Surf. Elev.: ___ — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector: ___
Date Started: 10-01-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed: 10-01-99

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, soft silt with trace mica root material (Possible Fill)			D	2-2-2	1	16"	7" Topsoil
	Orange/Tan to Black/Tan, moist, medium dense, micaceous silty sand (SM) USDA – Sandy Loam	2.5		D	3-4-7	2	16"	Groundwater encountered at 10.0' while drilling
			5	D	5-6-10	3	18"	Caved in at 12.0' at Completion
				D	11-12-11	4	13"	
	Tan, wet, very dense medium sand, trace to little silt, rock fragments (SM-SP)	12.5	10	D	9-6-8	5	14"	
	Bottom of Test Hole at 16.3'	16.3	15	D	32-27-51/3"	6	13"	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 10.0 FT.; AFTER 24 hr 7.5 FT.; AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS – CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name: Warfields Range SWM — Boring #: B-2
Location: Elkridge, Maryland — Job #: 99392A

SAMPLER
Datum: ___ — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman: Lamont Smith
Surf. Elev.: ___ — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector: ___
Date Started: 10-01-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed: 10-01-99

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to red brown, moist, loose to medium dense silty sand, with mica, rock fragments (SM)			D	1-1-0	1	16"	6" Topsoil
	USDA – Sandy Loam			D	2-7-5	2	10"	Groundwater encountered at 10.0' while drilling
			5	D	6-7-13	3	14"	Caved in at 12.0' at Completion
		9.5		D	10-7-8	4	12"	
	Tan, moist to wet, dense silty sand with mica (SM)		10	D	18-20-22	5	19"	
	Bottom of Test Hole at 16.3'	16.3	15	D	18-22-51/3"	6	14"	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 8.0 FT.; AFTER 24 hr 6.5 FT.; AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS – CARNES
ENGINEERING ASSOCIATES, INC.
Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name: Warfields Range SWM — Boring #: B-3
Location: Elkridge, Maryland — Job #: 99392A

SAMPLER
Datum: ___ — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman: Lamont Smith
Surf. Elev.: ___ — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector: ___
Date Started: 10-01-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed: 10-01-99

ELEV.	SOIL DESCRIPTION (Color,Moisture,Density,Size,Proportion)	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Reddish brown, moist, very loose silty sand, trace mica, rock fragments (SM)			D	1-0-1	1	11"	6" Topsoil
	USDA – SAndy Loam			D	2-2-2	2	16"	No groundwater encountered while drilling
	Tan to brown, moist, very loose to dense micaceous silty sand USDA – Sandy Loam	4.5	5	D	2-2-3	3	14"	Caved in at 11.5' at Completion
				D	4-5-8	4	12"	
			10	D	6-8-10	5	14"	
	Bottom of Test Hole at 16.5'	16.5	15	D	14-16-20	6	12"	
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION dry FT.; AFTER 24 hr dry FT.; AFTER ___ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

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project	date
98108	FEB. 2001
illustration	engineering
KR	KR
scale	approval
AS SHOWN	

no.	description (revisions)	date

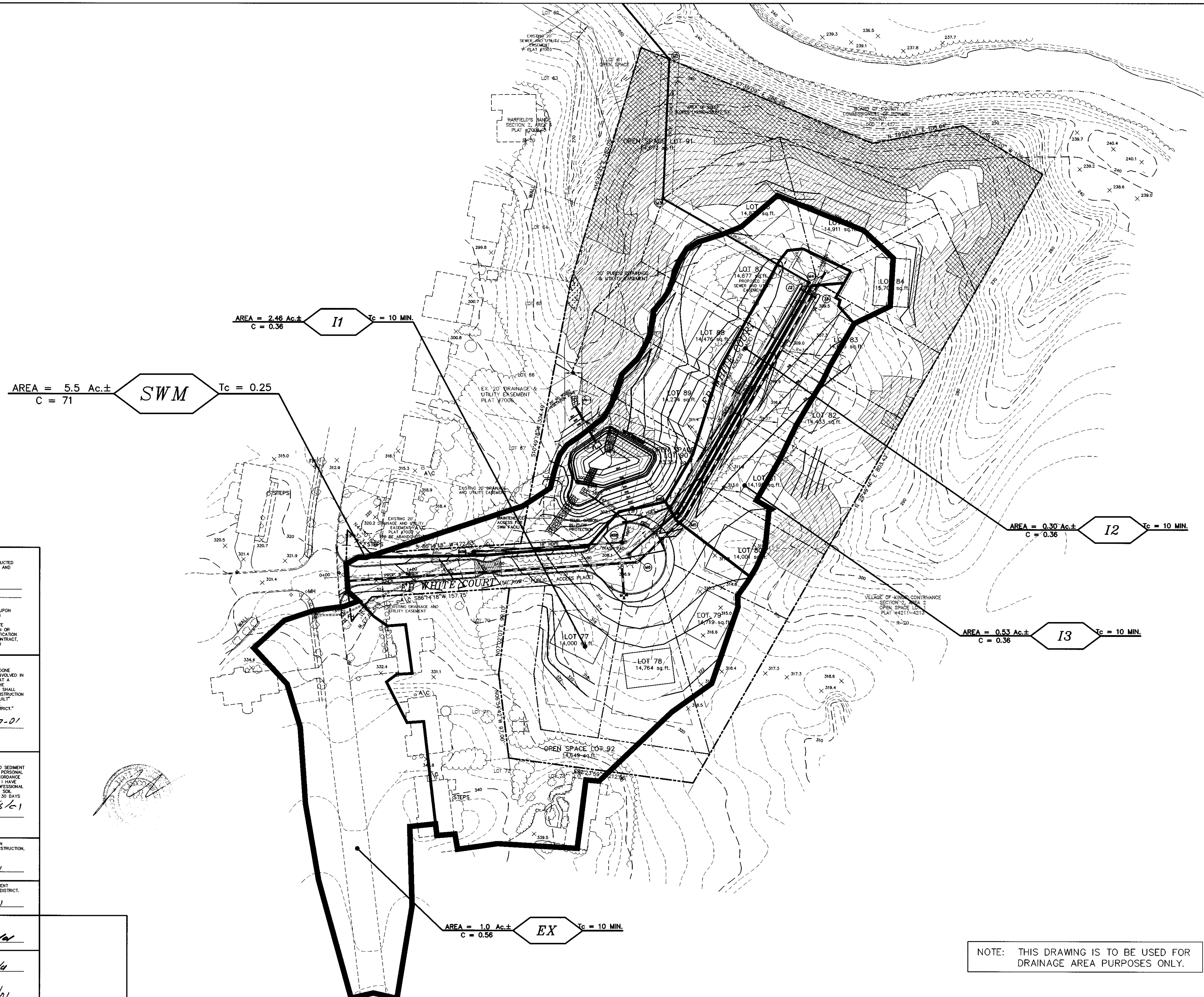
WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT NOTES AND SPECIFICATIONS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28



NOTE: THIS DRAWING IS TO BE USED FOR DRAINAGE AREA PURPOSES ONLY.

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.

______________________ P.E. NO.: ____________

SIGNATURE DATE: ____________

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L Newburn 7-17-01

SIGNATURE OF DEVELOPER DATE

James L. Newburn

PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

6/28/01

SIGNATURE OF ENGINEER DATE

R. JACOB HIKMAT

PRINTED NAME OF ENGINEER

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.

Jim Myers / CS. 8/9/01

USDA – NATURAL RESOURCES CONSERVATION SERVICE DATE

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

8/9/01

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8/19/01

CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

Cindy Hamilton 8/27/01

CHIEF, DIVISION OF LAND DEVELOPMENT HB DATE

8/15/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

108-INLET

project	date
98108	JUNE 2001
illustration	engineering
	KR/FL
scale	approval
1"=50'	

no.	description revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4

TAX MAP 42 – P/O PARCEL 454 – BLOCK 19

SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.

Engineers Planners Surveyors

5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042

(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES					
LANDSCAPE TYPE	A (PERIMETER 1)	A (PERIMETER 2)	A (PERIMETER 3)	A (PERIMETER 4)	A (PERIMETER 5)	TOTAL
LINEAR FEET OF PERIMETER	584.58 LF	465.83 LF (EXCLUDES EASEMENT)	803.43 LF	212.86 LF	196.10 LF	2262.80 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 375 LF OF EXISTING VEGETATION	YES, 440.93 LF OF EXISTING VEGETATION	YES, 803.43 LF OF EXISTING VEGETATION	YES, 75 LF OF EXISTING VEGETATION	YES, 170 LF OF EXISTING VEGETATION	YES, 1864.36 LF OF EX. VEGETATION
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

PERIMETER EDGE	A	B	C	D	TOTAL
LINEAR FEET OF PERIMETER	80 LF	40 LF	80 LF	120 LF	320 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A	N/A	N/A	N/A	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	2 SHADE TREES 2 EVERGREEN TREES	1 SHADE TREES 1 EVERGREEN TREES	2 SHADE TREE 2 EVERGREEN TREES	2 SHADE TREES 3 EVERGREEN TREES	7 SHADE TREES 8 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES	2 SHADE TREES 2 EVERGREEN TREES 0 SUBSTITUTION TREES	1 SHADE TREES 1 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREE 2 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREES 3 EVERGREEN TREES 0 SUBSTITUTION TREES	7 SHADE TREES 8 EVERGREEN TREES 0 SUBSTITUTION TREES

LANDSCAPING REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
3		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
11		ACER SACCHARUM 'GREEN MOUNTAIN' OR EQUIVALENT	GREEN MOUNTAIN SUGAR MAPLE	2 1/2" – 3" CAL.
8		PINUS STROBUS OR EQUIVALENT	WHITE PINE	6' – 8' HT.
6		TAXUS MEDIA 'HICKSII' OR EQUIVALENT (TRASH PAD SCREENING)	HICKS YEW	2 1/2' – 3' HT.

TOTAL
28 TREES & SHRUBS (14 SHADE TREES, 8 EVERGREENS, AND 6 SHRUBS FOR TRASH PAD SCREENING)

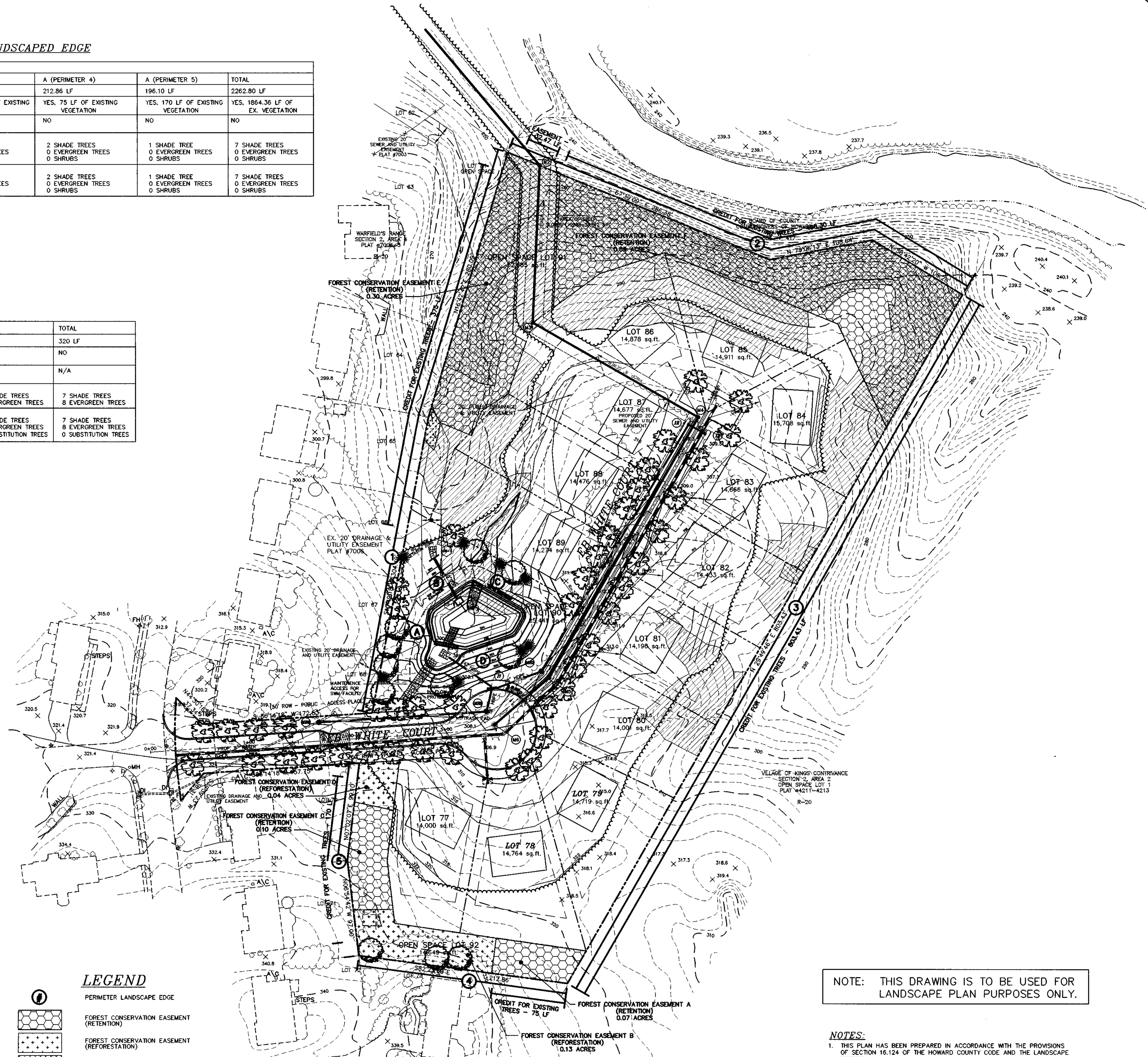
STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
41		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.

TOTAL
41 STREET TREES (20 PUBLIC, 21 PRIVATE)

STREET TREE CALCULATIONS
EB WHITE COURT (PUBLIC) – 786 / 40 = 20
EB WHITE COURT (PRIVATE) – 820 / 40 = 21
TOTAL TREES REQUIRED = 41 STREET TREES
TOTAL TREES PROVIDED = 41 STREET TREES

7/17/01



LEGEND

(#)	PERIMETER LANDSCAPE EDGE
	FOREST CONSERVATION EASEMENT (RETENTION)
	FOREST CONSERVATION EASEMENT (REFORESTATION)
	SLOPES 25% OR GREATER
	15% TO 25% SLOPES

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

NOTES:
1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR THE REQUIRED LANDSCAPE PLANTINGS (14 SHADE TREES, 8 EVERGREENS, 21 PRIVATE STREET TREES, AND 6 SHRUBS) IN THE AMOUNT OF $11,880.00.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/19/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

98108\dwg\final\roads\108-lp.dwg 7-16-01 9:20:37 am EST

project	date
98108	JUNE 2001
illustration	engineering
KR/SJD	SJD
scale	approval
1"=50'	

no.	description revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

NOTE: THIS PLAN IS TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY.

GENERAL NOTES

FOREST PROTECTION

1. ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING AND SIGHAGE AS INDICATED ON THE PLANS. THE DEVICES SHALL BE INSTALLED ALONG THE FOREST RETENTION BOUNDARY PRIOR TO ANY LAND CLEARING, GRUBBING, OR GRADING ACTIVITIES.
2. THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES.
3. ALL PROTECTION DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, INCLUDING SILT FENCE BEING USED AS PROTECTIVE FENCING. ALL DEVICES SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS CEASED IN THE IMMEDIATE VICINITY.
4. ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
5. INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-WATERING OPERATIONS, OFF-SITE RUN OFF, SPILLAGE AND DRAINING OF MATERIALS THAT MAY BE HARMFUL TO TREES.
6. THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN FOREST CONSERVATION EASEMENTS.
7. REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
8. THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS.
9. ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS, AS NECESSARY.

PRE-CONSTRUCTION MEETING

1. AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
   - A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
   - B. INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
   - C. MAKE ALL NECESSARY ADJUSTMENTS;
   - D. ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

1. THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.
2. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORIST.
3. THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

** FOR FOREST STAND DELINEATION, SEE REPORT PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. ON JANUARY 12, 1999.

NOTE :

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, SOIL COMPACTION, OR EXCAVATION, INTRODUCTION OF TOXIC CHEMICALS OR OTHER DISTURBANCES DETRIMENTAL TO THE LIVE SPECIMEN TREES OR CRITICAL ROOT ZONES FOR THESE TREES EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

PLANTING SPECIFICATIONS AND NOTES

SITE PREPARATION AND SOILS

1. PROTECTION FENCING AND SILT FENCES FOR SEDIMENT AND EROSION CONTROL ARE TO BE INSTALLED AS A FIRST ORDER OF BUSINESS. SEE PLAN FOR LOCATIONS.
2. DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT. AS SHOWN ON THE DETAIL VIEW, A PLANTING FIELD OF RADIUS = 5 X DIAMETER OF THE ROOT BALL OR CONTAINER IS RECOMMENDED.
3. SOIL MIX FOR ALL PLANTS EXCEPT ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME OF COMPOSTED SLUDGE.
4. SOIL MIX FOR ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME PEAT MOSS.
5. ALL MIXING IN 3 AND 4 SHALL BE LIMITED TO CONTAINER GROWN OR BALL AND BURLAP STOCK ONLY AND CONFINED TO THE PLANTING FIELD AND IMMEDIATE ADJACENT SOIL SURFACE AREA AND SHALL BE DONE TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANT STORAGE AND INSPECTION

1. FOR CONTAINER GROWN NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN 2 WEEKS AFTER DELIVERY TO THE SITE.
2. FOR BALL AND BURLAP NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN THREE DAYS AFTER DELIVERY TO THE SITE.
3. PLANTING STOCK SHOULD BE INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS AND DISEASE SHOULD BE REPLACED.
4. UNTIL PLANTED, ALL PLANT STOCK SHALL BE KEPT IN A SHADED, COOL, AND MOISTENED ENVIRONMENT .

PLANT INSTALLATION

1. THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED (SEE DETAIL). NATIVE STOCKPILED SOILS SHOULD BE USED FOR SOIL MIX AND BACKFILL FOR PLANTING FIELD. AFTER PLANT INSTALLATION, RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH AT LEAST 4 INCHES OF MULCH. WATER, GENEROUSLY, TO SETTLE SOIL BACKFILLED AROUND TREES.
2. PLANTING FIELD DIAMETERS SHOULD BE REDUCED OR PLANTING FIELD MOVED IF IT APPEARS THAT EXCESSIVE EXISTING ROOT DAMAGE MAY OCCUR DURING DIGGING OPERATION NEAR EXISTING FOREST.
3. CARE SHALL BE TAKEN WHEN DIGGING PLANTING FIELDS NOT TO CHOP THRU LARGER EXISTING ROOTS FROM EXISTING MATURE TREES. IF ROOTS GREATER THAN 1/2 INCH ARE ENCOUNTERED PLEASE TRY TO DIG AROUND THEM AS MUCH AS POSSIBLE TO MINIMIZE IMPACT TO EXISTING TREES. THEY WERE HERE FIRST.
4. CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENCIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
5. FOR BALL AND BURLAP STOCK, PLACE TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL. THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
6. FOR TREES PLANTED IN THE AFFORESTATION AREA, CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) TO FOUR (4), PER SPECIES, OVER THE ENTIRE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED ON PLANT LIST.
7. AVOID PLANTING IN A STRAIGHT GRID PATTERN. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED ON PLANT LISTS TO OBTAIN A MORE NATURAL APPEARANCE.
8. NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE WELL DRAINED NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONTHS. AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.

FERTILIZING

1. DO NOT FERTILIZE NEWLY PLANTED TREES WITHIN THE FIRST GROWING SEASON AFTER PLANTING. DOING SO MAY CAUSE A SPURT OF CANOPY GROWTH WHICH THE ROOTS CANNOT SUPPORT AND ADD ADDITIONAL SHOCK TO THE ALREADY DISTURBED PLANT.
2. NOTHING SHOULD BE ADDED TO THE SOIL WITHOUT TESTING IT FIRST TO DETERMINE ITS NEEDS.
3. IF AND WHEN IT IS TIME TO FERTILIZE, ORGANIC FERTILIZERS ARE PREFERRED TO SYNTHETIC FERTILIZERS. BONE MEAL OR SEAWEED BASED PRODUCTS ARE AVAILABLE COMMERCIALLY AND ARE RECOMMENDED. THEY HAVE THE ABILITY TO SUPPLY NUTRIENTS TO THE PLANT AS NEEDED WHILE MINIMIZING THE RISK OF EXCESS NUTRIENTS ENTERING THE FOREST SYSTEM AND WATER SUPPLY.

MAINTENANCE SCHEDULE

1. ANNUAL MAINTENANCE DURING THE GROWING SEASON, FOR A THREE YEAR PERIOD.
2. ASSESS TREE MORTALITY OF PLANTING STOCK, REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTINGS.
3. VOLUNTEER SEEDING OF NATIVE, LOCAL AND ENDEMIC VEGETATION IS TO BE EXPECTED. DO NOT DISCOURAGE THIS EFFORT UNLESS IT IS NEGATIVELY EFFECTING THE PLANTED STOCK.
4. REMOVE THROUGH MANUAL MEANS (GRUBBING, PULLING, CUTTING) AGGRESSIVE, NOXIOUS, INVASIVE SPECIES AND ALL HERBACEOUS VEGETATION WITHIN A 3-FOOT RADIUS SURROUNDING THE PLANTED WOODY NURSERY STOCK.
5. REMOVE AND DISPOSE OF MAN-MADE TRASH, INCLUDING ITEMS CONTAINED WITHIN ENTIRE PLANTING AREA. DO NOT REMOVE DOWN AND DEAD MATERIAL NATURALLY OCCURRING OR ACCUMULATING, UNLESS IT IS SMOTHERING PLANTING STOCK.
6. A 75 PERCENT SURVIVAL OF PLANTED STOCK MUST BE ACHIEVED AT THE END OF THE 24 MONTH MANAGEMENT PERIOD. IF NOT, ADDITIONAL PLANTINGS MAY BE REQUIRED TO ACHIEVE THIS GOAL.

SUPERVISION

ALL FOREST CONSERVATION ACTIVITIES SHALL BY DONE UNDER THE DIRECT SUPERVISION OF SOMEONE FROM THE DESIGN TEAM OR OTHER "QUALIFIED PROFESSIONAL" AS DETERMINED BY THE REQUIREMENTS OF COMAR 08.19.06.01 AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, PUBLIC LANDS AND FORESTRY DIVISION.

FOREST CONSERVATION DATA

	ACRES
I. BASIC SITE DATA	
GROSS SITE AREA	7.00
AREA WITHIN 100 YEAR FLOODPLAIN	0.00
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	0.00
NET TRACT AREA	7.00
LAND USE CATEGORY RESIDENTIAL – SUBURBAN	
II. FOREST CONSERVATION WORKSHEET DATA SUMMARY	
B. REFORESTATION THRESHOLD (20%)	1.40
C. AFFORESTATION MINIMUM (15%)	1.05
D. EXISTING FOREST ON NET TRACT AREA	5.80
E. FOREST AREAS TO BE CLEARED	4.64
F. FOREST AREAS TO BE RETAINED	1.16
IV, REFORESTATION CALCULATIONS	
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD	4.40
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD	0.24
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD	0.00
REFORESTATION FOR CLEARING ABOVE THRESHOLD	1.10
REFORESTATION FOR CLEARING BELOW THE THRESHOLD	0.48
TOTAL REFORESTATION REQUIRED	1.58
TOTAL REFORESTATION PROVIDED	0.17
TOTAL CREDITS PURCHASED AT FOREST MITIGATION BANK	1.41

NOTE:

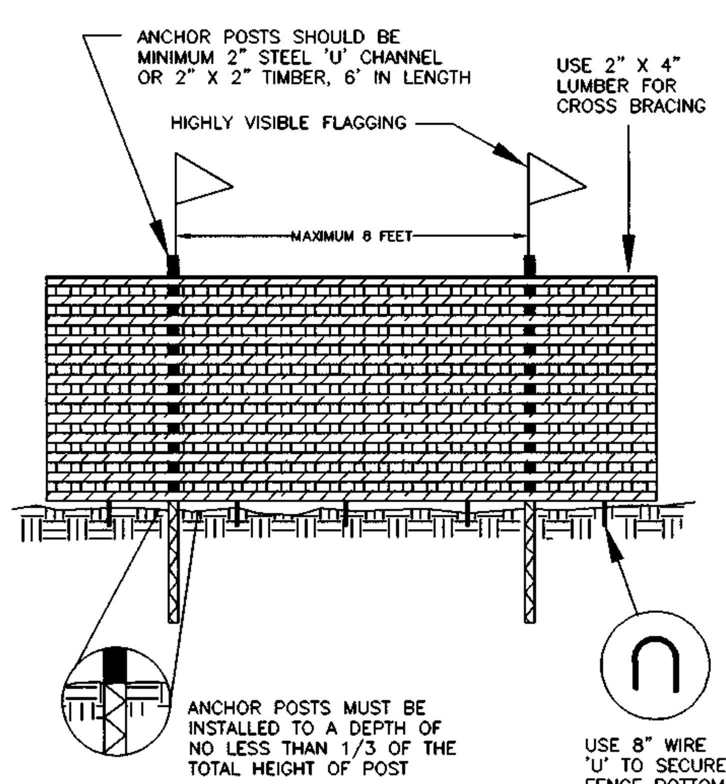
1. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 1.16 ACRES (50,529.6 SQ. FT. AT $10,105.92), REFORESTATION IN THE AMOUNT OF 0.17 ACRES (7,405.2 SQ. FT. AT $3,702.60), AND BY THE PURCHASE OF CREDITS EQUAL TO 1.41 ACRES AT THE FOREST MITIGATION BANK LOCATED ON WINKLER PROPERTY. FOREST CONSERVATION SURETY IN THE AMOUNT OF $13,808.52 FOR RETENTION AND REFORESTATION HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
2. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

LEGEND

- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- ▲ FOREST CONSERVATION SIGNAGE
- — TPF — FOREST CONSERVATION SIGNAGE
- SLOPES 25% OR GREATER
- 15% TO 25% SLOPES
- 15% TO 25% SLOPES

PROTECTIVE FENCE DETAIL

BLAZE ORANGE PLASTIC MESH



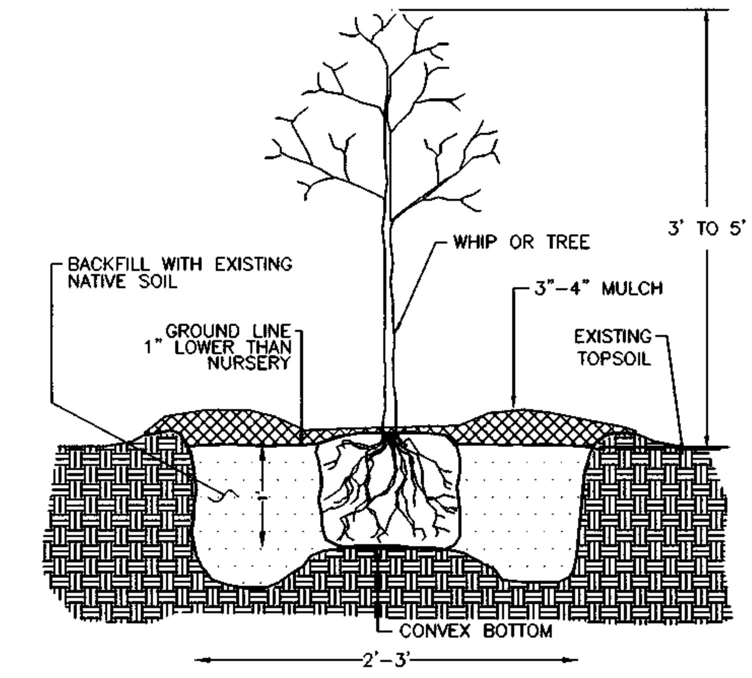
NOTES
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

REFORESTATION PLANT LISTS

QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
36	Acer rubrum Red Maple	VT	D–W	FAC	11'	CONT/B & B 1" CALIPER
45	Cornus florida Flowering Dogwood	VT	D–M	FACU–	11'	CONT/B & B 3'–5' HEIGHT
36	Fagus grandiflolia American Beech	VT	M	FACU	11'	CONT/B & B 1" CALIPER
36	Nyssa sylvatica Black Gum	T	M–W	FAC	11'	CONT/B & B 1" CALIPER
45	Prunus serotina Wild Black Cherry	I	M	FACU	11'	CONT/B & B 3'–5' HEIGHT
36	Quercus rubra Red Oak	MT	D–M	UPL	11'	CONT/B & B 1" CALIPER

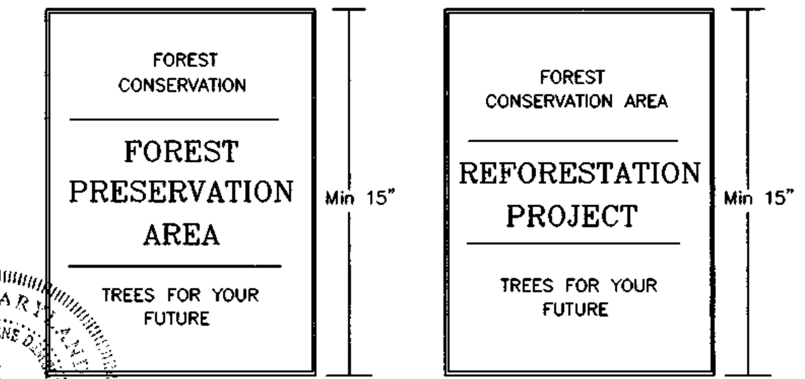
TOTAL
234 TREES

NOTE : WHIPS OR SEEDLINGS MAY BE SUBSTITUTED FOR THE 1" CALIPER OR 3' – 5' TREES. IF WHIPS OR SEEDLINGS ARE TO BE USED, MULTIPLY THE QUANTITIES BY 3.5 TO DETERMINE THE NUMBER OF TREES REQUIRED.



TREE PLANTING DETAIL

CONTAINER GROWN



SIGNAGE DETAIL

NOT TO SCALE

MD DNR QUALIFIED PROFESSIONAL

STEPHANIE DEMCHIK, RLA #3038 7/17/01

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

98108\dwg\final\roads\108-fcp.dwg 7-16-01 8:43:54 am EST

project	date
98108	JUNE 2001
illustration	engineering
KR/SJD	SJD/KR
scale	approval
1"=50'	

no.	description	date
	revisions	

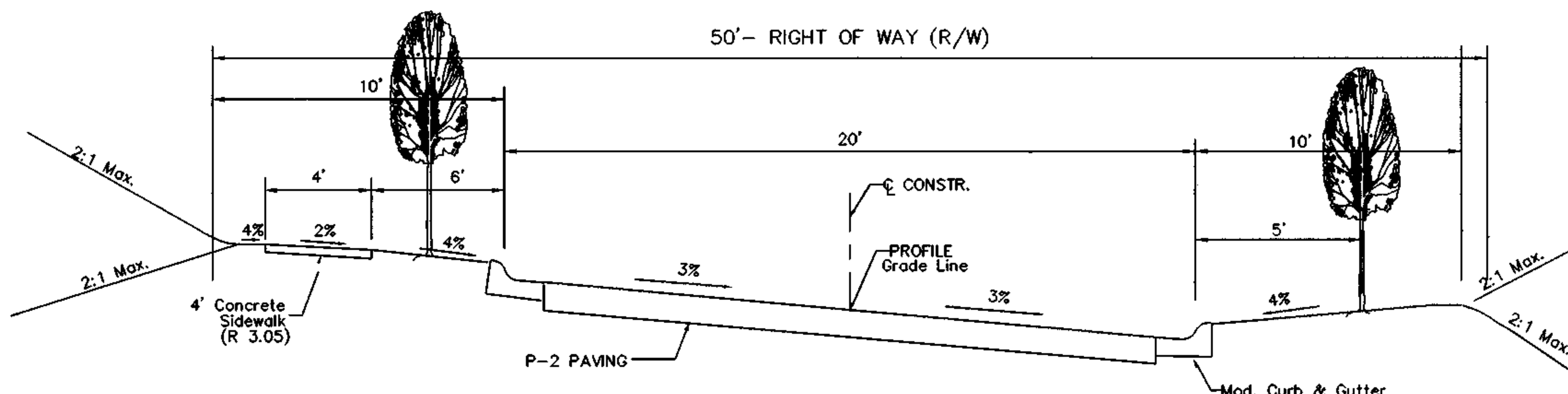
WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDUVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FOREST CONSERVATION PLAN

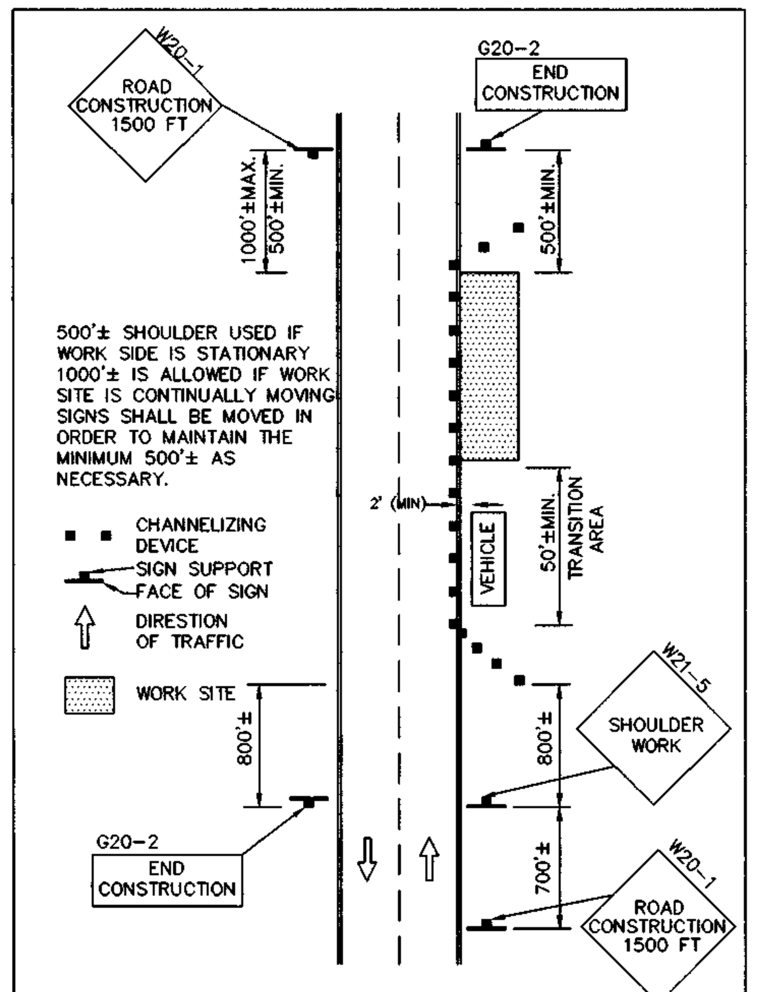
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

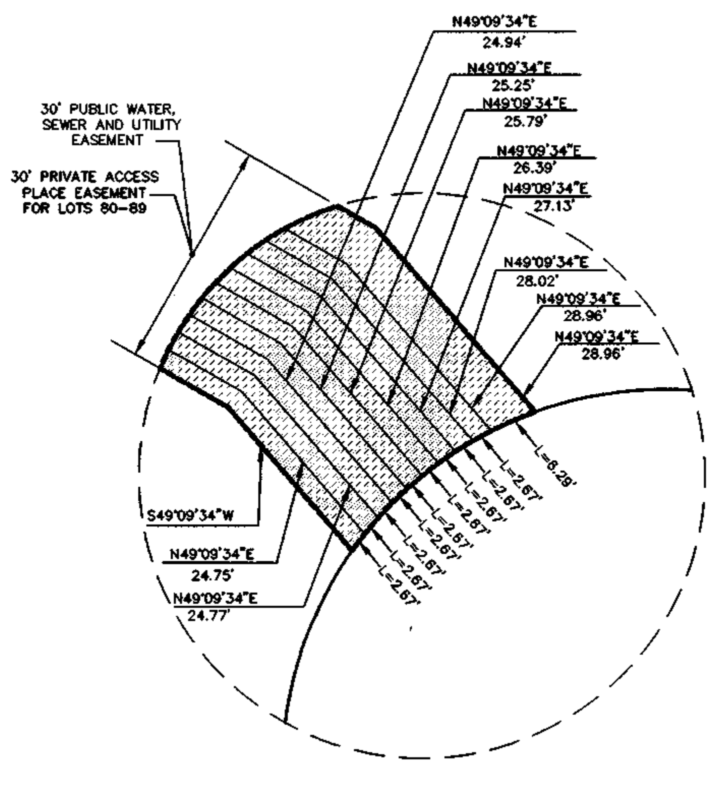


EB WHITE COURT
ROAD SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
NOT TO SCALE



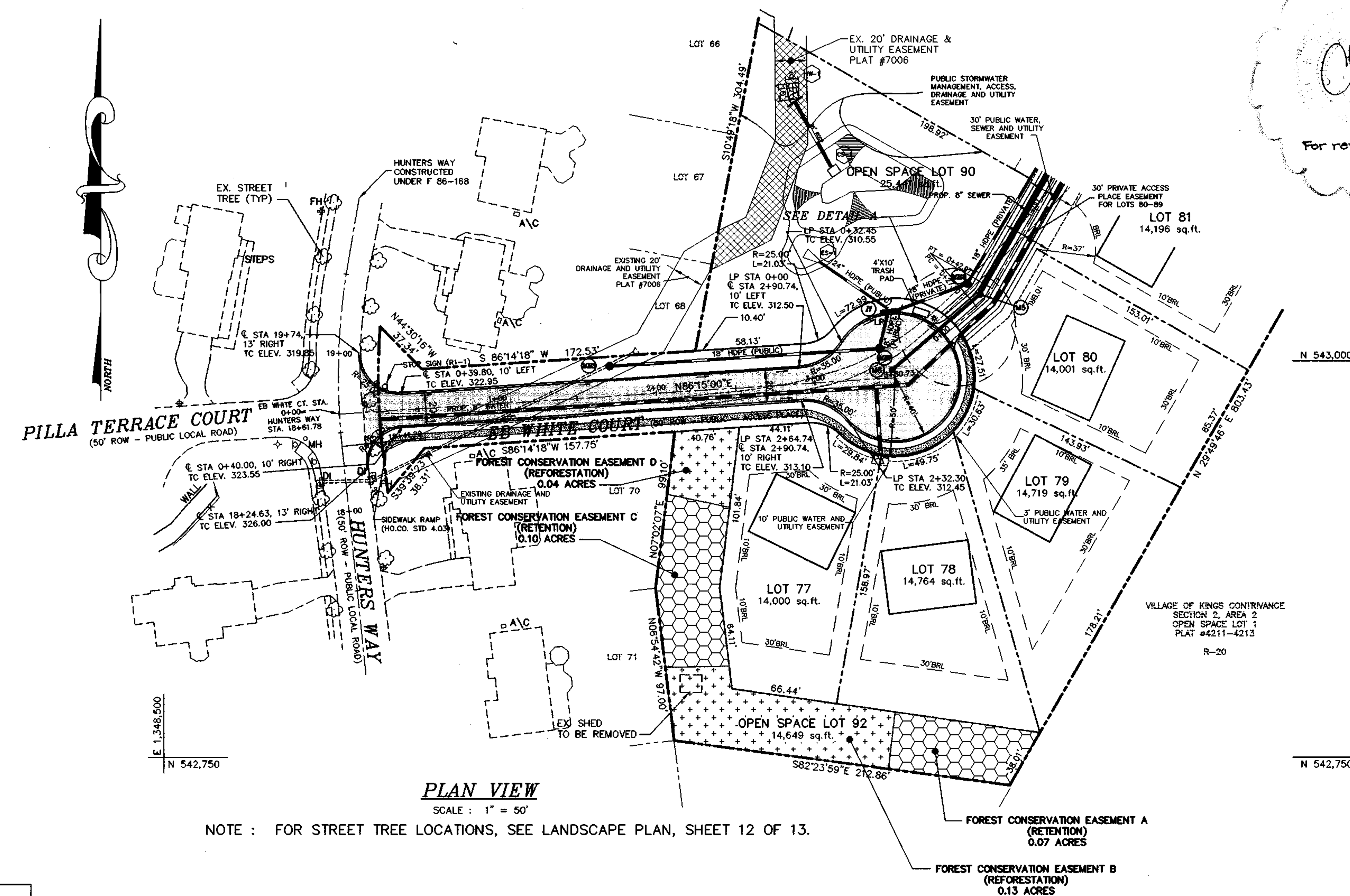
WORK ZONE TRAFFIC CONTROL PLAN
HOWARD COUNTY STANDARD TE-11



DETAIL A
SCALE: 1"=20'

STREET LIGHT SCHEDULE		
✻	~~EB WHITE COURT PUBLIC ACCESS PLACE STATION 1+00, 12.0' RIGHT~~	~~100 WATT HPS VAPOR COLONIAL POST TOP FIXTURE MOUNTED ON A 14' FIBERGLASS POLE~~
✻	EB WHITE COURT PRIVATE ACCESS PLACE STATION 0+3.00, 12' LEFT	100 WATT HPS VAPOR COLONIAL POST TOP FIXTURE MOUNTED ON A 14' FIBERGLASS POLE

2

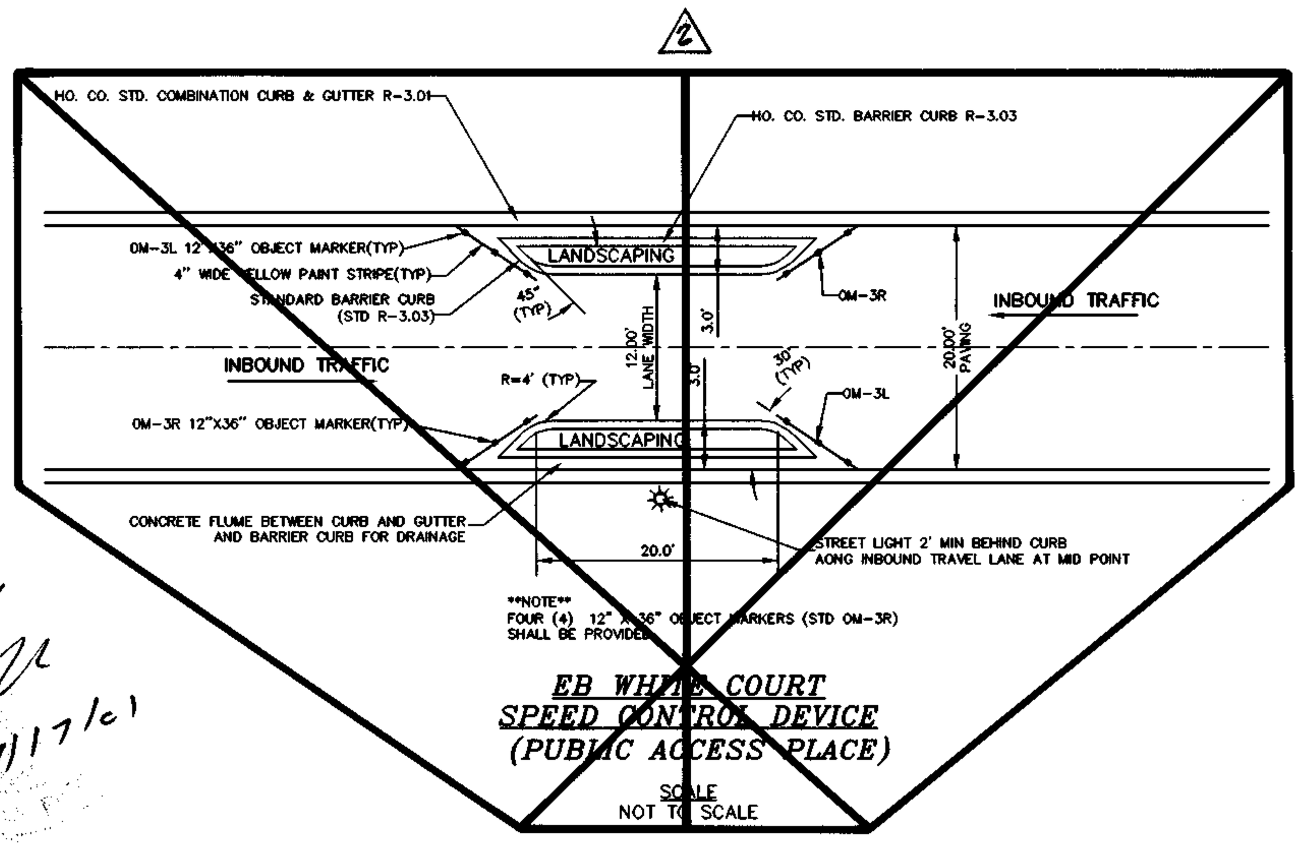


PLAN VIEW
SCALE : 1" = 50'

NOTE : FOR STREET TREE LOCATIONS, SEE LANDSCAPE PLAN, SHEET 12 OF 13.

NOTE:
DENOTES EXISTING 20' DRAINAGE AND UTILITY EASEMENT PLAT #7006

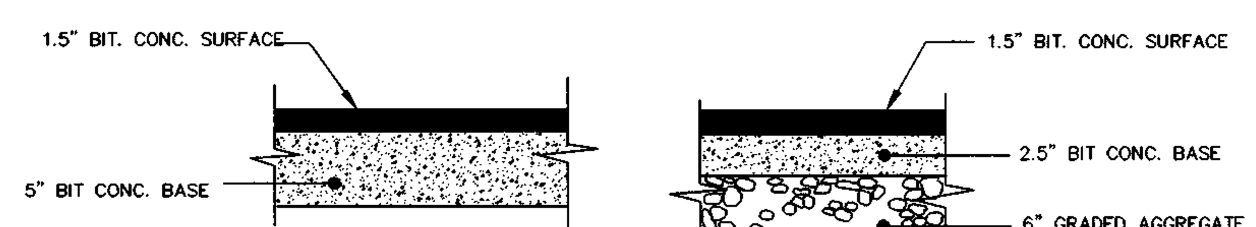
2



~~EB WHITE COURT~~
~~SPEED CONTROL DEVICE~~
~~(PUBLIC ACCESS PLACE)~~

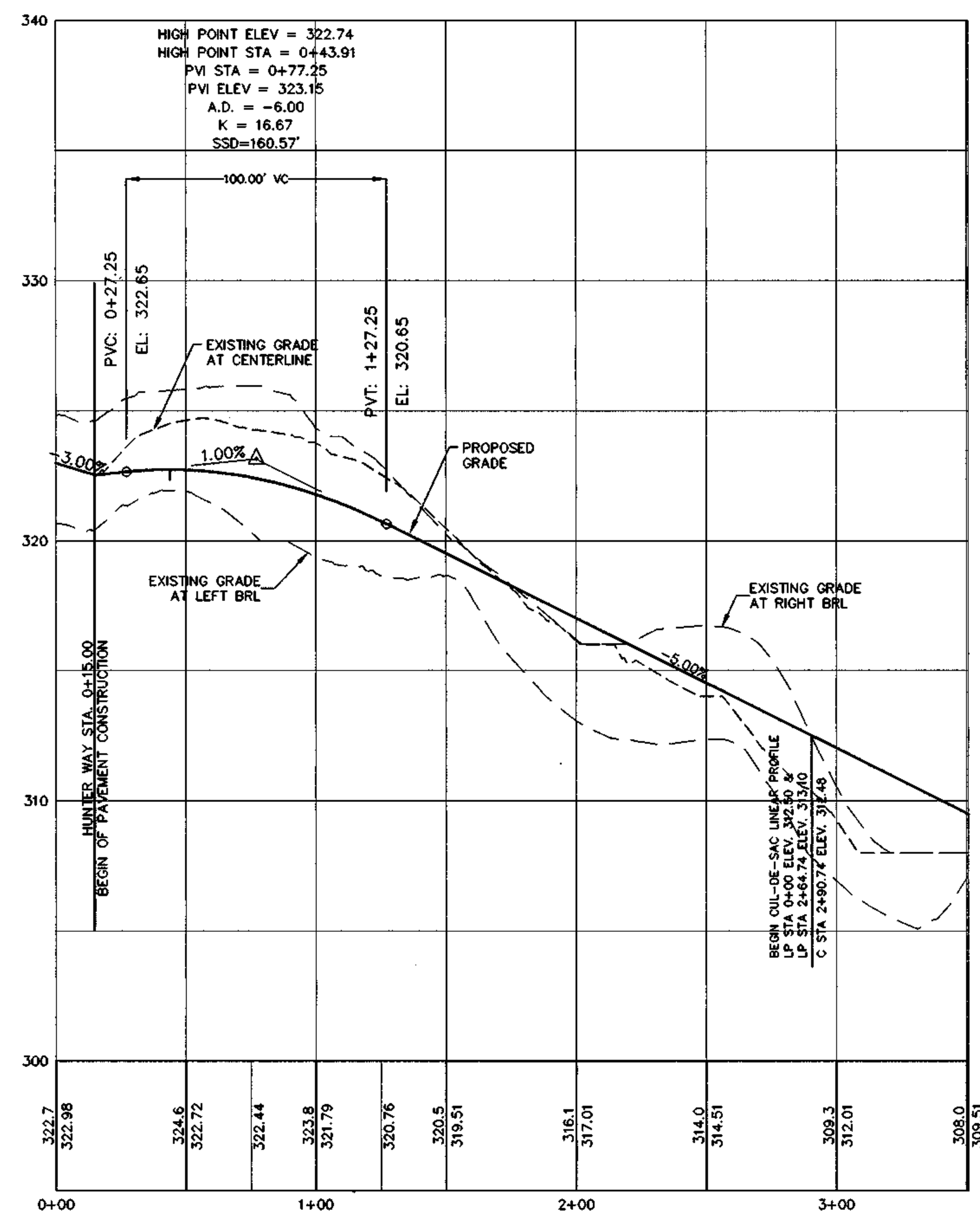
SCALE
NOT TO SCALE

7/17/01



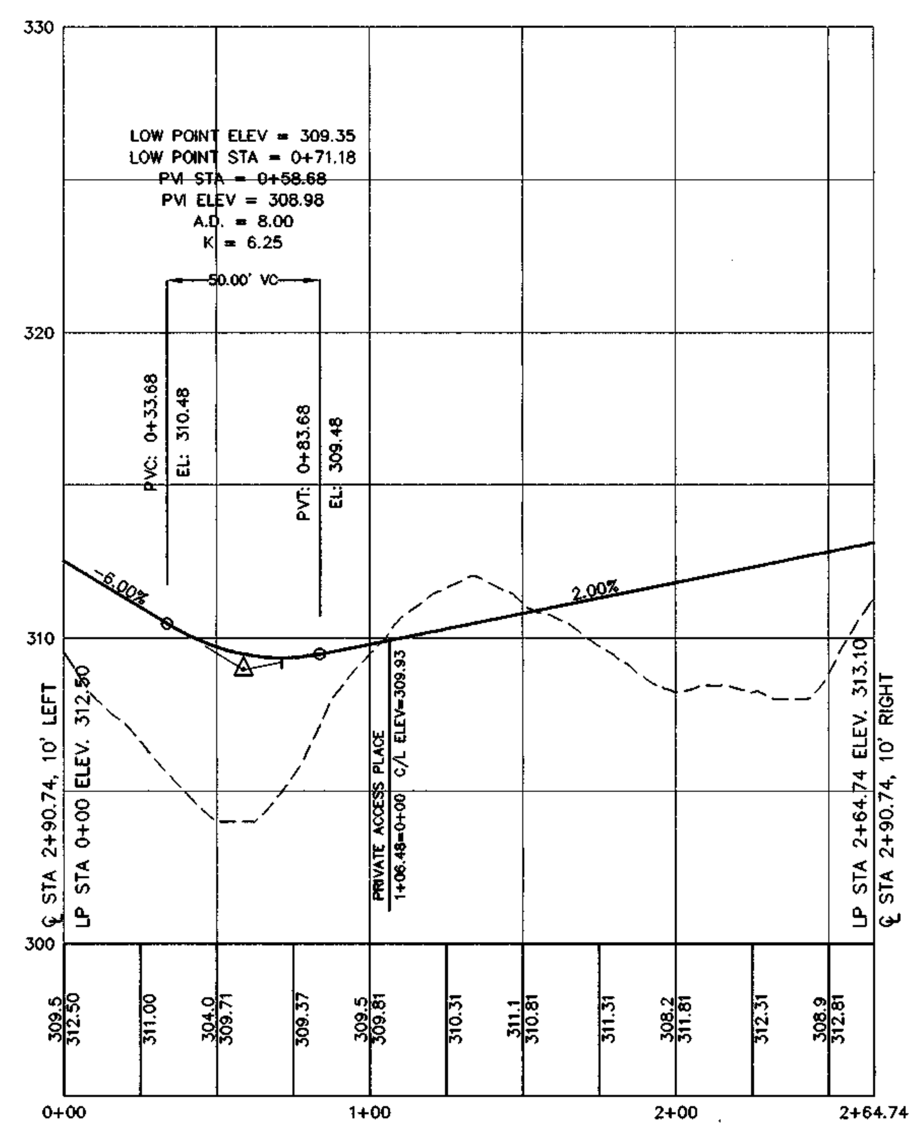
PAVING SECTION P-2

SCALE
NOT TO SCALE



EB WHITE COURT
ROAD PROFILE
CLASSIFICATION: PUBLIC ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL



EB WHITE COURT
CUL-DE-SAC PROFILE
CLASSIFICATION: PUBLIC ACCESS PLACE

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

98108\dwg\final\roads\108-road-profiles

For rev. # 2 2-18-02

project	date
98108	JULY 2001
illustration	engineering
KR/SJD	SJD
scale	approval
AS SHOWN	

no.	description	date
2	REMOVED STREET LIGHT @ STA. 1+00 & REMOVED SPEED CONTROL DEVICE FROM EB WHITE CT. STA. 1+57 (PUBLIC)	FCC 2/18/02

revisions

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDUVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROAD PLAN AND PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
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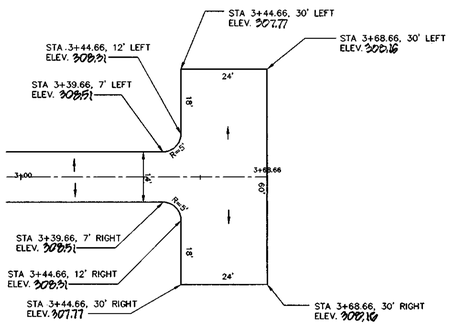
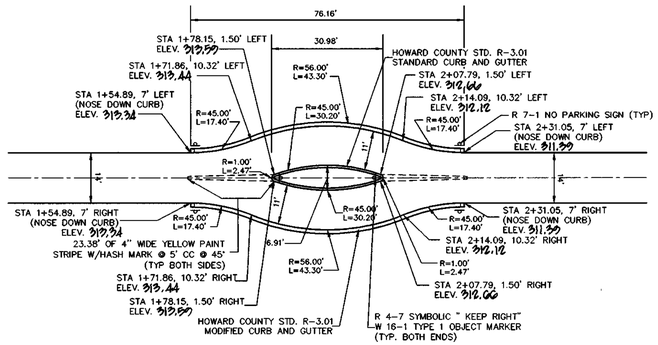
F 01-28



EB WHITE COURT
TEE TURN-AROUND DETAIL
(PRIVATE ACCESS PLACE)

SCALE : 1" = 20'

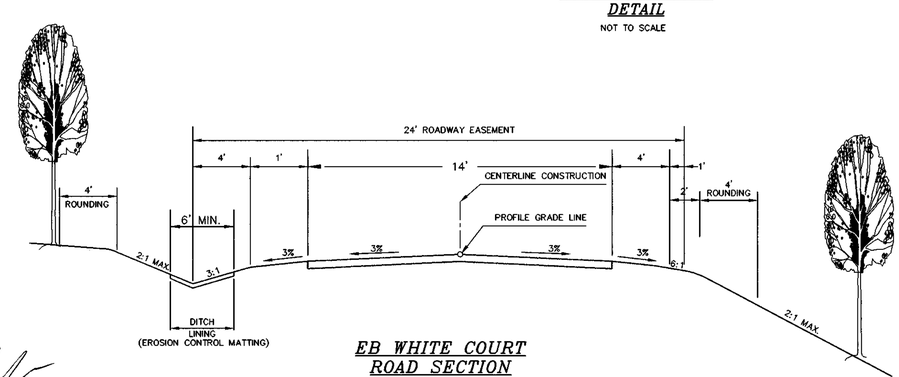


EB WHITE COURT
CENTRAL MEDIAN ISLAND DETAIL
(PRIVATE ACCESS PLACE)

SCALE : 1" = 20'

NOSE DOWN CURB
DETAIL

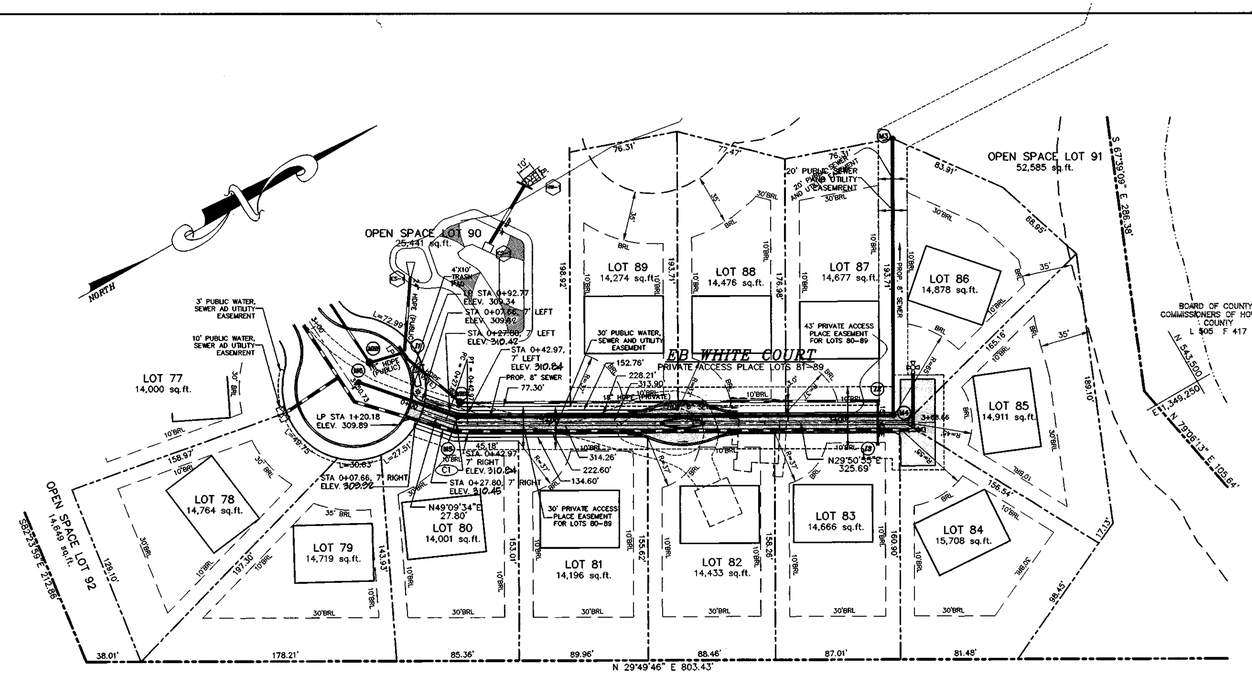
NOT TO SCALE



EB WHITE COURT
ROAD SECTION
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 15 MPH
VERTICAL DESIGN SPEED: 15 MPH

SCALE
NOT TO SCALE

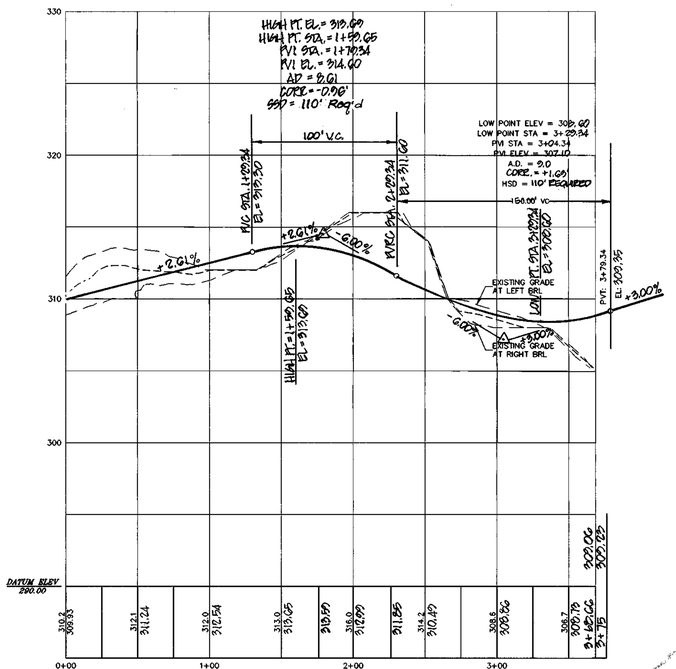
7/17/01



PLAN VIEW

SCALE : 1" = 50'

NOTE : FOR STREET TREE LOCATIONS, SEE LANDSCAPE PLAN, SHEET 12 OF 13.



EB WHITE COURT
ROAD PROFILE
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 15 MPH
VERTICAL DESIGN SPEED: 15 MPH

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

FOR REV. #1 - 11-29-01

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	DELTA	CHORD
C1	45.00'	15.17'	7.66'	19°18'39"	N39°30'14"E 15.09'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

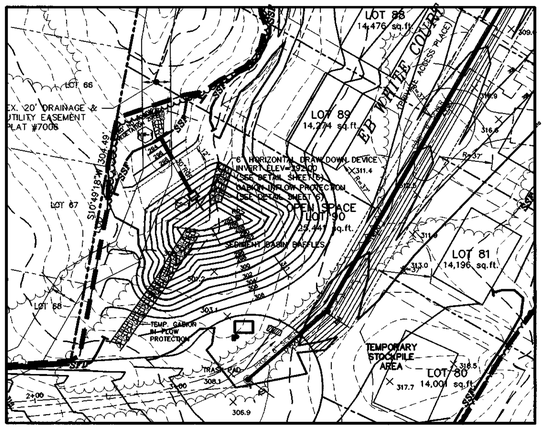
98108\dwg\final\roads\08-ROAD-PROFILES2

project 98108 | date JULY 2001
illustration KR/SJD | engineering SJD
scale AS SHOWN | approval

no.	description / revisions	date
1	RAMP ROAD A OF EB WHITE COURT PERMAN STA. 0+00 & 2+70.34 (P.I.)	11-29-01

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

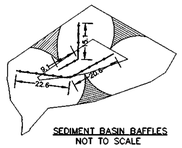


SEDIMENT BASIN DETAIL

SCALE : 1" = 50'

SEDIMENT BASIN # 1

MAX. DRAINAGE AREA:	5.5 AC
TOP OF EMBANKMENT:	300.00
WEIR CREST EL:	296.30
BOTTOM OF BASIN:	284.00
WET STORAGE REQUIRED:	9,900
WET STORAGE PROVIDED:	10,725 C.F. (AT ELEV. 292.00)
DRY STORAGE REQUIRED:	9,900 C.F.
DRY STORAGE PROVIDED:	27,600 C.F. (AT ELEV. 296.30)
CREST LENGTH = 6.5'	
Q2 PRE = 4.3 CFS	
Q2 POST = 1.7 CFS	



SEDIMENT BASIN BAFFLES
NOT TO SCALE

NOTE

FOR DETAILS OF STORMWATER MANAGEMENT FACILITY SEE SHEET 8

FOR REV. # 1 11-29-01

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.

P.E. NO.: _____

SIGNATURE _____ DATE: _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L. Newburn 7-17-01

SIGNATURE OF DEVELOPER DATE

James L. Newburn

PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

7/17/01

SIGNATURE OF ENGINEER DATE

K. A. Hikmat

PRINTED NAME OF ENGINEER

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.

8/9/01

USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

8/9/01

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8/10/01

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

8/24/01

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

8/15/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

108-grade

project	date
98108	JULY 2001
illustration	engineering
KR	KR/MMP
scale	approval
1"=50'	

no.	description	date
1	REVISED GRADING & LOCATION OF SHT. 8 LOT MARKERS IMPOSED BY PLANNING & ZONING	11-29-01
	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4

TAX MAP 42 - P/O PARCEL 454 - BLOCK 19

SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

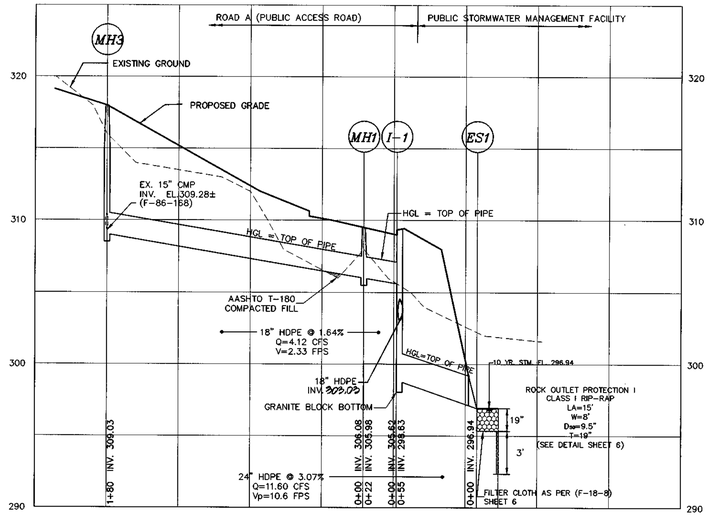
GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.

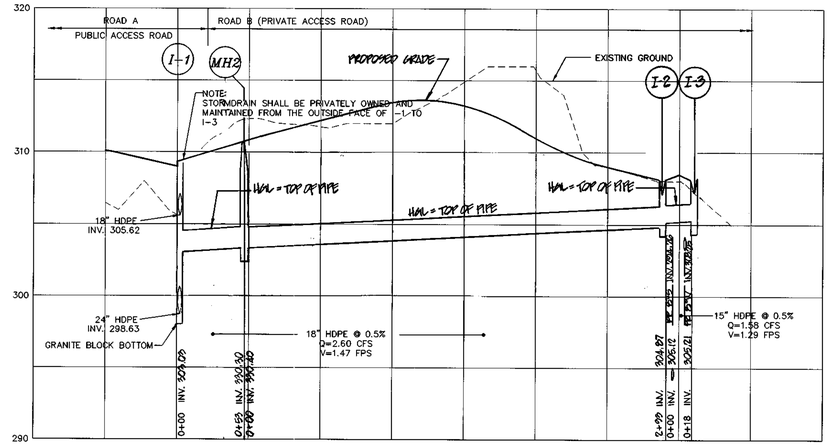
Engineers Planners Surveyors

5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042

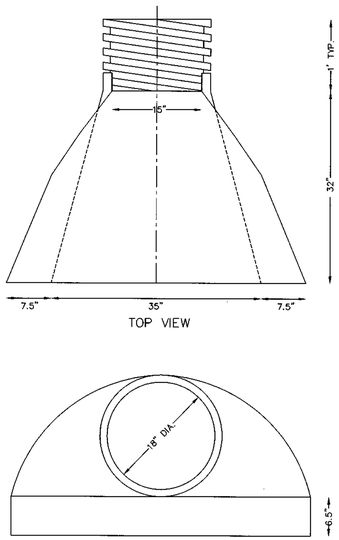
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.



STORM DRAIN PROFILE – MH3 TO ES1
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'

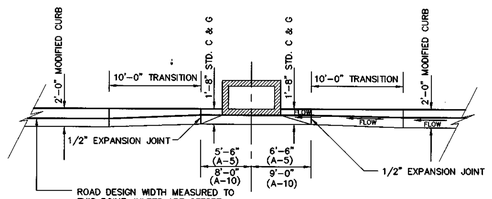


STORM DRAIN PROFILE – I3 TO I1
HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



INSTALLATION INSTRUCTIONS

1. SPREAD THE END SECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.
2. INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
3. PLACE BACKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.

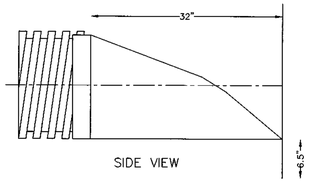


CURB TRANSITION – INLETS
NTS

STRUCTURE SCHEDULE

NO.	LOCATION*	TOP**	INV. IN	INV. OUT	COMMENTS
I-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+48.86 – 40.88' LEFT	309.03	305.62 309.03	298.63	INLET TYPE A-10 (HO. CO. STD SD 4.02) – PUBLIC
I-2	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 3+29.34 – 5' LEFT	308.39	305.12	304.87	INLET TYPE K (HO. CO. STD SD 4.12) – PRIVATE
I-3	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 3+29.34 – 5' RIGHT	308.39	-----	305.21	INLET TYPE K (HO. CO. STD SD 4.12) – PRIVATE
MH-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+42 – 18.9' LEFT	309.50	306.08	305.98	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PUBLIC
MH-2	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 0+35.39 – 14.57' LEFT	310.34	309.40	309.30	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PRIVATE
MH-3	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 1+72 – 18.9' LEFT	318.00	309.28±	309.03	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PUBLIC
ES-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+07.72 – 76.00' LEFT	-----	-----	296.94	24" ø HDPE END SECTION (SEE DETAIL) – PUBLIC

* LOCATIONS SHOWN ARE AT L OF INLET AT FACE OF CURB
** ELEVATIONS MEASURED TO CENTER OF ALL INLETS
** ALL "A" TYPE STRUCTURES ARE 2.5' WIDE UNLESS OTHERWISE NOTED



18" HDPE END SECTION
(PART NO. 1810 NP)
NOT TO SCALE

PIPE SCHEDULE

	SIZE	LENGTH
PRIVATE	15" HDPE	18'
	18" HDPE	350'
PUBLIC	24" HDPE	55'
	18" HDPE	202'

6/28/01

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/21/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

FOR REV. #1 11-29-01

109-STORMDRAIN

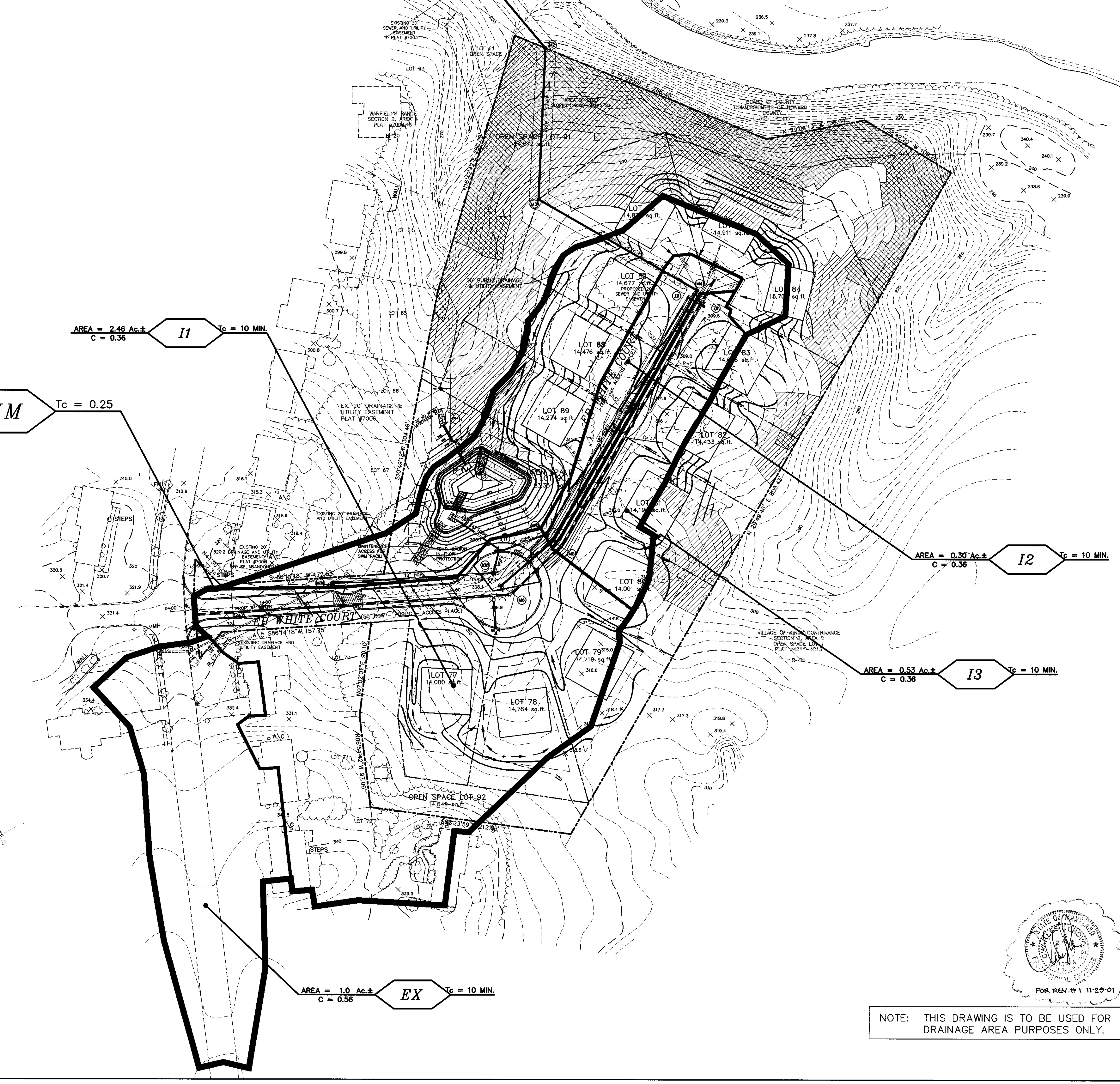
project 98108 | date JUNE 2001
illustration | engineering FL/KR
scale 1"=50' | approval

no.	description	date
1	REVISED 15" & 18" HDPE BETWEEN MH2 & I-2, I-2 & I-3	11-09-01

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
STORMDRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28



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 ______ P.E. NO.: ______ DATE: ______

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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] 7-17-01
SIGNATURE OF DEVELOPER — DATE
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 6/28/01
SIGNATURE OF ENGINEER — DATE
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

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] 8/9/01
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] 8/9/01
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 8/14/01
CHIEF BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

[signature] 8/24/01
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE

[signature] 8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

108-INLET

NOTE: THIS DRAWING IS TO BE USED FOR DRAINAGE AREA PURPOSES ONLY.

project	date
98108	JUNE 2001
illustration	engineering
	KR/FL
scale	approval
1"=50'	

no.	description	date
1	REVISED GRADING	11-20-01
	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4

TAX MAP 42 – P/O PARCEL 454 – BLOCK 19

SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES					
LANDSCAPE TYPE	A (PERIMETER 1)	A (PERIMETER 2)	A (PERIMETER 3)	A (PERIMETER 4)	A (PERIMETER 5)	TOTAL
LINEAR FEET OF PERIMETER	584.58 LF	465.83 LF (EXCLUDES EASEMENT)	803.43 LF	212.86 LF	196.10 LF	2262.80 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 375 LF OF EXISTING VEGETATION	YES, 440.93 LF OF EXISTING VEGETATION	YES, 803.43 LF OF EXISTING VEGETATION	YES, 75 LF OF EXISTING VEGETATION	YES, 170 LF OF EXISTING VEGETATION	YES, 1864.36 LF OF EX. VEGETATION
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

PERIMETER EDGE	A	B	C	D	TOTAL
LINEAR FEET OF PERIMETER	80 LF	40 LF	80 LF	120 LF	320 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A	N/A	N/A	N/A	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	2 SHADE TREES 2 EVERGREEN TREES	1 SHADE TREES 1 EVERGREEN TREES	2 SHADE TREE 2 EVERGREEN TREES	2 SHADE TREES 3 EVERGREEN TREES	7 SHADE TREES 8 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES	2 SHADE TREES 2 EVERGREEN TREES 0 SUBSTITUTION TREES	1 SHADE TREES 1 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREE 2 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREES 3 EVERGREEN TREES 0 SUBSTITUTION TREES	7 SHADE TREES 8 EVERGREEN TREES 0 SUBSTITUTION TREES

LANDSCAPING REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
3		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
11		ACER SACCHARUM 'GREEN MOUNTAIN' OR EQUIVALENT	GREEN MOUNTAIN SUGAR MAPLE	2 1/2" – 3" CAL.
8		PINUS STROBUS OR EQUIVALENT	WHITE PINE	6' – 8' HT.
6		TAXUS MEDIA 'HICKSII' OR EQUIVALENT (TRASH PAD SCREENING)	HICKS YEW	2 1/2" – 3' HT.

TOTAL
28 TREES & SHRUBS (14 SHADE TREES, 8 EVERGREENS, AND 6 SHRUBS FOR TRASH PAD SCREENING)

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
41		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.

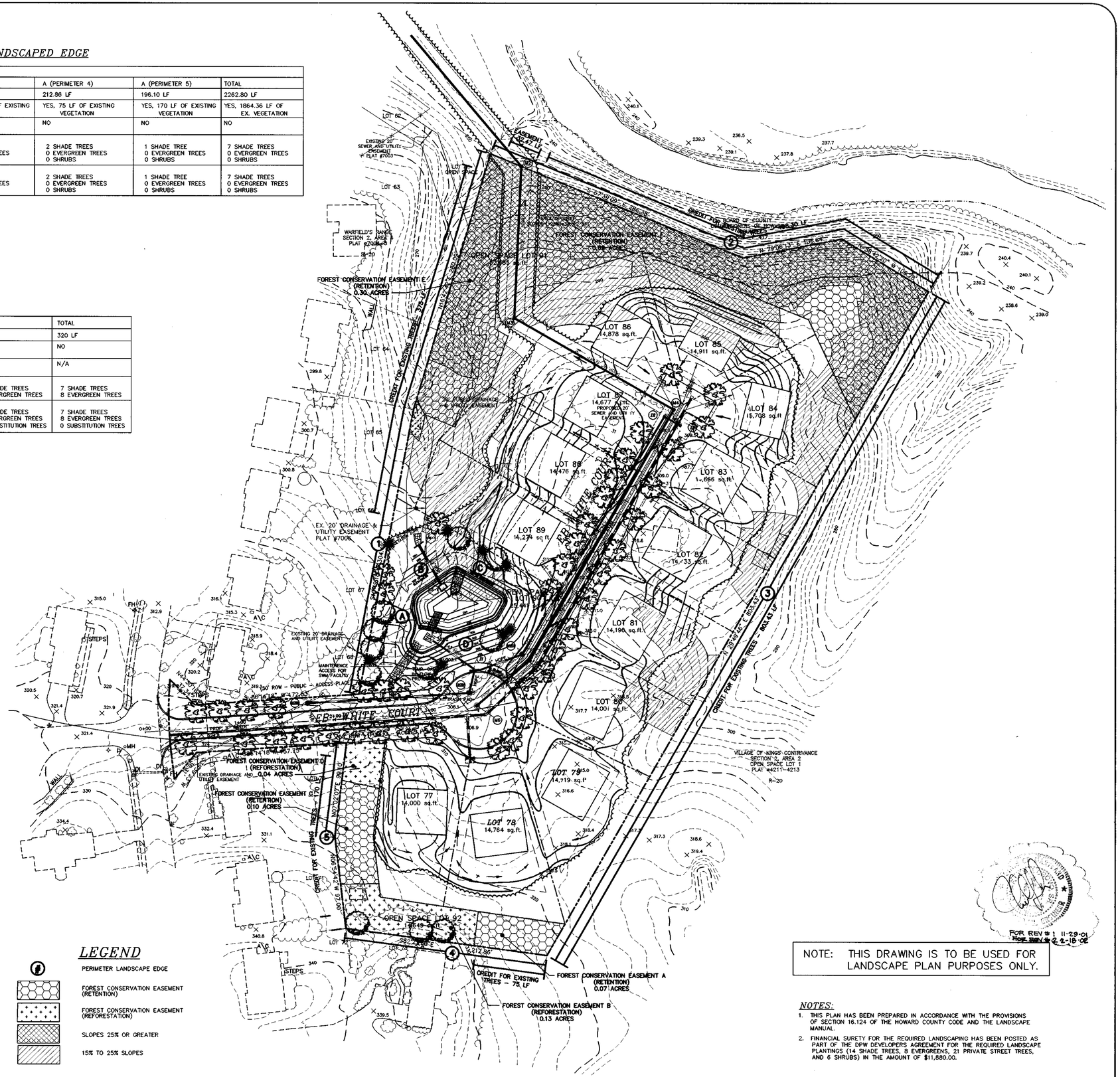
TOTAL
41 STREET TREES (20 PUBLIC, 21 PRIVATE)

STREET TREE CALCULATIONS

EB WHITE COURT (PUBLIC) – 786 / 40 = 20
EB WHITE COURT (PRIVATE) – 820 / 40 = 21

TOTAL TREES REQUIRED = 41 STREET TREES
TOTAL TREES PROVIDED = 41 STREET TREES

7/17/01



LEGEND

- PERIMETER LANDSCAPE EDGE
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- SLOPES 25% OR GREATER
- 15% TO 25% SLOPES

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

FOR REV # 1 11-29-01
FOR REV # 2 4-18-02

NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR THE REQUIRED LANDSCAPE PLANTINGS (14 SHADE TREES, 8 EVERGREENS, 21 PRIVATE STREET TREES, AND 6 SHRUBS) IN THE AMOUNT OF $11,880.00.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/9/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE 8/24/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

98108\dwg\land\roads\108-lp.dwg 7-16-01 9:20:37 am EST

project 98108 | date JUNE 2001
illustration KR/SJD | engineering SJD | approval
scale 1"=50'

no.	description	date
2	REMOVED CENTER MEDIAN PLANT PITS IN WHITE COURT (PRIVATE) & MOVED CENTER TRENCE FROM EB WHITE COURT, STATION 1+97 (PUBLIC)	4/18/02

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES					
LANDSCAPE TYPE	A (PERIMETER 1)	A (PERIMETER 2)	A (PERIMETER 3)	A (PERIMETER 4)	A (PERIMETER 5)	TOTAL
LINEAR FEET OF PERIMETER	584.58 LF	465.83 LF (EXCLUDES EASEMENT)	803.43 LF	212.86 LF	196.10 LF	2262.80 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 375 LF OF EXISTING VEGETATION	YES, 440.93 LF OF EXISTING VEGETATION	YES, 803.43 LF OF EXISTING VEGETATION	YES, 75 LF OF EXISTING VEGETATION	YES, 170 LF OF EXISTING VEGETATION	YES, 1864.36 LF OF EX. VEGETATION
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

PERIMETER EDGE	A	B	C	D	TOTAL
LINEAR FEET OF PERIMETER	80 LF	40 LF	80 LF	120 LF	320 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A	N/A	N/A	N/A	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	2 SHADE TREES 2 EVERGREEN TREES	1 SHADE TREES 1 EVERGREEN TREES	2 SHADE TREE 2 EVERGREEN TREES	2 SHADE TREES 3 EVERGREEN TREES	7 SHADE TREES 8 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES	2 SHADE TREES 2 EVERGREEN TREES 0 SUBSTITUTION TREES	1 SHADE TREES 1 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREE 2 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREES 3 EVERGREEN TREES 0 SUBSTITUTION TREES	7 SHADE TREES 8 EVERGREEN TREES 0 SUBSTITUTION TREES

LANDSCAPING REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
3		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
11		ACER SACCHARUM 'GREEN MOUNTAIN' OR EQUIVALENT	GREEN MOUNTAIN SUGAR MAPLE	2 1/2" – 3" CAL.
8		PINUS STROBUS OR EQUIVALENT	WHITE PINE	6' – 8' HT.
6		TAXUS MEDIA 'HICKSII' OR EQUIVALENT (TRASH PAD SCREENING)	HICKS YEW	2 1/2' – 3' HT.

TOTAL
28 TREES & SHRUBS (14 SHADE TREES, 8 EVERGREENS, AND 6 SHRUBS FOR TRASH PAD SCREENING)

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
41		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.

TOTAL
41 STREET TREES (20 PUBLIC, 21 PRIVATE)

STREET TREE CALCULATIONS

EB WHITE COURT (PUBLIC) – 786 / 40 = 20
EB WHITE COURT (PRIVATE) – 820 / 40 = 21

TOTAL TREES REQUIRED = 41 STREET TREES
TOTAL TREES PROVIDED = 41 STREET TREES

7/17/01

LEGEND

PERIMETER LANDSCAPE EDGE

FOREST CONSERVATION EASEMENT (RETENTION)

FOREST CONSERVATION EASEMENT (REFORESTATION)

SLOPES 25% OR GREATER

15% TO 25% SLOPES

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF BUREAU OF HIGHWAYS	DATE 8/10/01
APPROVED: DEPARTMENT OF PLANNING AND ZONNING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 8/24/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 8/15/01

98108\dwg\final\roads\108-lp.dwg 7-16-01 9:20:37 am EST

FOR REV # 1 11-29-01

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR THE REQUIRED LANDSCAPE PLANTINGS (14 SHADE TREES, 8 EVERGREENS, 21 PRIVATE STREET TREES, AND 6 SHRUBS) IN THE AMOUNT OF $11,880.00.

project	date
98108	JUNE 2001
illustration	engineering
KR/SJD	SJD
scale	approval
1"=50'	

no.	description revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

GENERAL NOTES

FOREST PROTECTION

1. ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING AND SIGHAGE AS INDICATED ON THE PLANS. THE DEVICES SHALL BE INSTALLED ALONG THE FOREST RETENTION BOUNDARY PRIOR TO ANY LAND CLEARING, GRUBBING, OR GRADING ACTIVITIES.
2. THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES.
3. ALL PROTECTION DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, INCLUDING SILT FENCE BEING USED AS PROTECTIVE FENCING. ALL DEVICES SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS CEASED IN THE IMMEDIATE VICINITY.
4. ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
5. INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-WATERING OPERATIONS, OFF-SITE RUN OFF, SPILLAGE AND DRAINING OF MATERIALS THAT MAY BE HARMFUL TO TREES.
6. THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN FOREST CONSERVATION EASEMENTS.
7. REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
8. THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS.
9. ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS, AS NECESSARY.

PRE-CONSTRUCTION MEETING

1. AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
   - A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
   - B. INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
   - C. MAKE ALL NECESSARY ADJUSTMENTS;
   - D. ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

1. THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.
2. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORIST.
3. THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

** FOR FOREST STAND DELINEATION, SEE REPORT PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. ON JANUARY 12, 1999.

NOTE :

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, SOIL COMPACTION, OR EXCAVATION, INTRODUCTION OF TOXIC CHEMICALS OR OTHER DISTURBANCES DETRIMENTAL TO THE LIVE SPECIMEN TREES OR CRITICAL ROOT ZONES FOR THESE TREES EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

PLANTING SPECIFICATIONS AND NOTES

SITE PREPARATION AND SOILS

1. PROTECTION FENCING AND SILT FENCES FOR SEDIMENT AND EROSION CONTROL ARE TO BE INSTALLED AS A FIRST ORDER OF BUSINESS. SEE PLAN FOR LOCATIONS.
2. DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT. AS SHOWN ON THE DETAIL VIEW, A PLANTING FIELD OF RADIUS = 5 X DIAMETER OF THE ROOT BALL OR CONTAINER IS RECOMMENDED.
3. SOIL MIX FOR ALL PLANTS EXCEPT ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME OF COMPOSTED SLUDGE.
4. SOIL MIX FOR ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME PEAT MOSS.
5. ALL MIXING IN 3 AND 4 SHALL BE LIMITED TO CONTAINER GROWN OR BALL AND BURLAP STOCK ONLY AND CONFINED TO THE PLANTING FIELD AND IMMEDIATE ADJACENT SOIL SURFACE AREA AND SHALL BE DONE TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANT STORAGE AND INSPECTION

1. FOR CONTAINER GROWN NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN 2 WEEKS AFTER DELIVERY TO THE SITE.
2. FOR BALL AND BURLAP NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN THREE DAYS AFTER DELIVERY TO THE SITE.
3. PLANTING STOCK SHOULD BE INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS AND DISEASE SHOULD BE REPLACED.
4. UNTIL PLANTED, ALL PLANT STOCK SHALL BE KEPT IN A SHADED, COOL, AND MOISTENED ENVIRONMENT .

PLANT INSTALLATION

1. THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED (SEE DETAIL). NATIVE STOCKPILED SOILS SHOULD BE USED FOR SOIL MIX AND BACKFILL FOR PLANTING FIELD. AFTER PLANT INSTALLATION, RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH AT LEAST 4 INCHES OF MULCH. WATER, GENEROUSLY, TO SETTLE SOIL BACKFILLED AROUND TREES.
2. PLANTING FIELD DIAMETERS SHOULD BE REDUCED OR PLANTING FIELD MOVED IF IT APPEARS THAT EXCESSIVE EXISTING ROOT DAMAGE MAY OCCUR DURING DIGGING OPERATION NEAR EXISTING FOREST.
3. CARE SHALL BE TAKEN WHEN DIGGING PLANTING FIELDS NOT TO CHOP THRU LARGER EXISTING ROOTS FROM EXISTING MATURE TREES. IF ROOTS GREATER THAN 1/2 INCH ARE ENCOUNTERED PLEASE TRY TO DIG AROUND THEM AS MUCH AS POSSIBLE TO MINIMIZE IMPACT TO EXISTING TREES. THEY WERE HERE FIRST.
4. CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENCIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
5. FOR BALL AND BURLAP STOCK, PLACE TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL. THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
6. FOR TREES PLANTED IN THE AFFORESTATION AREA, CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) TO FOUR (4), PER SPECIES, OVER THE ENTIRE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED ON PLANT LIST.
7. AVOID PLANTING IN A STRAIGHT GRID PATTERN. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED ON PLANT LISTS TO OBTAIN A MORE NATURAL APPEARANCE.
8. NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE WELL DRAINED NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONTHS. AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.

FERTILIZING

1. DO NOT FERTILIZE NEWLY PLANTED TREES WITHIN THE FIRST GROWING SEASON AFTER PLANTING. DOING SO MAY CAUSE A SPURT OF CANOPY GROWTH WHICH THE ROOTS CANNOT SUPPORT AND ADD ADDITIONAL SHOCK TO THE ALREADY DISTURBED PLANT.
2. NOTHING SHOULD BE ADDED TO THE SOIL WITHOUT TESTING IT FIRST TO DETERMINE ITS NEEDS.
3. IF AND WHEN IT IS TIME TO FERTILIZE, ORGANIC FERTILIZERS ARE PREFERRED TO SYNTHETIC FERTILIZERS. BONE MEAL OR SEAWEED BASED PRODUCTS ARE AVAILABLE COMMERCIALLY AND ARE RECOMMENDED. THEY HAVE THE ABILITY TO SUPPLY NUTRIENTS TO THE PLANT AS NEEDED WHILE MINIMIZING THE RISK OF EXCESS NUTRIENTS ENTERING THE FOREST SYSTEM AND WATER SUPPLY.

MAINTENANCE SCHEDULE

1. ANNUAL MAINTENANCE DURING THE GROWING SEASON, FOR A THREE YEAR PERIOD.
2. ASSESS TREE MORTALITY OF PLANTING STOCK, REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTINGS.
3. VOLUNTEER SEEDING OF NATIVE, LOCAL AND ENDEMIC VEGETATION IS TO BE EXPECTED. DO NOT DISCOURAGE THIS EFFORT UNLESS IT IS NEGATIVELY EFFECTING THE PLANTED STOCK.
4. REMOVE THROUGH MANUAL MEANS (GRUBBING, PULLING, CUTTING) AGGRESSIVE, NOXIOUS, INVASIVE SPECIES AND ALL HERBACEOUS VEGETATION WITHIN A 3-FOOT RADIUS SURROUNDING THE PLANTED WOODY NURSERY STOCK.
5. REMOVE AND DISPOSE OF MAN-MADE TRASH, INCLUDING ITEMS CONTAINED WITHIN ENTIRE PLANTING AREA. DO NOT REMOVE DOWN AND DEAD MATERIAL NATURALLY OCCURRING OR ACCUMULATING, UNLESS IT IS SMOTHERING PLANTING STOCK.
6. A 75 PERCENT SURVIVAL OF PLANTED STOCK MUST BE ACHIEVED AT THE END OF THE 24 MONTH MANAGEMENT PERIOD. IF NOT, ADDITIONAL PLANTINGS MAY BE REQUIRED TO ACHIEVE THIS GOAL.

SUPERVISION

ALL FOREST CONSERVATION ACTIVITIES SHALL BY DONE UNDER THE DIRECT SUPERVISION OF SOMEONE FROM THE DESIGN TEAM OR OTHER "QUALIFIED PROFESSIONAL" AS DETERMINED BY THE REQUIREMENTS OF COMAR 08.19.06.01 AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, PUBLIC LANDS AND FORESTRY DIVISION.

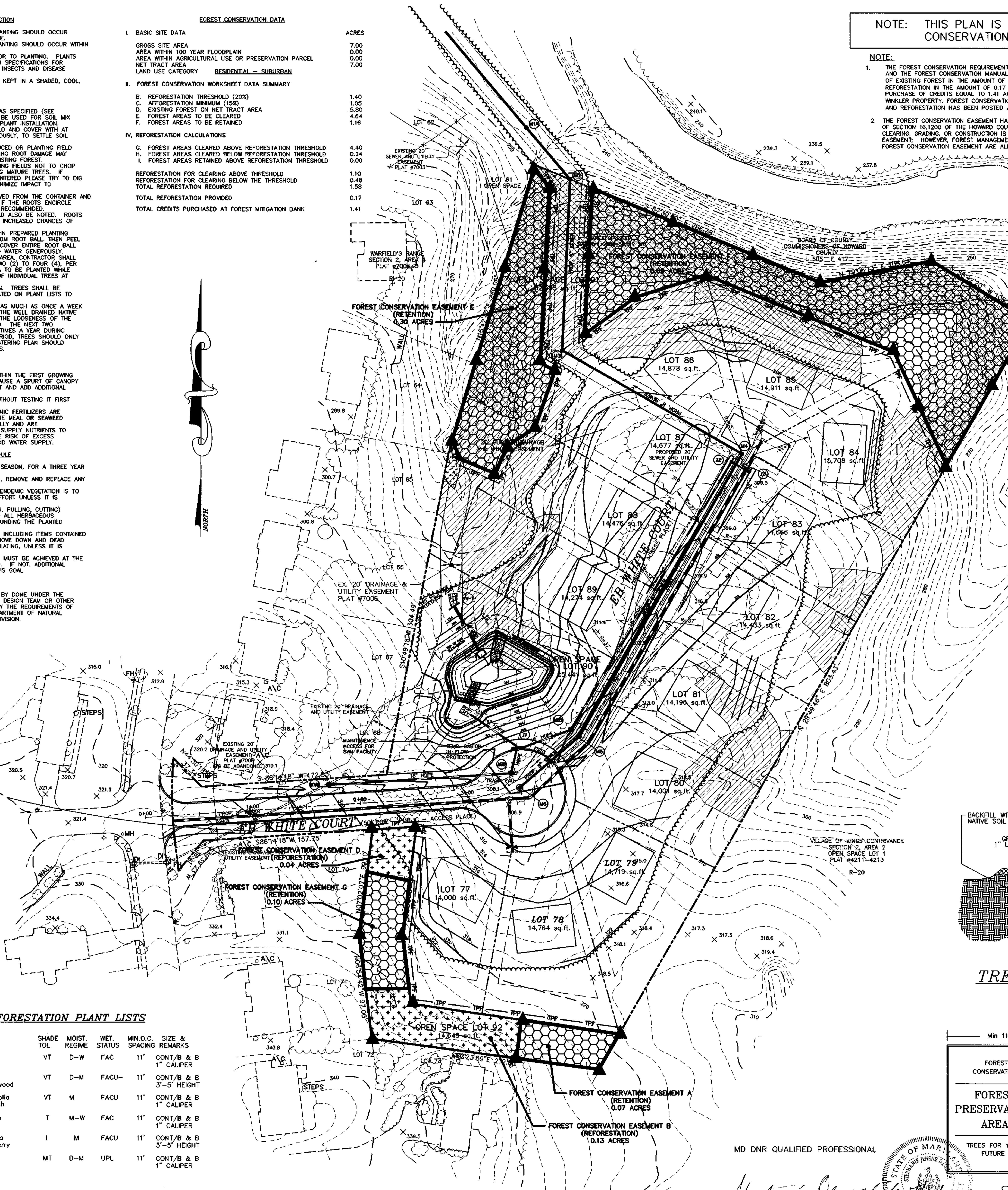
FOREST CONSERVATION DATA

		ACRES
I.	BASIC SITE DATA	
	GROSS SITE AREA	7.00
	AREA WITHIN 100 YEAR FLOODPLAIN	0.00
	AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	0.00
	NET TRACT AREA	7.00
	LAND USE CATEGORY RESIDENTIAL – SUBURBAN	
II.	FOREST CONSERVATION WORKSHEET DATA SUMMARY	
B.	REFORESTATION THRESHOLD (20%)	1.40
C.	AFFORESTATION MINIMUM (15%)	1.05
D.	EXISTING FOREST ON NET TRACT AREA	5.80
E.	FOREST AREAS TO BE CLEARED	4.64
F.	FOREST AREAS TO BE RETAINED	1.16
IV,	REFORESTATION CALCULATIONS	
G.	FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD	4.40
H.	FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD	0.24
I.	FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD	0.00
	REFORESTATION FOR CLEARING ABOVE THRESHOLD	1.10
	REFORESTATION FOR CLEARING BELOW THE THRESHOLD	0.48
	TOTAL REFORESTATION REQUIRED	1.58
	TOTAL REFORESTATION PROVIDED	0.17
	TOTAL CREDITS PURCHASED AT FOREST MITIGATION BANK	1.41

NOTE: THIS PLAN IS TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY.

NOTE:

1. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 1.16 ACRES (50,529.6 SQ. FT. AT $10,105.92), REFORESTATION IN THE AMOUNT OF 0.17 ACRES (7,405.2 SQ. FT. AT $3,702.60), AND BY THE PURCHASE OF CREDITS EQUAL TO 1.41 ACRES AT THE FOREST MITIGATION BANK LOCATED ON WINKLER PROPERTY. FOREST CONSERVATION SURETY IN THE AMOUNT OF $13,808.52 FOR RETENTION AND REFORESTATION HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
2. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

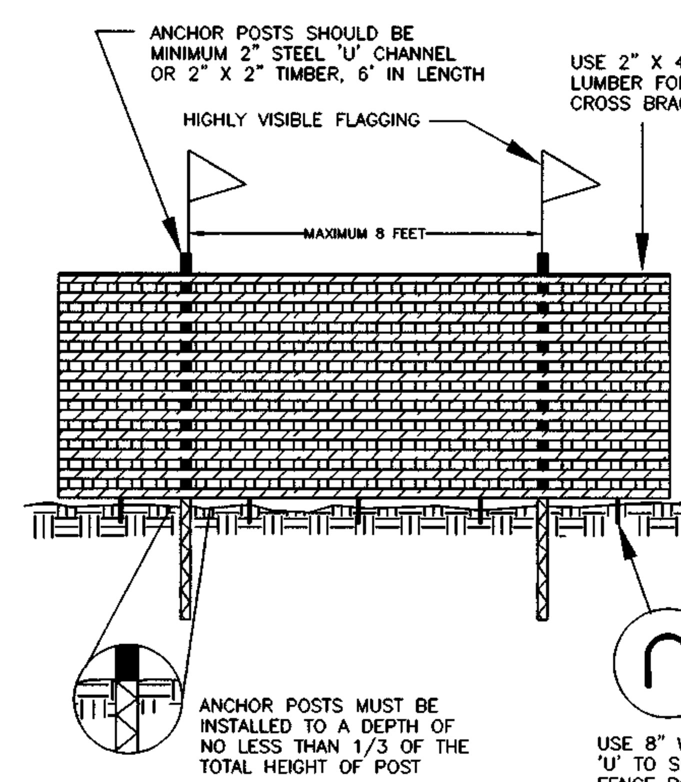


LEGEND

(hexagon pattern)	FOREST CONSERVATION EASEMENT (RETENTION)
(cross pattern)	FOREST CONSERVATION EASEMENT (REFORESTATION)
▲	FOREST CONSERVATION SIGNAGE
— TPF —	FOREST CONSERVATION SIGNAGE
(cross-hatch)	SLOPES 25% OR GREATER
(hatch)	15% TO 25% SLOPES
(scalloped line)	15% TO 25% SLOPES

PROTECTIVE FENCE DETAIL

BLAZE ORANGE PLASTIC MESH



NOTES
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

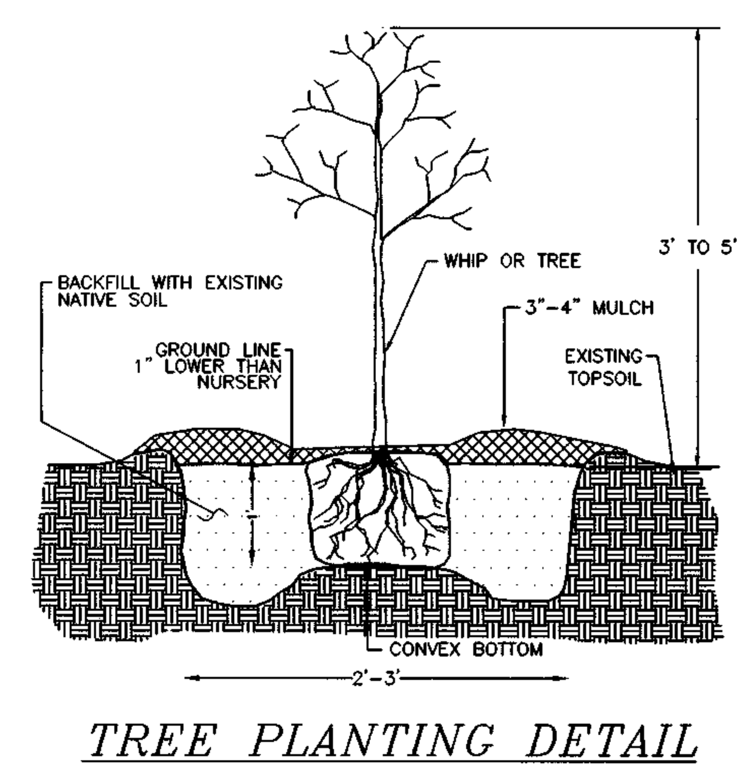
REFORESTATION PLANT LISTS

QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
36	Acer rubrum Red Maple	VT	D–W	FAC	11'	CONT/B & B 1" CALIPER
45	Cornus florida Flowering Dogwood	VT	D–M	FACU–	11'	CONT/B & B 3'–5' HEIGHT
36	Fagus grandiflolia American Beech	VT	M	FACU	11'	CONT/B & B 1" CALIPER
36	Nyssa sylvatica Black Gum	T	M–W	FAC	11'	CONT/B & B 1" CALIPER
45	Prunus serotina Wild Black Cherry	I	M	FACU	11'	CONT/B & B 3'–5' HEIGHT
36	Quercus rubra Red Oak	MT	D–M	UPL	11'	CONT/B & B 1" CALIPER

TOTAL
234 TREES

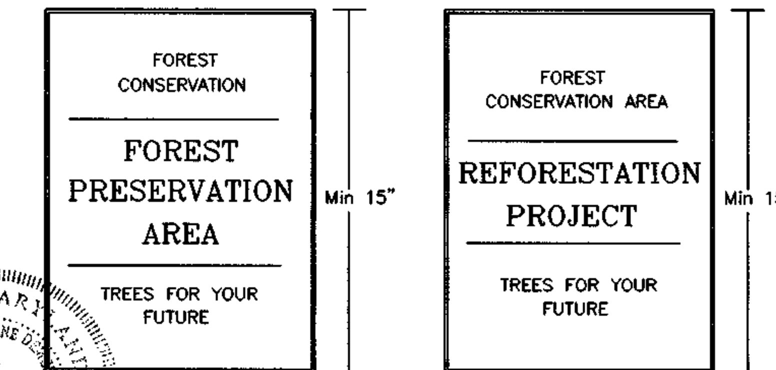
NOTE : WHIPS OR SEEDLINGS MAY BE SUBSTITUTED FOR THE 1" CALIPER OR 3' – 5' TREES. IF WHIPS OR SEEDLINGS ARE TO BE USED, MULTIPLY THE QUANTITIES BY 3.5 TO DETERMINE THE NUMBER OF TREES REQUIRED.

TREE PLANTING DETAIL



CONTAINER GROWN

SIGNAGE DETAIL



NOT TO SCALE

MD DNR QUALIFIED PROFESSIONAL

STEPHANIE DEMCHIK, RLA #3038 (signed, 7/17/01; seal: STATE OF MARYLAND, STEPHANIE JENENE DEMCHIK, LANDSCAPE ARCHITECT)

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF BUREAU OF HIGHWAYS (signed)	DATE 8/10/01
APPROVED: DEPARTMENT OF PLANNING AND ZONNING	
CHIEF, DIVISION OF LAND DEVELOPMENT (signed)	DATE 8/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION (signed)	DATE 8/15/01

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project	date	illustration	engineering	scale	approval
98108	JUNE 2001	KR/SJD	SJD/KR	1"=50'	

no.	description	date
2	RENAMED CENTRAL MEDIAN ISLAND FROM EB WHITE COURT (PRIVATE) & STREET CONTROL CHANGE FROM EB WHITE COURT, STATION 1+57 (PUBLIC)	2/18/02

revisions

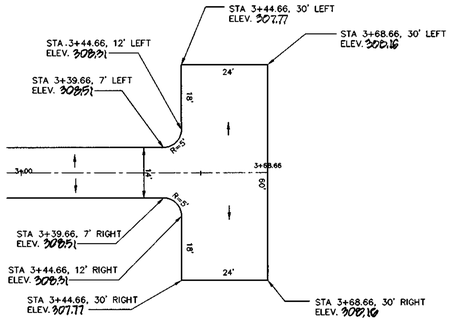
For rev.#2 2-8-02 (seal, signed)

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDUVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

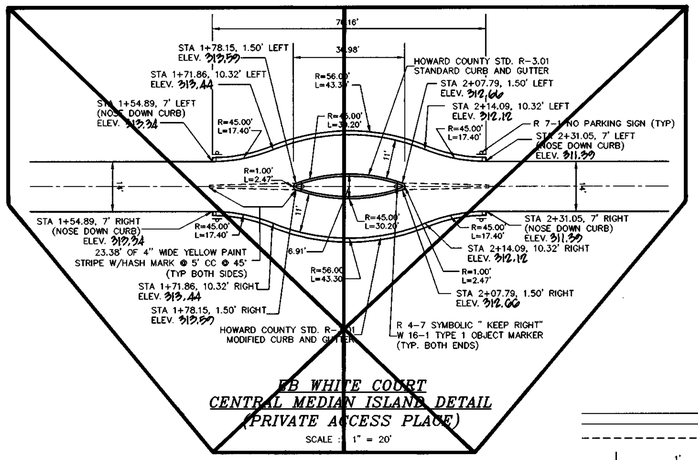
FOREST CONSERVATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.



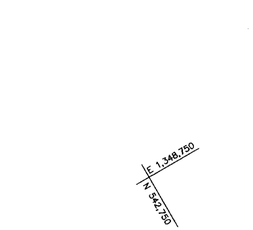
EB WHITE COURT
TEE TURN-AROUND DETAIL
(PRIVATE ACCESS PLACE)

SCALE : 1" = 20'



EB WHITE COURT
CENTRAL MEDIAN ISLAND DETAIL
(PRIVATE ACCESS PLACE)

SCALE : 1" = 20'

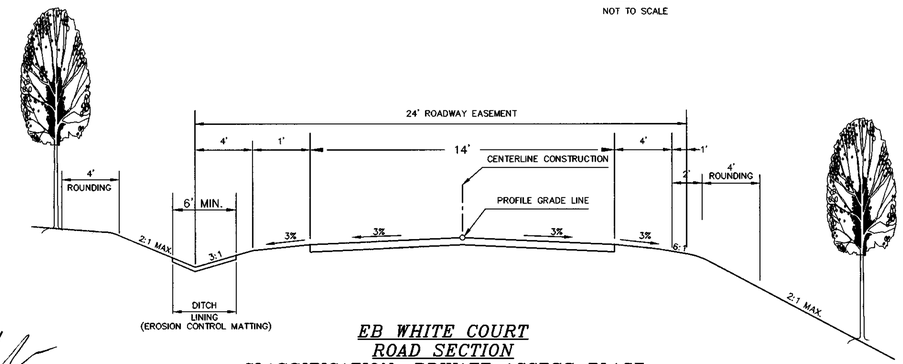


VILLAGE OF KINGS CONTRIVANCE
SECTION 2, AREA 2
OPEN SPACE LOT 1
PLAT #4211-4213
R-20

PLAN VIEW

SCALE : 1" = 50'

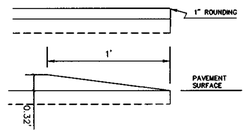
NOTE : FOR STREET TREE LOCATIONS, SEE LANDSCAPE PLAN, SHEET 12 OF 13.



EB WHITE COURT
ROAD SECTION
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 15 MPH
VERTICAL DESIGN SPEED: 15 MPH

SCALE
NOT TO SCALE

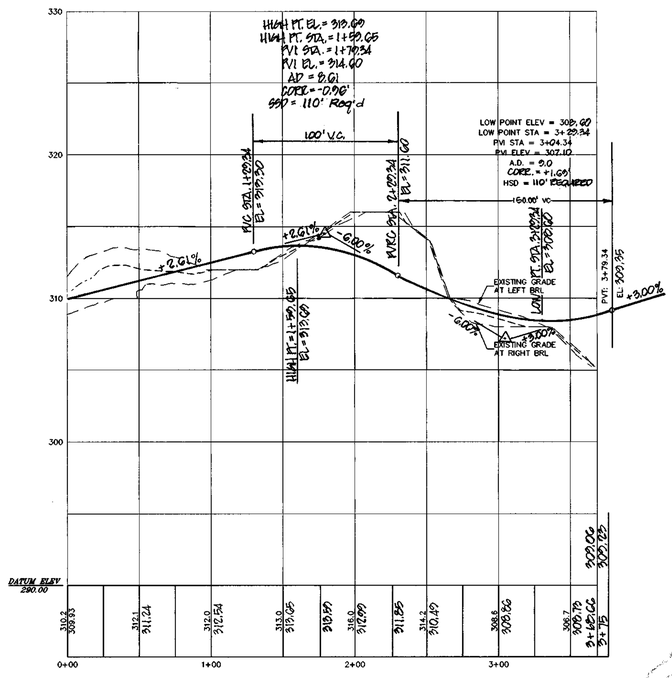
7/17/01



NOSE DOWN CURB
DETAIL

NOT TO SCALE

N 542,750
E 1,349,250



EB WHITE COURT
ROAD PROFILE
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 15 MPH
VERTICAL DESIGN SPEED: 15 MPH

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

FOR REV. #1 - 11-29-01
FOR REV. #2 2-19-02

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	DELTA	CHORD
C1	45.00'	15.17'	7.66'	19°18'39"	N39°30'14"E 15.09'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/16/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

no.	description / revisions	date
2	BOARD CONTROL MERIDIAN FROM EB WHITE CT. (PRIVATE) TO RAILROAD MONUMENT STA. 0+00 & 3+79.34 (P.V.I.)	9/18/01
1	REVISED ROAD PROFILE OF EB WHITE COURT BETWEEN	11-29-01

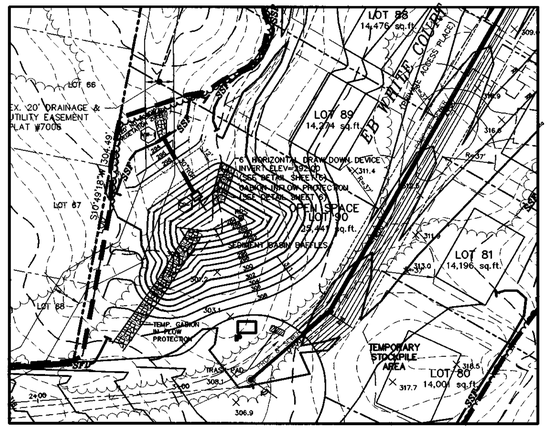
project	date
98108	JULY 2001
illustration	engineering
KR/SJD	SJD
scale	approval
AS SHOWN	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax

F 01-28

98108\dwg\final\roads\08-ROAD-PROFILES2



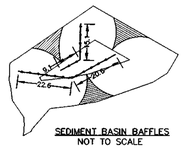
SEDIMENT BASIN DETAIL

SCALE : 1" = 50'

SEDIMENT BASIN # 1

MAX. DRAINAGE AREA:	5.5 AC
TOP OF EMBANKMENT:	300.00
WEIR CREST EL:	296.30
BOTTOM OF BASIN:	284.00
WET STORAGE REQUIRED:	9,900
WET STORAGE PROVIDED:	10,725 C.F. (AT ELEV. 292.00)
DRY STORAGE REQUIRED:	9,900 C.F.
DRY STORAGE PROVIDED:	27,600 C.F. (AT ELEV. 296.30)

CREST LENGTH = 6.5'
Q2 PRE = 4.3 CFS
Q2 POST = 1.7 CFS



SEDIMENT BASIN BAFFLES
NOT TO SCALE

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.

P.E. NO.:

SIGNATURE DATE:

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L. Newburn — 7-17-01
SIGNATURE OF DEVELOPER — DATE
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

7/17/01
SIGNATURE OF ENGINEER — DATE
K. Vasos HIKMAT
PRINTED NAME OF ENGINEER

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.

8/9/01
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

8/9/01
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8/10/01
CHIEF BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

8/24/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

108-grade

FOR REV. #1 11-29-01
FOR REV. #2 2-18-02

NOTE

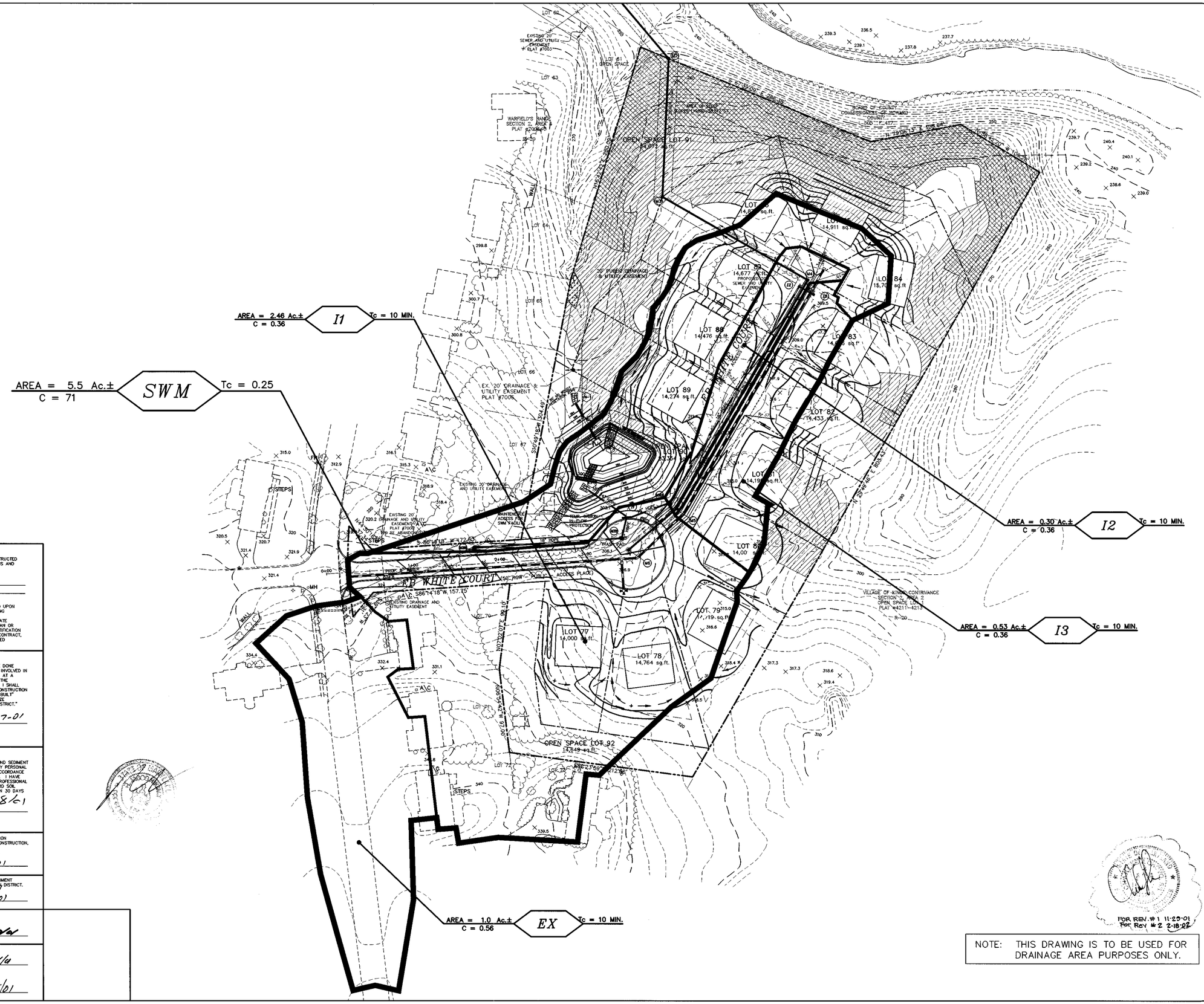
FOR DETAILS OF STORMWATER MANAGEMENT FACILITY SEE SHEET 8

project	date
98108	JULY 2001
illustration	engineering
KR	KR/AMP
scale	approval
1"=50'	

no.	description	date
2	REMOVED CENTRAL MEDIAN ISLAND FROM EB WHITE COURT (PREVIOUSLY) & SPEED CONTROL DEVICE FROM EB WHITE COURT. STATION 1+87 (PREVIOUSLY) REVISED GRADING & LOCATION OF SWM & LOT AREAS AFFECTED BY ABOVE CHANGES	9/16/02 11-29-01
1	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.


AREA = 2.46 Ac.± C = 0.36
I1
Tc = 10 MIN.
AREA = 5.5 Ac.± C = 71
SWM
Tc = 0.25
AREA = 0.30 Ac.± C = 0.36
I2
Tc = 10 MIN.
AREA = 0.53 Ac.± C = 0.36
I3
Tc = 10 MIN.
AREA = 1.0 Ac.± C = 0.56
EX
Tc = 10 MIN.
CB WHITE COURT (50' ROW - PUBLIC ACCESS PLACE)
OPEN SPACE LOT 91
14,672 sq.ft.
OPEN SPACE LOT 92
14,549 sq.ft.
LOT 77
14,000 sq.ft.
LOT 78
14,764 sq.ft.
LOT 79
14,119 sq.ft.
LOT 80
14,00
LOT 81
14,19
LOT 82
14,433 sq.ft.
LOT 83
14,
LOT 84
15,70 sq.ft.
LOT 85
14,911 sq.ft.
LOT 86
14,
LOT 87
14,677 sq.ft.
PROPOSED SEWER AND UTILITY EASEMENT
LOT 88
14,476 sq.ft.
LOT 89
14,274 sq.ft.
PRAIRIE COURT
EXISTING 20' DRAINAGE AND UTILITY EASEMENT
EX. 20' DRAINAGE & UTILITY EASEMENT PLAT #7005
20' PUBLIC DRAINAGE & UTILITY EASEMENT
MAINTENANCE ACCESS FOR SWM FACILITY
RIP-RAP SPILLWAY TO FLOW PROTECTION
EXISTING 20' DRAINAGE AND UTILITY EASEMENT TO BE ABANDONED
EXISTING DRAINAGE AND UTILITY EASEMENT
PROP. 18" RCP
PROP. 24" RCP
EXISTING 24" RCP
EXISTING 18" RCP
EXISTING 15" RCP
EXISTING 12" RCP
EXISTING 10" RCP
EXISTING 8" RCP
EXISTING 6" RCP
EXISTING 4" RCP
EXISTING 2" RCP
EXISTING 1" RCP
EXISTING 0.5" RCP
EXISTING 0.25" RCP
EXISTING 0.125" RCP
EXISTING 0.0625" RCP
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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 _____ P.E. NO.: 13204

DATE: 5/24/04

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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 _____ DATE 7-17-01

James L. Newburn

PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER _____ DATE 6/28/01

R. JACOB HIKMAT

PRINTED NAME OF ENGINEER

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.

USDA – NATURAL RESOURCES CONSERVATION SERVICE _____ DATE 8/9/01

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

HOWARD SOIL CONSERVATION DISTRICT _____ DATE 8/9/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS _____ DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT HB _____ DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ DATE 8/15/01

108-INLET

As Built 5-24-04
Fisher, Collins & Carter, Inc.

FOR REV. # 1 11-29-01
For Rev # 2 2-18-02

NOTE: THIS DRAWING IS TO BE USED FOR DRAINAGE AREA PURPOSES ONLY.

AS-BUILT 5-25-04

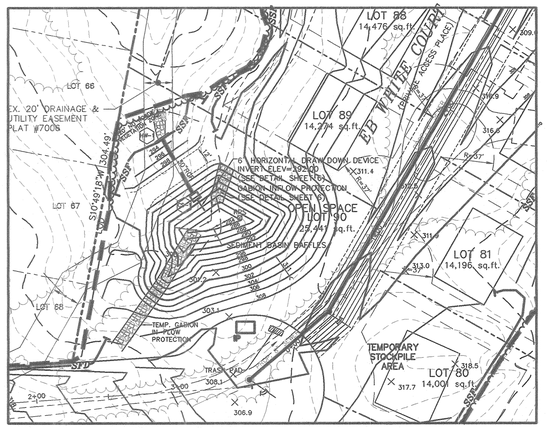
project	date
98108	JUNE 2001
illustration	engineering
	KR/FL
scale	approval
1"=50'	

no.	description / revisions	date
2	REVISED CENTERLINE MEDIAN ISLAND FROM 8' WIDE (RADIUS) & SPEED CONTROL RAISE FROM 180' WHITE CROSS WALK TO STATION 1+80 (PUBLIC)	6/18/02
1	REVISED LOCATION	11-29-01

LOTS 77 THRU 92
WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
SIXTH ELECTION DISTRICT — TAX MAP 42 – P/O PARCEL 454 – BLOCK 19 — HOWARD COUNTY, MARYLAND

DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.



SEDIMENT BASIN DETAIL

SCALE : 1" = 50'

SEDIMENT BASIN # 1

MAX. DRAINAGE AREA:	5.5 AC
TOP OF EMBANKMENT:	300.00
WEIR CREST EL:	296.30
BOTTOM OF BASIN:	284.00
WET STORAGE REQUIRED:	9,900
WET STORAGE PROVIDED:	10,725 C.F. (AT ELEV. 292.00)
DRY STORAGE REQUIRED:	9,900 C.F.
DRY STORAGE PROVIDED:	27,600 C.F. (AT ELEV. 296.30)

CREST LENGTH = 6.5'
Q2 PRE = 4.3 CFS
Q2 POST = 1.7 CFS

SEDIMENT BASIN BAFFLES
NOT TO SCALE

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.

_____ P.E. NO.:_____
SIGNATURE DATE: _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L. Newburn — 7-17-01
SIGNATURE OF DEVELOPER — DATE
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

7/17/01
SIGNATURE OF ENGINEER — DATE
PRINTED NAME OF ENGINEER

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.

8/9/01
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

8/9/01
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8/10/01
CHIEF BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

8/29/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

108-grade

STATE OF MARYLAND — JAMES L. NEWBURN — 13420 — REGISTERED PROFESSIONAL ENGINEER

As Built 5-24-04
Fisher, Collins & Carter, Inc.

STATE OF MARYLAND — KENNETH R. HIKMAT — 21677 — PROFESSIONAL ENGINEER

FOR REV. #1 11-29-01
FOR REV # 2 2-18-02

NOTE

FOR DETAILS OF STORMWATER MANAGEMENT FACILITY SEE SHEET 8

AS-BUILT 5-25-04

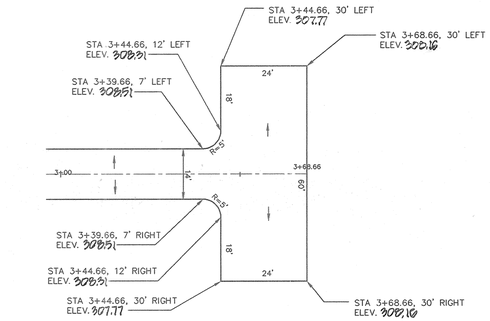
project	date
98106	JULY 2001
illustration	engineering
KR	KR/MMP
scale	approval
1"=50'	

no.	description	date
2	REVISED CENTER MEDIAN ISLAND FROM EB WHITE COURT (REVISED) & SPEED CONTROL DEVICE FROM EB WHITE COURT & SPEED CONTROL DEVICE (REVISED) ON EB WHITE COURT, SPECIAL HEIGHT LIMITATION FOR NURSES WATCHTOWER BY HOWARD CHAMBERS	2/18/02
1		11-29-01

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

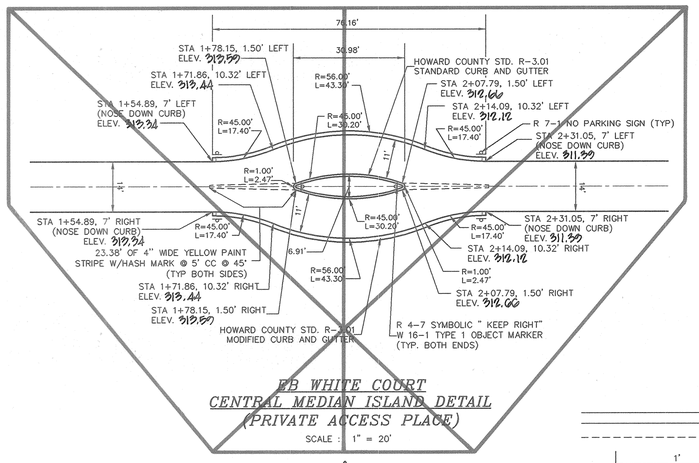
GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.



EB WHITE COURT
TEE TURN-AROUND DETAIL
(PRIVATE ACCESS PLACE)

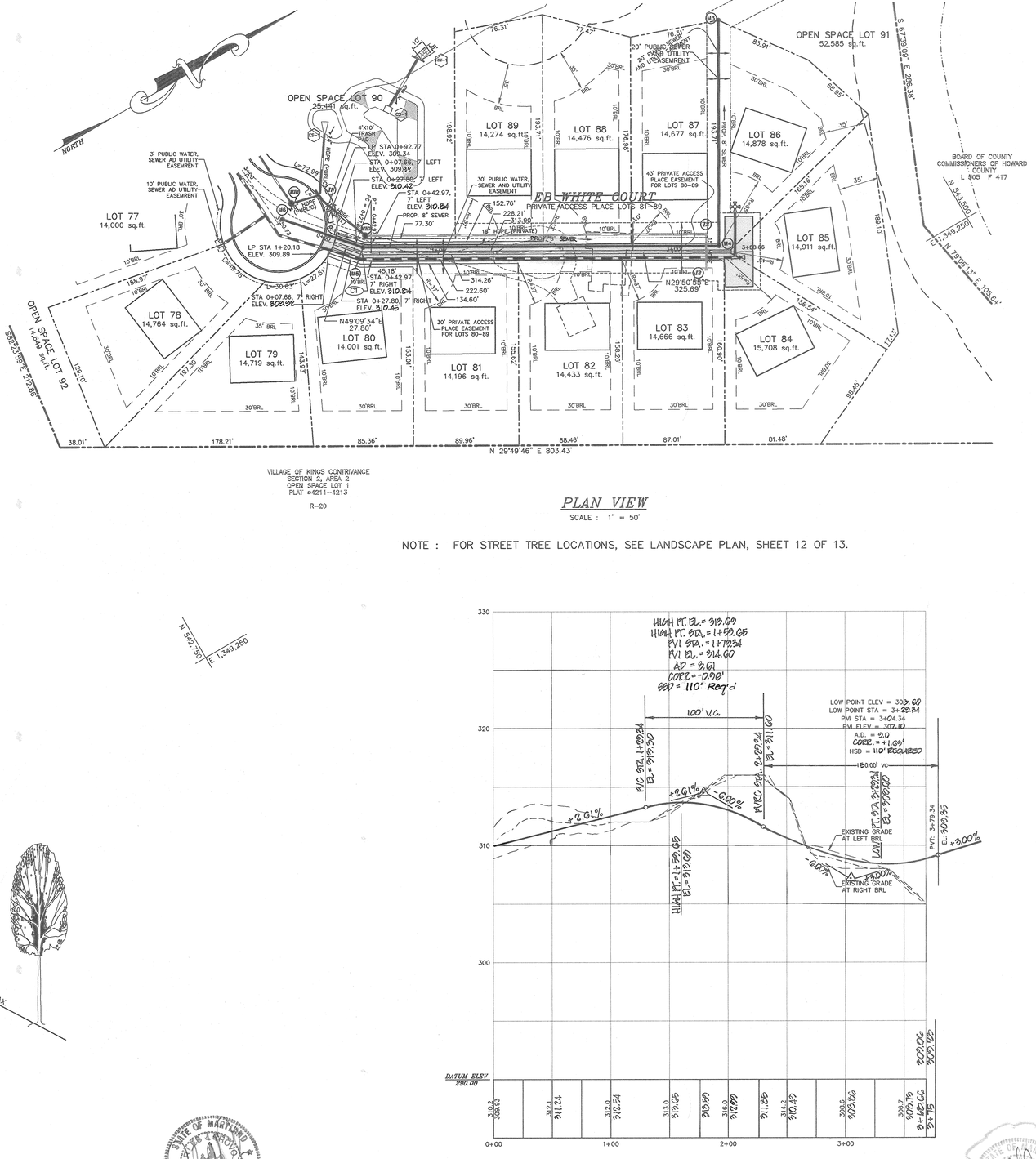
SCALE : 1" = 20'



EB WHITE COURT
CENTRAL MEDIAN ISLAND DETAIL
(PRIVATE ACCESS PLACE)

SCALE : 1" = 20'

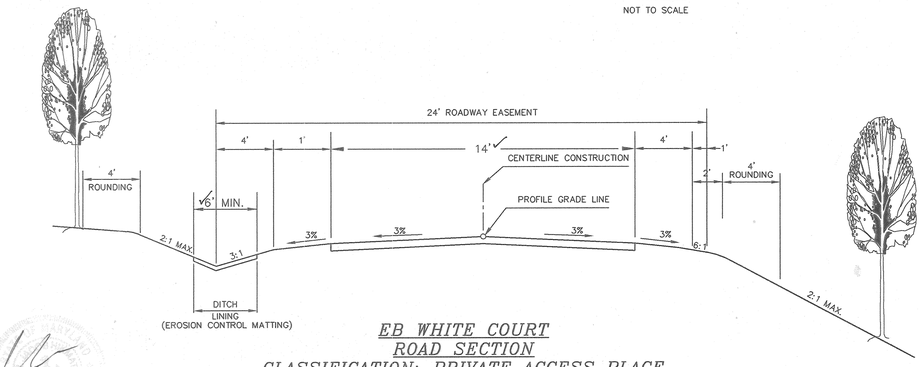
2



PLAN VIEW

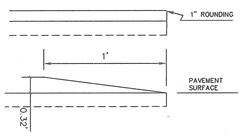
SCALE : 1" = 50'

NOTE : FOR STREET TREE LOCATIONS, SEE LANDSCAPE PLAN, SHEET 12 OF 13.



EB WHITE COURT
ROAD SECTION
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 15 MPH
VERTICAL DESIGN SPEED: 15 MPH

SCALE
NOT TO SCALE



NOSE DOWN CURB DETAIL

NOT TO SCALE

N 542,750
E 1,349,250

EB WHITE COURT
ROAD PROFILE
CLASSIFICATION: PRIVATE ACCESS PLACE
HORIZONTAL DESIGN SPEED: 15 MPH
VERTICAL DESIGN SPEED: 15 MPH

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	DELTA	CHORD
C1	45.00'	15.17'	7.66'	19°18'39"	N39°30'14"E 15.09'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/24/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

7/17/01

STATE OF MARYLAND — RICHARD A. ROONEY — No. 13201 — PROFESSIONAL ENGINEER

As Built 5-24-04
Fisher, Collins & Carter, Inc.

FOR REV. #1 - 11-29-01
FOR REV. #2 2-18-02

AS-BUILT 5-25-04

no.	description	date
2	REVISED CENTRAL MEDIAN ISLAND FROM EB WHITE CT. (REVISED) RAISED TEMPORARY TURN-AROUND AT EB WHITE COURT DEDICATED (P.A.P.)	9/16/02
1	REVISED ROAD ALIGNMENT	11-29-01

project	98108	date	JULY 2001
illustration	KR/SJD	engineering	SJD
scale	AS SHOWN	approval	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROAD PLAN AND PROFILE

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

3 OF 13

F 01-28

98108\dwg\final\roads\108-ROAD-PROFILES2

GENERAL NOTES

FOREST PROTECTION

1. ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING AND SIGHAGE AS INDICATED ON THE PLANS. THE DEVICES SHALL BE INSTALLED ALONG THE FOREST RETENTION BOUNDARY PRIOR TO ANY LAND CLEARING, GRUBBING, OR GRADING ACTIVITIES.
2. THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES.
3. ALL PROTECTION DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, INCLUDING SILT FENCE BEING USED AS PROTECTIVE FENCING. ALL DEVICES SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS CEASED IN THE IMMEDIATE VICINITY.
4. ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
5. INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-WATERING OPERATIONS, OFF-SITE RUN OFF, SPILLAGE AND DRAINING OF MATERIALS THAT MAY BE HARMFUL TO TREES.
6. THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN FOREST CONSERVATION EASEMENTS.
7. REMOVAL OF TOPSOIL OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
8. THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS.
9. ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS, AS NECESSARY.

PRE-CONSTRUCTION MEETING

1. AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
   A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
   B. INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
   C. MAKE ALL NECESSARY ADJUSTMENTS;
   D. ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

1. THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.
2. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORIST.
3. THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

** FOR FOREST STAND DELINEATION, SEE REPORT PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. ON JANUARY 12, 1999.

NOTE :

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, SOIL COMPACTION, OR EXCAVATION, INTRODUCTION OF TOXIC CHEMICALS OR OTHER DISTURBANCES DETRIMENTAL TO THE LIVE SPECIMEN TREES OR CRITICAL ROOT ZONES FOR THESE TREES EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

PLANTING SPECIFICATIONS AND NOTES

SITE PREPARATION AND SOILS

1. PROTECTION FENCING AND SILT FENCES FOR SEDIMENT AND EROSION CONTROL ARE TO BE INSTALLED AS A FIRST ORDER OF BUSINESS. SEE PLAN FOR LOCATIONS.
2. DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT. AS SHOWN ON THE DETAIL VIEW, A PLANTING FIELD OF RADIUS = 5 X DIAMETER OF THE ROOT BALL OR CONTAINER IS RECOMMENDED.
3. SOIL MIX FOR ALL PLANTS EXCEPT ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME OF COMPOSTED SLUDGE.
4. SOIL MIX FOR ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME PEAT MOSS.
5. ALL MIXING IN 3 AND 4 SHALL BE LIMITED TO CONTAINER GROWN OR BALL AND BURLAP STOCK ONLY AND CONFINED TO THE PLANTING FIELD AND IMMEDIATE ADJACENT SOIL SURFACE AREA AND SHALL BE DONE TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANT STORAGE AND INSPECTION

1. FOR CONTAINER GROWN NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN 2 WEEKS AFTER DELIVERY TO THE SITE.
2. FOR BALL AND BURLAP NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN THREE DAYS AFTER DELIVERY TO THE SITE.
3. PLANTING STOCK SHOULD BE INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS AND DISEASE SHOULD BE REPLACED.
4. UNTIL PLANTED, ALL PLANT STOCK SHALL BE KEPT IN A SHADED, COOL, AND MOISTENED ENVIRONMENT .

PLANT INSTALLATION

1. THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED (SEE DETAIL). NATIVE STOCKPILED SOILS SHOULD BE USED FOR SOIL MIX AND BACKFILL FOR PLANTING FIELD. AFTER PLANT INSTALLATION, RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH AT LEAST 4 INCHES OF MULCH. WATER, GENEROUSLY, TO SETTLE SOIL BACKFILLED AROUND TREES.
2. PLANTING FIELD DIAMETERS SHOULD BE REDUCED OR PLANTING FIELD MOVED IF IT APPEARS THAT EXCESSIVE EXISTING ROOT DAMAGE MAY OCCUR DURING DIGGING OPERATION NEAR EXISTING FOREST.
3. CARE SHALL BE TAKEN WHEN DIGGING PLANTING FIELDS NOT TO CHOP THRU LARGER EXISTING ROOTS FROM EXISTING MATURE TREES. IF ROOTS GREATER THAN 1/2 INCH ARE ENCOUNTERED PLEASE TRY TO DIG AROUND THEM AS MUCH AS POSSIBLE TO MINIMIZE IMPACT TO EXISTING TREES. THEY WERE HERE FIRST.
4. CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENCIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
5. FOR BALL AND BURLAP STOCK, PLACE TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL. THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
6. FOR TREES PLANTED IN THE AFFORESTATION AREA, CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) TO FOUR (4), PER SPECIES, OVER THE ENTIRE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED ON PLANT LIST.
7. AVOID PLANTING IN A STRAIGHT GRID PATTERN. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED ON PLANT LISTS TO OBTAIN A MORE NATURAL APPEARANCE.
8. NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE WELL DRAINED NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONTHS. AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.

FERTILIZING

1. DO NOT FERTILIZE NEWLY PLANTED TREES WITHIN THE FIRST GROWING SEASON AFTER PLANTING. DOING SO MAY CAUSE A SPURT OF CANOPY GROWTH WHICH THE ROOTS CANNOT SUPPORT AND ADD ADDITIONAL SHOCK TO THE ALREADY DISTURBED PLANT.
2. NOTHING SHOULD BE ADDED TO THE SOIL WITHOUT TESTING IT FIRST TO DETERMINE ITS NEEDS.
3. IF AND WHEN IT IS TIME TO FERTILIZE, ORGANIC FERTILIZERS ARE PREFERRED TO SYNTHETIC FERTILIZERS. BONE MEAL OR SEAWEED BASED PRODUCTS ARE AVAILABLE COMMERCIALLY AND ARE RECOMMENDED. THEY HAVE THE ABILITY TO SUPPLY NUTRIENTS TO THE PLANT AS NEEDED WHILE MINIMIZING THE RISK OF EXCESS NUTRIENTS ENTERING THE FOREST SYSTEM AND WATER SUPPLY.

MAINTENANCE SCHEDULE

1. ANNUAL MAINTENANCE DURING THE GROWING SEASON, FOR A THREE YEAR PERIOD.
2. ASSESS TREE MORTALITY OF PLANTING STOCK, REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTINGS.
3. VOLUNTEER SEEDING OF NATIVE, LOCAL AND ENDEMIC VEGETATION IS TO BE EXPECTED. DO NOT DISCOURAGE THIS EFFORT UNLESS IT IS NEGATIVELY EFFECTING THE PLANTED STOCK.
4. REMOVE THROUGH MANUAL MEANS (GRUBBING, PULLING, CUTTING) AGGRESSIVE, NOXIOUS, INVASIVE SPECIES AND ALL HERBACEOUS VEGETATION WITHIN A 3-FOOT RADIUS SURROUNDING THE PLANTED WOODY NURSERY STOCK.
5. REMOVE AND DISPOSE OF MAN-MADE TRASH, INCLUDING ITEMS CONTAINED WITHIN ENTIRE PLANTING AREA. DO NOT REMOVE DOWN AND DEAD MATERIAL NATURALLY OCCURRING OR ACCUMULATING, UNLESS IT IS SMOTHERING PLANTING STOCK.
6. A 75 PERCENT SURVIVAL OF PLANTED STOCK MUST BE ACHIEVED AT THE END OF THE 24 MONTH MANAGEMENT PERIOD. IF NOT, ADDITIONAL PLANTINGS MAY BE REQUIRED TO ACHIEVE THIS GOAL.

SUPERVISION

ALL FOREST CONSERVATION ACTIVITIES SHALL BY DONE UNDER THE DIRECT SUPERVISION OF SOMEONE FROM THE DESIGN TEAM OR OTHER "QUALIFIED PROFESSIONAL" AS DETERMINED BY THE REQUIREMENTS OF COMAR 08.19.06.01 AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, PUBLIC LANDS AND FORESTRY DIVISION.

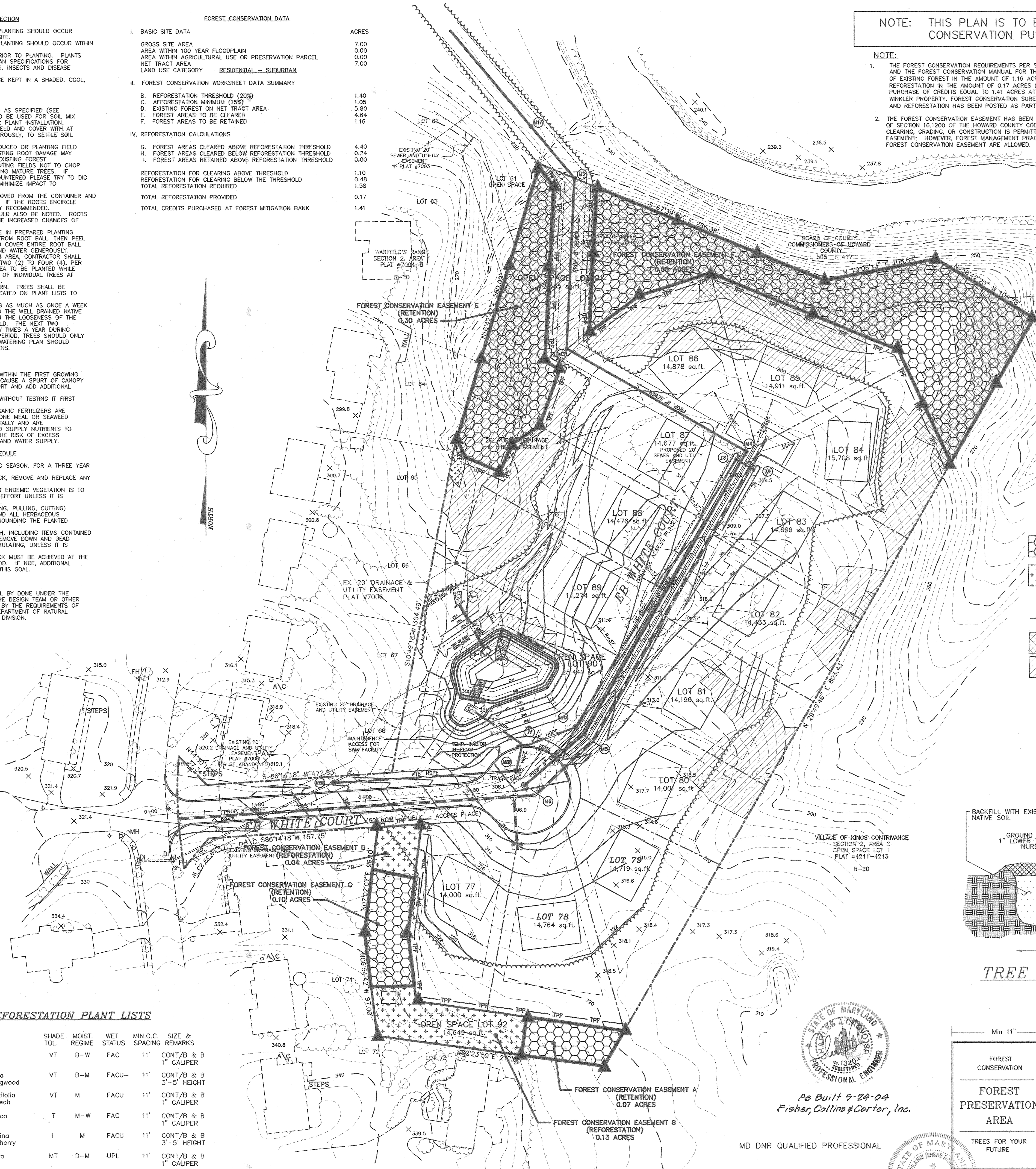
FOREST CONSERVATION DATA

		ACRES
I.	BASIC SITE DATA	
	GROSS SITE AREA	7.00
	AREA WITHIN 100 YEAR FLOODPLAIN	0.00
	AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL	0.00
	NET TRACT AREA	7.00
	LAND USE CATEGORY RESIDENTIAL – SUBURBAN	
II.	FOREST CONSERVATION WORKSHEET DATA SUMMARY	
B.	REFORESTATION THRESHOLD (20%)	1.40
C.	AFFORESTATION MINIMUM (15%)	1.05
D.	EXISTING FOREST ON NET TRACT AREA	5.80
E.	FOREST AREAS TO BE CLEARED	4.64
F.	FOREST AREAS TO BE RETAINED	1.16
IV,	REFORESTATION CALCULATIONS	
G.	FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD	4.40
H.	FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD	0.24
I.	FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD	0.00
	REFORESTATION FOR CLEARING ABOVE THRESHOLD	1.10
	REFORESTATION FOR CLEARING BELOW THE THRESHOLD	0.48
	TOTAL REFORESTATION REQUIRED	1.58
	TOTAL REFORESTATION PROVIDED	0.17
	TOTAL CREDITS PURCHASED AT FOREST MITIGATION BANK	1.41

NOTE: THIS PLAN IS TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY.

NOTE:

1. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 1.16 ACRES (50,529.6 SQ. FT. AT $10,105.92), REFORESTATION IN THE AMOUNT OF 0.17 ACRES (7,405.2 SQ. FT. AT $3,702.60), AND BY THE PURCHASE OF CREDITS EQUAL TO 1.41 ACRES AT THE FOREST MITIGATION BANK LOCATED ON WINKLER PROPERTY. FOREST CONSERVATION SURETY IN THE AMOUNT OF $13,808.52 FOR RETENTION AND REFORESTATION HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
2. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.



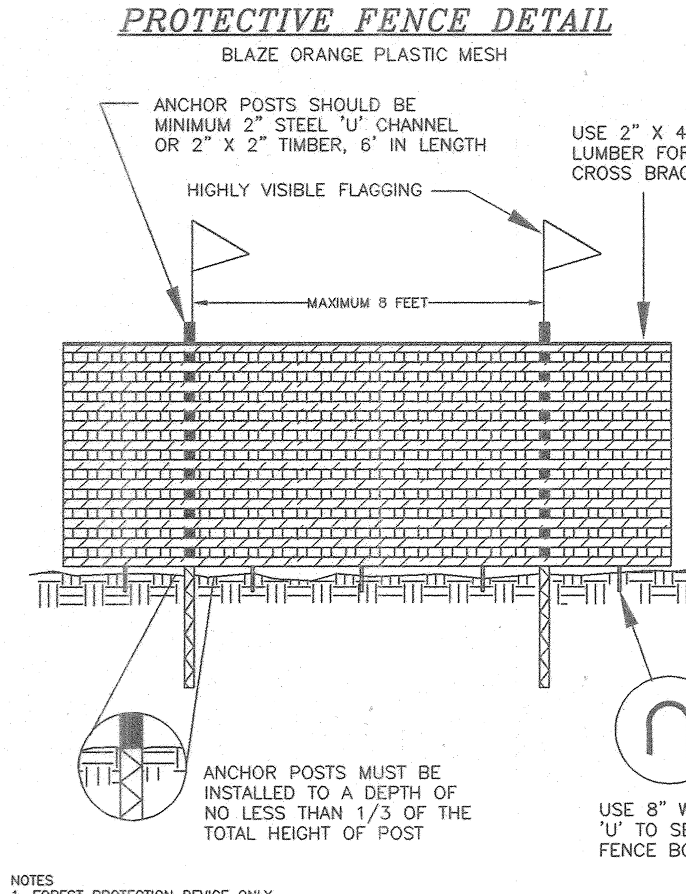
LEGEND

Symbol	Description
(hexagon pattern)	FOREST CONSERVATION EASEMENT (RETENTION)
(+ pattern)	FOREST CONSERVATION EASEMENT (REFORESTATION)
▲	FOREST CONSERVATION SIGNAGE
— TPF —	FOREST CONSERVATION SIGNAGE
(crosshatch)	SLOPES 25% OR GREATER
(diagonal hatch)	15% TO 25% SLOPES
(scalloped line)	15% TO 25% SLOPES

For rev.#2 2-18-02

PROTECTIVE FENCE DETAIL

BLAZE ORANGE PLASTIC MESH



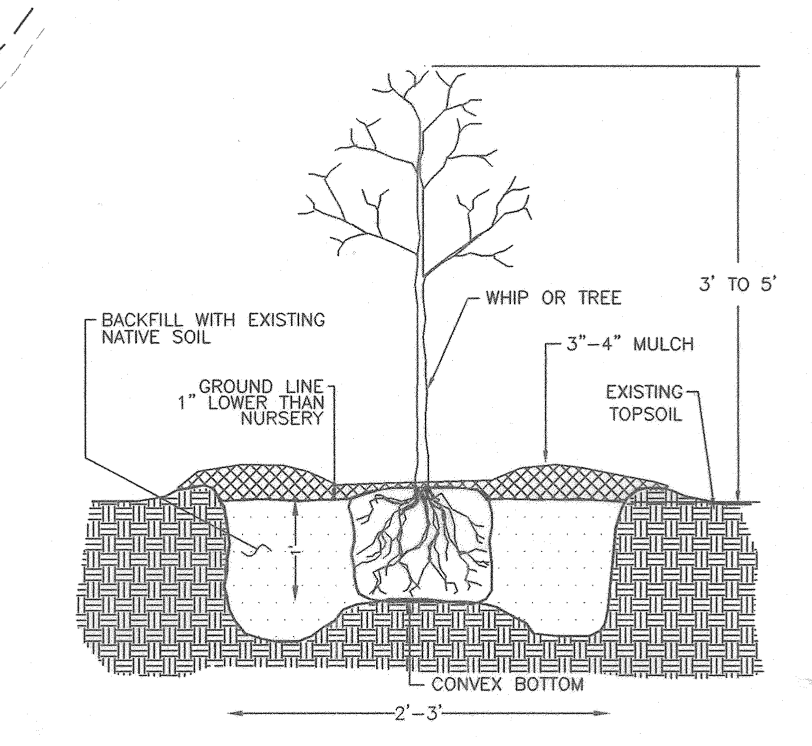
NOTES
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

REFORESTATION PLANT LISTS

QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
36	Acer rubrum Red Maple	VT	D–W	FAC	11'	CONT/B & B 1" CALIPER
45	Cornus florida Flowering Dogwood	VT	D–M	FACU–	11'	CONT/B & B 3'–5' HEIGHT
36	Fagus grandiflolia American Beech	VT	M	FACU	11'	CONT/B & B 1" CALIPER
36	Nyssa sylvatica Black Gum	T	M–W	FAC	11'	CONT/B & B 1" CALIPER
45	Prunus serotina Wild Black Cherry	I	M	FACU	11'	CONT/B & B 3'–5' HEIGHT
36	Quercus rubra Red Oak	MT	D–M	UPL	11'	CONT/B & B 1" CALIPER

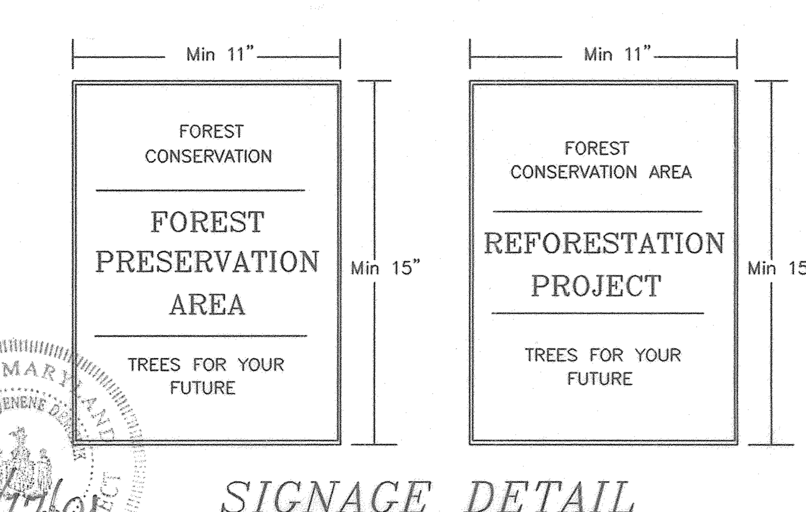
TOTAL
234 TREES

NOTE : WHIPS OR SEEDLINGS MAY BE SUBSTITUTED FOR THE 1" CALIPER OR 3' – 5' TREES. IF WHIPS OR SEEDLINGS ARE TO BE USED, MULTIPLY THE QUANTITIES BY 3.5 TO DETERMINE THE NUMBER OF TREES REQUIRED.



TREE PLANTING DETAIL

CONTAINER GROWN



SIGNAGE DETAIL

NOT TO SCALE

As Built 5-24-04
Fisher, Collins & Carter, Inc.

MD DNR QUALIFIED PROFESSIONAL

STEPHANIE DEMCHIK, RLA #3038

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

98108\dwg\final\roads\108-fcp.dwg 7-16-01 8:43:54 am EST

project	date
98108	JUNE 2001
illustration	engineering
KR/SJD	SJD/KR
scale	approval
1"=50'	

no.	description	date
2	REMOVED CENTRAL MEDIAN ISLAND FROM EB WHITE COURT (PRIVATE) & SPEED CONTROL DEVICE FROM EB WHITE COURT, STATION 1+67 (PUBLIC)	2/18/02

revisions

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDUVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4

TAX MAP 42 – P/O PARCEL 454 – BLOCK 19

SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

FOREST CONSERVATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

AS-BUILT 5-25-04

F 01-28

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES					
LANDSCAPE TYPE	A (PERIMETER 1)	A (PERIMETER 2)	A (PERIMETER 3)	A (PERIMETER 4)	A (PERIMETER 5)	TOTAL
LINEAR FEET OF PERIMETER	584.58 LF	465.83 LF (EXCLUDES EASEMENT)	803.43 LF	212.86 LF	196.10 LF	2262.80 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 375 LF OF EXISTING VEGETATION	YES, 440.93 LF OF EXISTING VEGETATION	YES, 803.43 LF OF EXISTING VEGETATION	YES, 75 LF OF EXISTING VEGETATION	YES, 170 LF OF EXISTING VEGETATION	YES, 1864.36 LF OF EX. VEGETATION
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	1 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	7 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS

SCHEDULE D : STORMWATER MANAGEMENT AREA LANDSCAPING

PERIMETER EDGE	A	B	C	D	TOTAL
LINEAR FEET OF PERIMETER	80 LF	40 LF	80 LF	120 LF	320 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	NO	NO	NO	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A	N/A	N/A	N/A	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	2 SHADE TREES 2 EVERGREEN TREES	1 SHADE TREES 1 EVERGREEN TREES	2 SHADE TREE 2 EVERGREEN TREES	2 SHADE TREES 3 EVERGREEN TREES	7 SHADE TREES 8 EVERGREEN TREES
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SUBSTITUTION TREES	2 SHADE TREES 2 EVERGREEN TREES 0 SUBSTITUTION TREES	1 SHADE TREES 1 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREE 2 EVERGREEN TREES 0 SUBSTITUTION TREES	2 SHADE TREES 3 EVERGREEN TREES 0 SUBSTITUTION TREES	7 SHADE TREES 8 EVERGREEN TREES 0 SUBSTITUTION TREES

LANDSCAPING REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
3		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.
11		ACER SACCHARUM 'GREEN MOUNTAIN' OR EQUIVALENT	GREEN MOUNTAIN SUGAR MAPLE	2 1/2" – 3" CAL.
8		PINUS STROBUS OR EQUIVALENT	WHITE PINE	6' – 8' HT.
6		TAXUS MEDIA 'HICKSII' OR EQUIVALENT (TRASH PAD SCREENING)	HICKS YEW	2 1/2' – 3' HT.

TOTAL
28 TREES & SHRUBS (14 SHADE TREES, 8 EVERGREENS, AND 6 SHRUBS FOR TRASH PAD SCREENING)

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
41		ACER RUBRUM 'RED SUNSET' OR EQUIVALENT	RED SUNSET RED MAPLE	2 1/2" – 3" CAL.

TOTAL
41 STREET TREES (20 PUBLIC, 21 PRIVATE)

STREET TREE CALCULATIONS

EB WHITE COURT (PUBLIC) – 786 / 40 = 20
EB WHITE COURT (PRIVATE) – 820 / 40 = 21

TOTAL TREES REQUIRED = 41 STREET TREES
TOTAL TREES PROVIDED = 41 STREET TREES

7/17/01

LEGEND

(#) PERIMETER LANDSCAPE EDGE

FOREST CONSERVATION EASEMENT (RETENTION)

FOREST CONSERVATION EASEMENT (REFORESTATION)

SLOPES 25% OR GREATER

15% TO 25% SLOPES

STATE OF MARYLAND CHARLES T. FISHER III No. 13466 REGISTERED PROFESSIONAL ENGINEER

As Built 5-29-04
Fisher, Collins & Carter, Inc.

STATE OF MARYLAND ROBERT J. BOENDER No. 5284 PROFESSIONAL ENGINEER

FOR REV # 1 11-29-01
FOR REV # 2 2-18-02

NOTE: THIS DRAWING IS TO BE USED FOR LANDSCAPE PLAN PURPOSES ONLY.

NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR THE REQUIRED LANDSCAPE PLANTINGS (14 SHADE TREES, 8 EVERGREENS, 21 PRIVATE STREET TREES, AND 6 SHRUBS) IN THE AMOUNT OF $11,880.00.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

AS-BUILT 5-25-04

project	98108	date	JUNE 2001
illustration	KR/SJD	engineering	SJD
scale	1"=50'	approval	

no.	description	date
2	REMOVED CENTRAL MEDIAN PLANTING BED WHITE COURT (PRIVATE) & WIDEN CENTRAL TRAVELWAY FROM EB WHITE COURT STATION 1+97 (PUBLIC)	2/18/02
	revisions	

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

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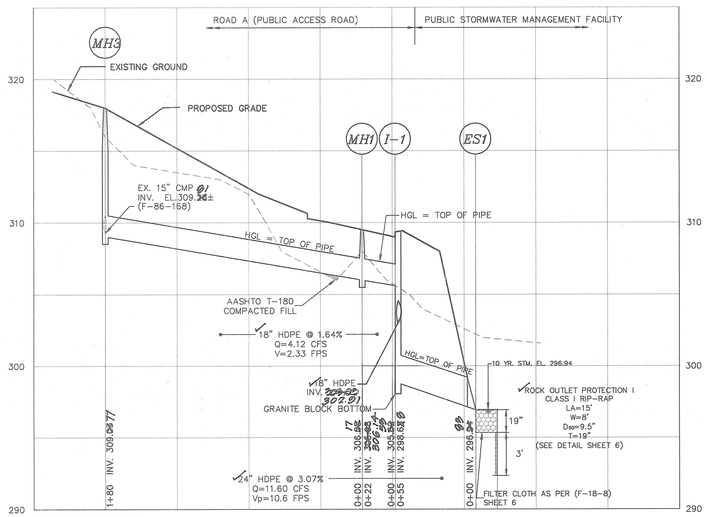
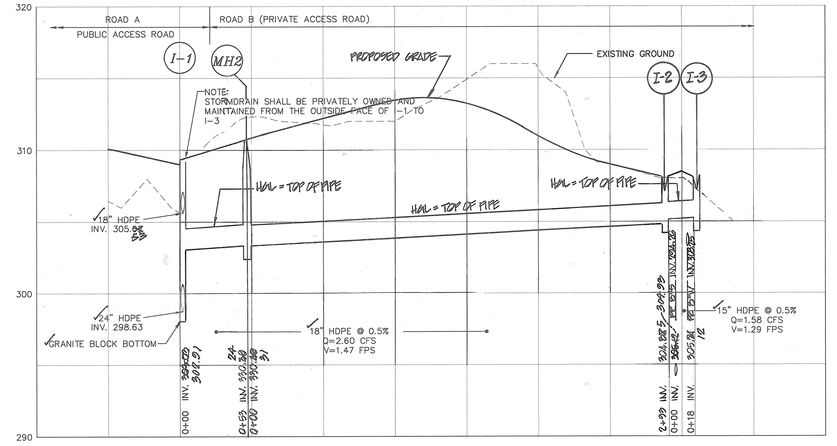


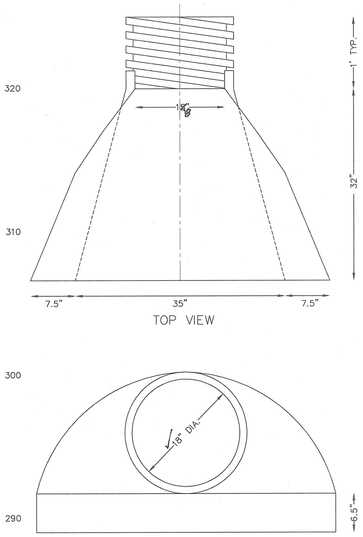
STORM DRAIN PROFILE – MH3 TO ES1

HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



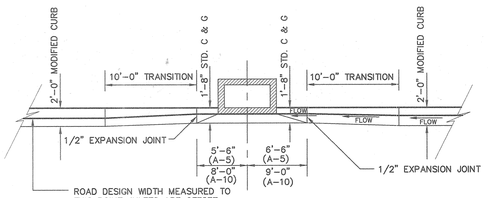
STORM DRAIN PROFILE – I3 TO I1

HORIZONTAL SCALE : 1" = 50'
VERTICAL SCALE : 1" = 5'



INSTALLATION INSTRUCTIONS

1. SPREAD THE END SECTION COLLAR AND PLACE IT OVER THE LAST PIPE CORRUGATION. MAKE SURE THE COLLAR SEATS PROPERLY IN THE CORRUGATION VALLEY.
2. INSERT THREADED ROD THROUGH THE PRE-DRILLED HOLES IN THE END SECTION COLLAR. TIGHTEN WING NUTS.
3. PLACE BACKFILL AROUND THE END SECTION AND OVER THE TOE PLATE. USE CARE DURING COMPACTION ALONG THE SIDES TO PREVENT DISTORTION.

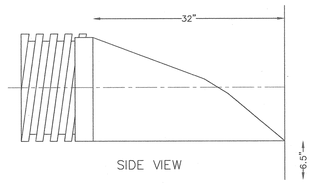


CURB TRANSITION – INLETS
NTS

STRUCTURE SCHEDULE

NO.	LOCATION*	TOP**	INV. IN	INV. OUT	COMMENTS
I-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+~~42~~45 – ~~40~~.88' LEFT	309.~~85~~56	305.~~88~~59	298.6~~8~~	INLET TYPE A-10 (HO. CO. STD SD 4.02) – PUBLIC
I-2	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 3+~~02~~44 16.~~88~~' LEFT	306.~~39~~60	305.~~88~~59	304.6~~8~~5	INLET TYPE K (HO. CO. STD SD 4.12) – PRIVATE
I-3	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 3+~~02~~44 15.~~88~~' RIGHT	306.~~39~~42	----	305.~~81~~12	INLET TYPE K (HO. CO. STD SD 4.12) – PRIVATE
MH-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+42~~15~~ 18.9' LEFT	309.~~56~~99	306.~~81~~17	~~305.82~~ 306.~~81~~	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PUBLIC
MH-2	EB WHITE COURT (PRIVATE ACCESS PLACE) STA 0+~~35~~48 – ~~44~~.57' LEFT	310.~~34~~66	303.~~69~~91	303.~~38~~82	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PRIVATE
MH-3	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 1+3~~2~~ – 18.9' LEFT	318.~~36~~34	309.~~26~~81	309.~~86~~77	PRECAST MANHOLE (HO. CO. STD SD 5.11) – PUBLIC
ES-1	EB WHITE COURT (PUBLIC ACCESS PLACE) STA 3+02~~44~~ – ~~26~~.00' LEFT	----	----	296.~~88~~83	24" ø HDPE END SECTION (SEE DETAIL) – PUBLIC

* LOCATIONS SHOWN ARE AT L OF INLET AT FACE OF CURB
** ELEVATIONS MEASURED TO CENTER OF ALL INLETS
** ALL "A" TYPE STRUCTURES ARE 2.5' WIDE UNLESS OTHERWISE NOTED



18" HDPE END SECTION
(PART NO. 1810 NP)
NOT TO SCALE

PIPE SCHEDULE

	SIZE	LENGTH
PRIVATE	15" HDPE	18'
	18" HDPE	350'
PUBLIC	24" HDPE	55'
	18" HDPE	202'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 8/28/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/27/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

STATE OF MARYLAND — KENNETH L. CROOKS — No. 13266 — REGISTERED PROFESSIONAL ENGINEER

6/28/01

STATE OF MARYLAND — KENNETH L. CROOKS — No. 13266 — REGISTERED PROFESSIONAL ENGINEER

As Built 5-24-04
Fisher, Collins & Carter, Inc.

STATE OF MARYLAND — KENNETH L. CROOKS — No. 13266 — REGISTERED PROFESSIONAL ENGINEER

FOR REV #1 11-29-01

AS-BUILT 5-25-04

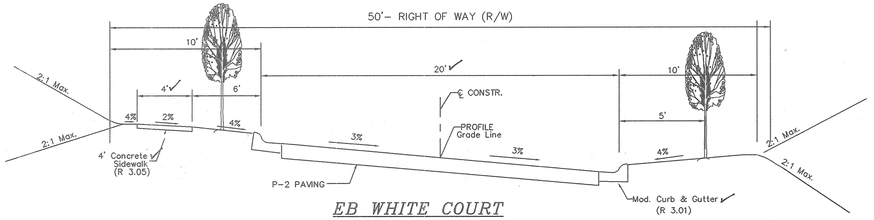
L08-STORMDRAIN

project 98108 | date JUNE 2001 | engineering FL/KR | illustration | scale 1"=50' | approval

no.	description	date
1.	REVISED 15" & 18" HDPE DRAINAGE AREA CHECKED 1:1 & 1:2	11-29-01

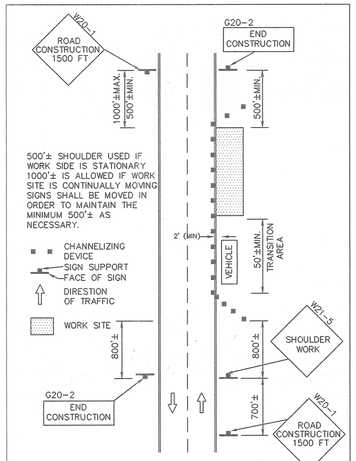
WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
STORMDRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

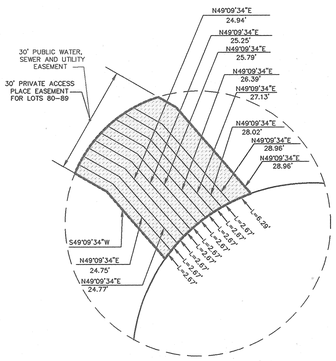


EB WHITE COURT
ROAD SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
NOT TO SCALE



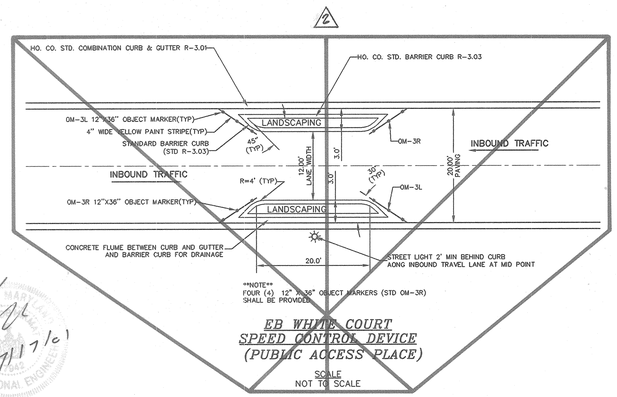
WORK ZONE TRAFFIC CONTROL PLAN
HOWARD COUNTY STANDARD TE-11



DETAIL A
SCALE: 1"=20'

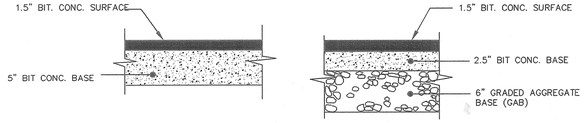
STREET LIGHT SCHEDULE		
✲	EB WHITE COURT PUBLIC ACCESS PLACE STATION 1+00, 12.0' RIGHT	100 WATT HPS VAPOR COLONIAL POST TOP FIXTURE MOUNTED ON A 14' FIBERGLASS POLE
✲	EB WHITE COURT PRIVATE ACCESS PLACE STATION 0+3.00, 12' LEFT	100 WATT HPS VAPOR COLONIAL POST TOP FIXTURE MOUNTED ON A 14' FIBERGLASS POLE

2



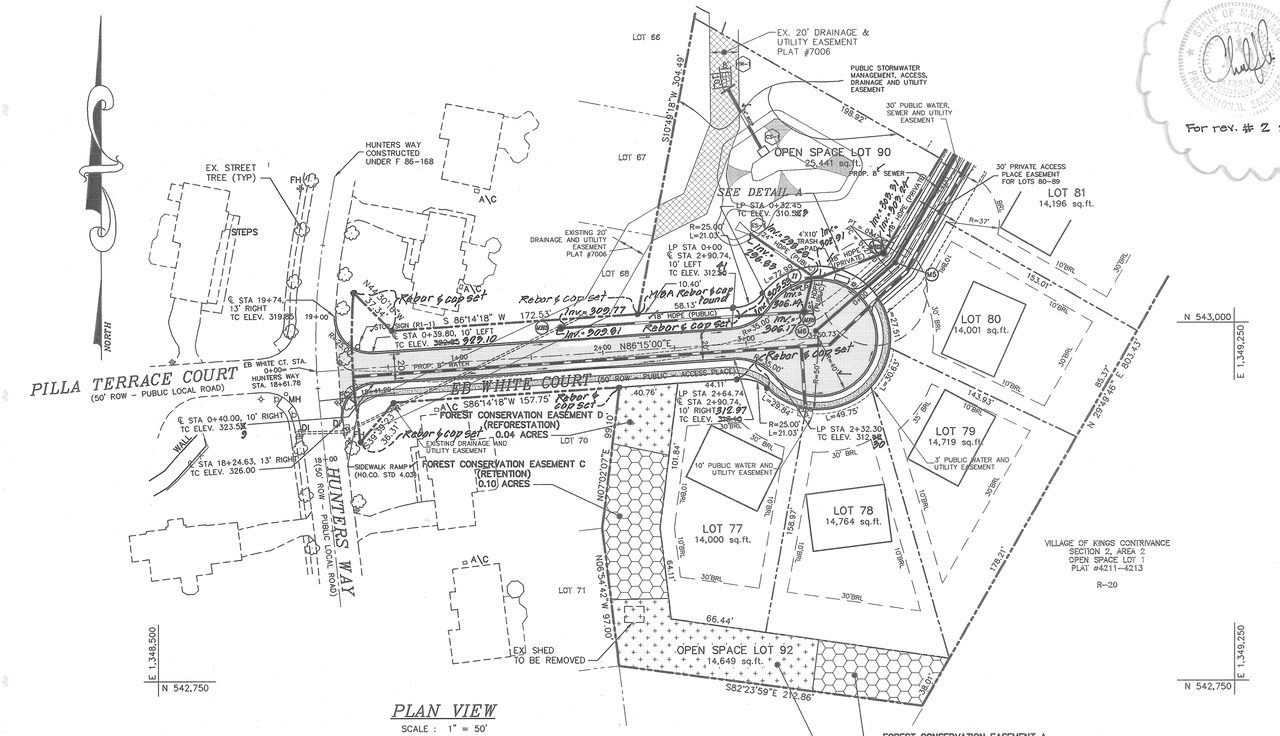
EB WHITE COURT
SPEED CONTROL DEVICE
(PUBLIC ACCESS PLACE)

SCALE
NOT TO SCALE



PAVING SECTION P-2

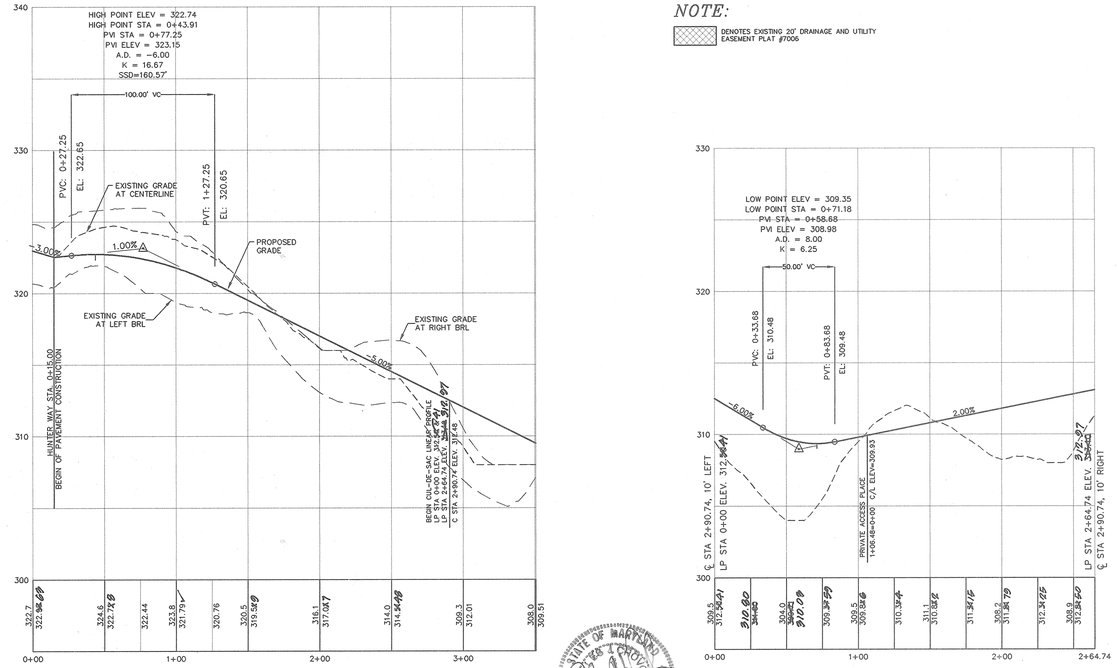
SCALE
NOT TO SCALE



PLAN VIEW

SCALE : 1" = 50'

NOTE : FOR STREET TREE LOCATIONS, SEE LANDSCAPE PLAN, SHEET 12 OF 13.



EB WHITE COURT
ROAD PROFILE
CLASSIFICATION: PUBLIC ACCESS PLACE
HORIZONTAL DESIGN SPEED: 25 MPH
VERTICAL DESIGN SPEED: 25 MPH

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

NOTE:

DENOTES EXISTING 20' DRAINAGE AND UTILITY EASEMENT PLAT #7006

EB WHITE COURT
CUL-DE-SAC PROFILE
CLASSIFICATION: PUBLIC ACCESS PLACE

SCALE
1"=50' HORIZONTAL
1"=5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/21/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

7/17/01

As Built 5-24-04
Fisher, Collins & Carter, Inc.

For rev. # 2 2-18-02

project	date
98108	JULY 2001
illustration	engineering
KR/SJD	SJD
scale	approval
AS SHOWN	

no.	description / revisions	date
2	REVISED STREET LIGHT & SIGN LOCATIONS & RESURVEY AS-BUILT ADDED	F.C.C. 6/19/02

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDUVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROAD PLAN AND PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

F 01-28

AS-BUILT 5-25-04

98108\dwg\final\roads\108-road-profiles

MD-378 POND SPECIFICATIONS (JANUARY 2000)

CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORM WATER 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 DRAIN AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKFILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL – THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CC, SC, CH, OR CL AND MUST HAVE AT LEAST 30%, PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER. MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT – AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION – THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE TREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPSFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT. WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT OFF TRENCH – THE CUTOFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

EMBANKMENT CORE – THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10 YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

STRUCTURAL 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 COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7". TO ASSURE FLOWABILITY OF THE MATERIAL, ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.). TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPER OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

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 P.E. NO.: 13204 DATE: 5/24/04

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

STATE OF MARYLAND — CHARLES G. CROVO, JR. — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

As Built 5-24-04
Fisher, Collins & Carter, Inc.

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 — DATE 7-17-01

James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 7/17/01

R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

STATE OF MARYLAND — R. JACOB HIKMAT — 942 — PROFESSIONAL ENGINEER

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.

USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE 8/9/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 8/9/01

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/27/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

108-POND

PIPE CONDUIT

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

I. MATERIALS – (POLYMER COATED STEEL PIPE) – STEEL PIPES WITH POLYMERIC COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATIONS M-245 & M-246 WITH WATERTIGHT COUPLING BANDS OR FLANGES.

MATERIALS – (ALUMINUM COATED STEEL PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM COATED STEEL PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT THE NEED FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. 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 PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT.

MATERIALS – (ALUMINUM PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-21 L WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE, WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT FOR INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATION M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. 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.

3. CONNECTIONS – ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAIN PIPE OR BARREL 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.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET; AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF ½ INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEARNS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING – THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE – ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:

1. MATERIALS – REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING – REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING/CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE – BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE – THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS – PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D1785 OR ASTM D-2241 CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" – 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.

3. BEDDING –THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILL SHALL CONFORM TO "STRUCTURE BACKFILL."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

DRAINAGE DIAPHRAGMS – WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 414, MIX NO. 3.

ROCK RIPRAP

ROCK RIPRAP SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 921.09, CLASS C.

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 PUMPING 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 FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER 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 SLOPES 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 SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCES CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

OPERATION AND MAINTENANCE

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER ALL 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 PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.

3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AS NEEDED.

4. VISIBLE SIGNS OF EROSION ON THE POND, RIP-RAP, OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND (DAM, RISER, AND 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/OR FOREBAY, WHEN ONE HALF THE TOTAL CAPACITY OF THE POND AND/OR FOREBAY IS FULL OF SEDIMENT, OR DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

HILLIS – CARNES
ENGINEERING ASSOCIATES, INC. — Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name: Warfields Range SWM — Boring #: B-1
Location: Elkridge, Maryland — Job #: 99392A

SAMPLER
Datum: ____ — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman Lamont Smith
Surf. Elev.: ____ — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector ____
Date Started 10-01-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 10-01-99

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, moist, soft silt with trace mica root material			D	2-2-2	1	16"	7" Topsoil
	(Possible Fill)	2.5						
	Orange/Tan to Black/Tan, moist, medium dense, micaceous silty sand (SM)			D	3-4-7	2	16"	Groundwater encountered at 10.0' while drilling
			5					
	USDA – Sandy Loam			D	5-6-10	3	18"	Caved in at 12.0' at Completion
				D	11-12-11	4	13"	
			10					
		12.5		D	9-6-8	5	14"	
	Tan, wet, very dense medium sand, trace to little silt, rock fragments (SM-SP)							
			15					
				D	32-27-51/3"	6	13"	
	Bottom of Test Hole at 16.3'	16.3						
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 10.0 FT.; AFTER 24 hr 7.5 FT.; AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS – CARNES
ENGINEERING ASSOCIATES, INC. — Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name: Warfields Range SWM — Boring #: B-2
Location: Elkridge, Maryland — Job #: 99392A

SAMPLER
Datum: ____ — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman Lamont Smith
Surf. Elev.: ____ — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector ____
Date Started 10-01-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 10-01-99

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown to red brown, moist, loose to medium dense silty sand, with mica, rock fragments (SM)			D	1-1-0	1	16"	6" Topsoil
	USDA – Sandy Loam			D	2-7-5	2	10"	Groundwater encountered at 10.0' while drilling
			5					
				D	6-7-13	3	14"	Caved in at 12.0' at Completion
				D	10-7-8	4	12"	
		9.5						
	Tan, moist to wet, dense silty sand with mica (SM)		10					
				D	18-20-22	5	19"	
			15					
				D	18-22-51/3"	6	14"	
	Bottom of Test Hole at 16.3'	16.3						
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION 8.0 FT.; AFTER 24 hr 6.5 FT.; AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS – CARNES
ENGINEERING ASSOCIATES, INC. — Page 1 of 1

RECORD OF SOIL EXPLORATION

Project Name: Warfields Range SWM — Boring #: B-3
Location: Elkridge, Maryland — Job #: 99392A

SAMPLER
Datum: ____ — Hammer Wt. 140 Lbs. — Hole Diameter 6" — Foreman Lamont Smith
Surf. Elev.: ____ — Hammer Drop 30 Inches — Rock Core Dia. – — Inspector ____
Date Started 10-01-99 — Pipe Size 2.0 Inches OD — Boring Method HSA — Date Completed 10-01-99

ELEV.	SOIL DESCRIPTION Color,Moisture,Density,Size,Proportion	STRA. DEPTH	DEPTH SCALE	CON	SAMPLE BLOWS 6"	NO.	REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Reddish brown, moist, very loose silty sand, trace mica, rock fragments (SM)			D	1-0-1	1	11"	6" Topsoil
	USDA – SAndy Loam			D	2-2-2	2	16"	No groundwater encountered while drilling
	Tan to brown, moist, very loose to dense micaceous silty sand	4.5	5					
	USDA – Sandy Loam			D	2-2-3	3	14"	Caved in at 11.5' at Completion
				D	4-5-8	4	12"	
			10					
				D	6-8-10	5	14"	
			15					
				D	14-16-20	6	12"	
	Bottom of Test Hole at 16.5'	16.5						
			20					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED. PT-PRESSED SHELBY TUBE; CA-CONTINUOUS FLIGHT AUGER; RC-ROCK CORE
SAMPLE CONDITIONS: D-DISINTEGRATED; I-INTACT; U-UNDISTURBED; L-LOST
GROUND WATER DEPTH: AT COMPLETION dry FT.; AFTER 24 hr dry FT.; AFTER ____ FT.
BORING METHOD: HSA-HOLLOW STEM AUGERS; CFA-CONT. FLIGHT AUGERS; DC-DRIVING CASING; MD-MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

---

project	date
98108	FEB. 2001
illustration	engineering
KR	KR
scale	approval
AS SHOWN	

no.	description	date
	revisions	

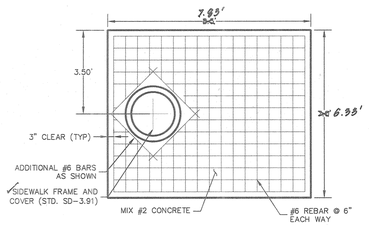
WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT NOTES AND SPECIFICATIONS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

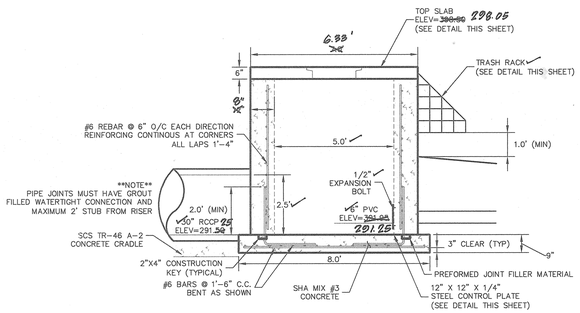
AS-BUILT 5-25-04

F 01-28



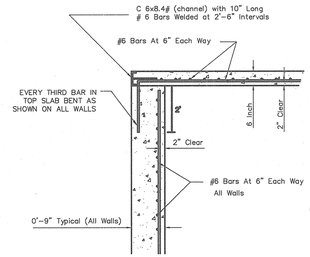
TOP SLAB DETAIL

SCALE : 1" = 3'



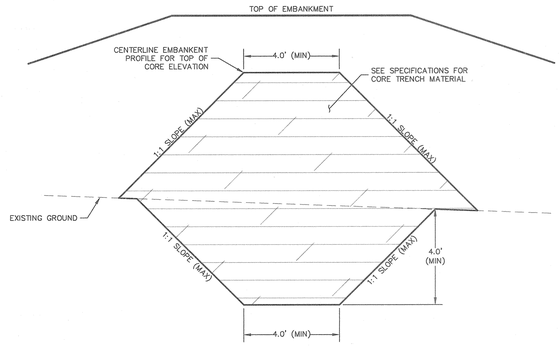
CONTROL STRUCTURE DETAIL (PROFILE)

SCALE : 1" = 3'



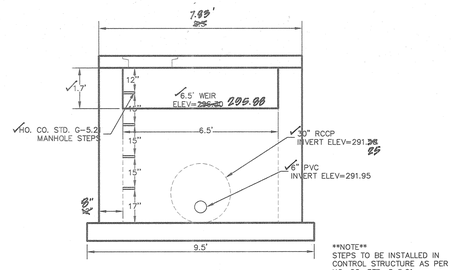
TOP SLAB CONNECTION DETAIL

NOT TO SCALE



CORE TRENCH DETAIL

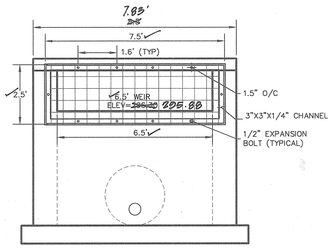
NOT TO SCALE



NOTE
STEPS TO BE INSTALLED IN CONTROL STRUCTURE AS PER HO. CO. STD. G 5.21.

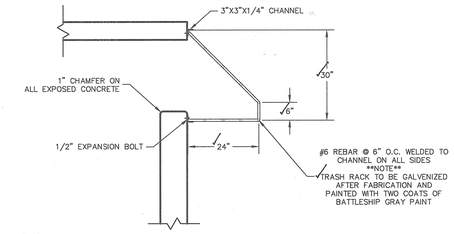
CONTROL STRUCTURE DETAIL (ELEVATION)

SCALE : 1" = 3'



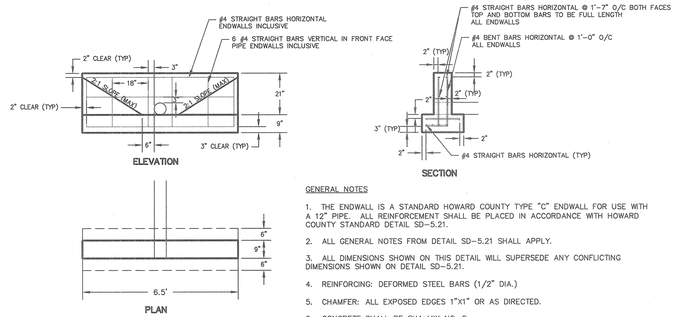
TRASH RACK ELEVATION

SCALE : 1" = 3'



TRASH RACK DETAIL

SCALE : 1" = 2'



GENERAL NOTES

1. THE ENDWALL IS A STANDARD HOWARD COUNTY TYPE "C" ENDWALL FOR USE WITH A 12" PIPE. ALL REINFORCEMENT SHALL BE PLACED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL SD-5.21.
2. ALL GENERAL NOTES FROM DETAIL SD-5.21 SHALL APPLY.
3. ALL DIMENSIONS SHOWN ON THIS DETAIL WILL SUPERSEDE ANY CONFLICTING DIMENSIONS SHOWN ON DETAIL SD-5.21.
4. REINFORCING: DEFORMED STEEL BARS (1/2" DIA.)
5. CHAMFER: ALL EXPOSED EDGES 1"X1" OR AS DIRECTED.
6. CONCRETE SHALL BE SHA MIX NO. 2.

MODIFIED 12" TYPE "C" ENDWALL (SD 5-21)

NOT TO SCALE

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 _____ P.E. NO.: 13294

DATE: 5/24/04

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L Newburn 7-17-01

SIGNATURE OF DEVELOPER DATE

James L Newburn

PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

6/28/01

SIGNATURE OF ENGINEER DATE

R. JACOB HIKMAT

PRINTED NAME OF ENGINEER

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.

8/9/01

USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

8/9/01

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

8/10/01

CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

8/27/01

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

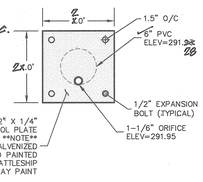
8/15/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

108-pond

STATE OF MARYLAND — JACOB T. HIKMAT — No. 13294 — REGISTERED PROFESSIONAL ENGINEER

As Built 5-24-04
Fisher, Collins & Carter, Inc.

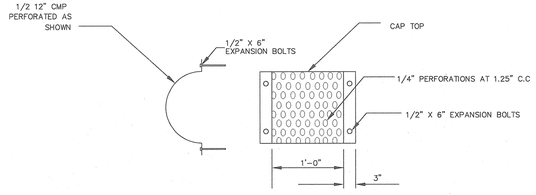


CONTROL PLATE DETAIL

SCALE : 1" = 1'

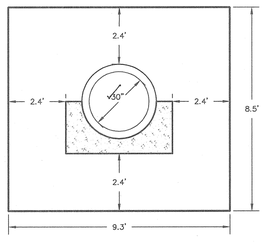
CONTROL PLATE TO BE INSTALLED UPON CONVERSION FROM SEDIMENT BASIN TO POND

STATE OF MARYLAND — JACOB T. HIKMAT — No. 17042 — PROFESSIONAL ENGINEER



HALF SHELL TRASH RACK

NOT TO SCALE

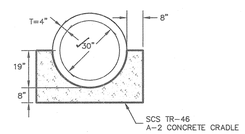


NOTE
JOINT FILLER MATERIAL SHALL BE PLACED BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND THE CRADLE

ANTI-SEEP COLLAR SHALL BE PLACED A MINIMUM OF 2' FROM ANY PIPE JOINT

ANTI-SEEP COLLAR DETAIL

SCALE : 1" = 3'



CONCRETE CRADLE DETAIL

NOT TO SCALE

project	date
98108	JUNE 2001
illustration	engineering
KR	KR
scale	approval
AS SHOWN	

no.	description revisions	date

WARFIELDS RANGE IL, LOTS 77 THRU 92

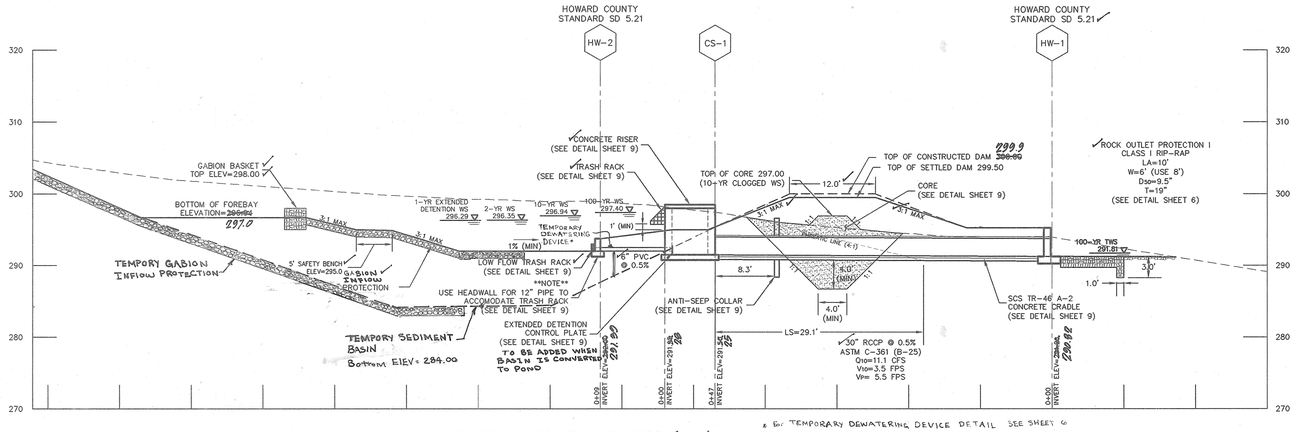
A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5321 Wash. (410) 997-0298 Fax.

F 01-28

AS-BUILT 5-25-04

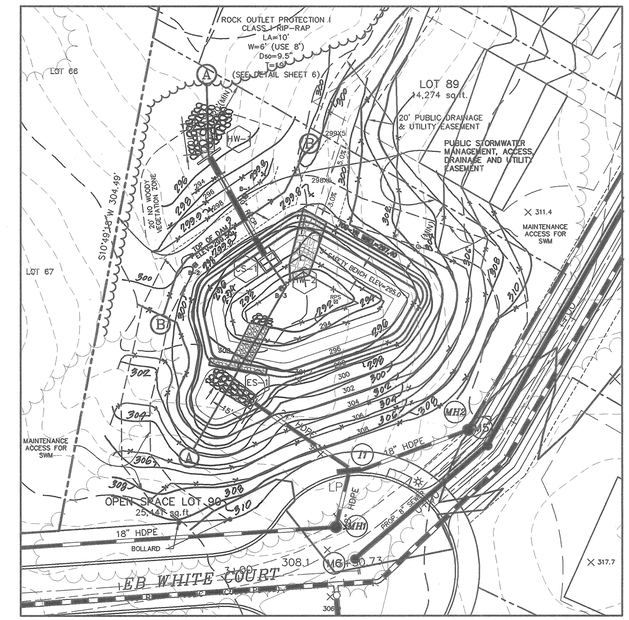


* for TEMPORARY DEWATERING DEVICE DETAIL SEE SHEET 6

PRINCIPAL SPILLWAY PROFILE (A-A)

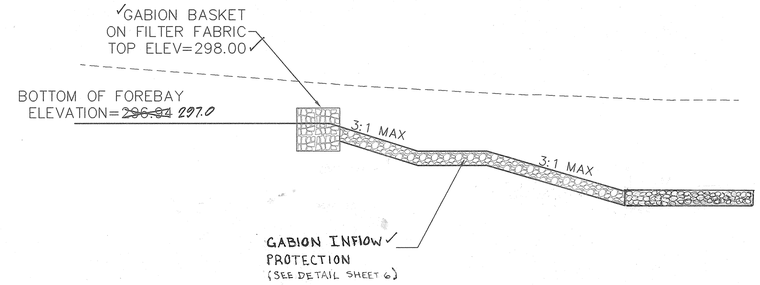
SCALE : 1" = 10'

DETENTION POND DATA
HAZARD CLASSIFICATION- "A"
DRAINAGE AREA- 5.5 ACRES
PROPOSED RCN- 71
PROPOSED TC- 0.25 HR.
WATER QUALITY TYPE- EXTENDED DETENTION
1 YEAR WS ELEVATION- 296.29
2 YEAR WS ELEVATION- 296.35
QOUT=1.0 CFS, QIN=5.4 CFS
10 YEAR WS ELEVATION- 296.94
QOUT=10.9 CFS, QIN=14.5 CFS
100 YEAR WS ELEVATION- 297.40
QOUT=24.9 CFS, QIN=25.9 CFS
OWNERSHIP- PRIVATE/PUBLIC
MAINTENANCE- PRIVATE/PUBLIC



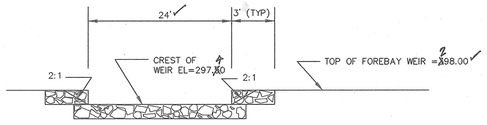
POND PLAN

SCALE : 1" = 30'



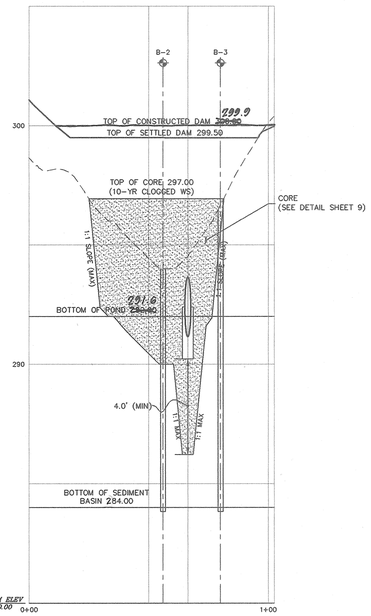
DETAIL OF FOREBAY WEIR

N.T.S.



FOREBAY WEIR SECTION

N.T.S.



CENTERLINE EMBANKENT PROFILE (B-B)

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

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 _____ P.E. NO.: 13204

DATE: 5/31/04

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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."

James L. Newburn 7-17-01

SIGNATURE OF DEVELOPER DATE

James L. Newburn

PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

7/17/-1

SIGNATURE OF ENGINEER DATE

R. JACOB HIKMAT

PRINTED NAME OF ENGINEER

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.

USDA - NATURAL RESOURCES CONSERVATION SERVICE 8/9/01 DATE

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

HOWARD SOIL CONSERVATION DISTRICT 8/9/01 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF BUREAU OF HIGHWAYS 8/9/01 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

CHIEF, DIVISION OF LAND DEVELOPMENT 8/21/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 8/15/01 DATE

108-POND

STATE OF MARYLAND R. JACOB HIKMAT 17942 PROFESSIONAL ENGINEER

STATE OF MARYLAND JAMES T. FISHER JR. 13204 PROFESSIONAL ENGINEER

As Built 5-29-04
Fisher, Collins & Carter, Inc.

project	date
98108	JUNE 2001
Illustration	engineering
KR	KR
scale	approval
AS SHOWN	

no.	description revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT PROFILES AND DETAILS

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AS-BUILT 5-25-04

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING , DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1) PREFERRED – APPLY 2 TONS PER ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING , APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS./1000 SQ.FT.).
2) ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS./1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING – FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE 1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LOBS. PER ACRE (.05 LBS./1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) – 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) – USE SOD. OPTION (3) – SEED WITH 60 LBS./ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONE/ACRE WELL ANCHORED STRAW.

MULCHING – APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.
MAINTENANCE – INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, FOR NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.)
SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU NOVEMBER 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED WEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

STANDARD 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 NAY CONSTRUCTION, (313-1855).
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 THERETO.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 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 1991 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC.51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) 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:	7.00	ACRES
AREA DISTURBED:	4.20	ACRES
AREA TO BE ROOFED OR PAVED:	1.50	ACRES
AREA TO BE VEGITATIVELY STABILIZED:	2.70	ACRES
TOTAL CUT:	9,500	CU. YDS.
TOTAL FILL:	9,500	CU. YDS.
TOTAL WASTE/BORROW AREA LOCATION:	(NOT REQUIRED)	

THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY.
CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITY MEASUREMENTS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10) ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11) TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

STANDARD 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
   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 SPECIFICATION. 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 APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN
   ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONSON 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 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:
   i. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

IV. 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 TOPSOILS SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A pH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PERSCRIBED TO RAISE THE pH TO 6.5 OR HIGHER.
      b. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 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 (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

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

   ii. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLLICATION
   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, ALBEIT 4" – 8" HIGHER IN ELEVATION.
   iii. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" TO 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. 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 SEEDBED PREPARATION.

VI. 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 BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
      a. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS WHO 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 LEASE 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHOURUS, 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.
   iv. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILLIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT (1 DAY)
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT LOCATION SHOWN. (1 DAY)
3. INSTALL TREE PROTECTIVE FENCES AS SHOWN ON THE FOREST CONSERVATION PLAN. (1 DAY)
4. INSTALL SEDIMENT CONTROL MEASURES (SILT FENCES). (1 DAY)
5. CONSTRUCT SEDIMENT BASIN. PROCEED ONLY UPON APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. (5 DAYS)
6. GRADE SITE. (6 DAYS)
7. CONSTRUCT STORM DRAIN SYSTEM AND BLOCK WITH INLET PROTECTION. (3 DAYS)
8. BRING SITE TO FINAL GRADE AND PAVE ROAD. (5 DAYS)
9. STABILIZE ALL DISTURBED AREAS. (3 DAYS)
10. CONTRACTOR SHALL FLUSH STORMDRAIN SYSTEMS AND CLEAN POND. (2 DAYS)
11. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASIN TO STORMWATER MANAGEMENT FACILITY. (2 DAYS)
12. WHEN ALL CONTRIBUTING DRAINAGE AREAS TO SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE REMAINING DISTURBED AREAS. (3 DAYS)

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] P.E. NO.: 13204 DATE: 5/24/04

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

STATE OF MARYLAND – CHARLES J. CROOK – NO. 13204 REGISTERED – PROFESSIONAL ENGINEER

As Built 5-24-04
Fisher, Collins & Carter, Inc.

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] 7-17-01
SIGNATURE OF DEVELOPER — DATE
James L. Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 5/01/01
SIGNATURE OF ENGINEER — DATE
R Jacob Hikmat
PRINTED NAME OF ENGINEER

STATE OF MARYLAND – R. JACOB HIKMAT – 17942 – PROFESSIONAL ENGINEER

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] 8/9/01
USDA – NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] 8/9/01
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 8/10/01
CHIEF BUREAU OF HIGHWAYS — DATE

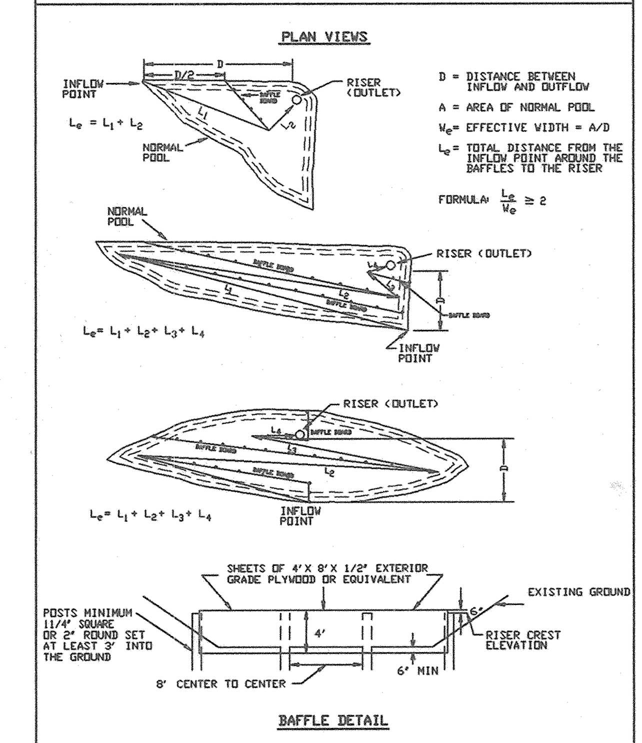
APPROVED: DEPARTMENT OF PLANNING AND ZONNING

Cindy Hamilton 8/24/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

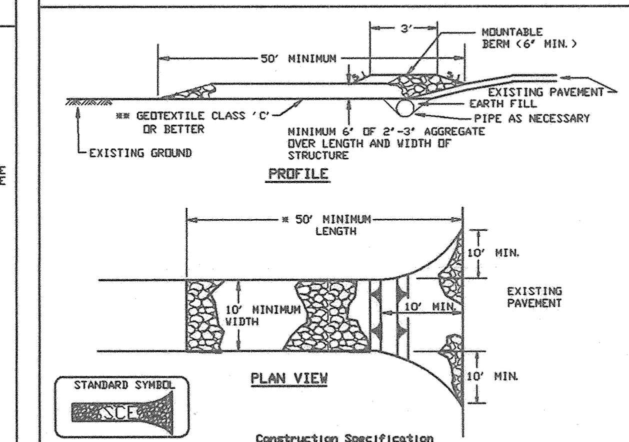
F:\98108\DWG\FINAL\ROADS\108-SED-NO

DETAIL 18 – SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 10 - 28	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE

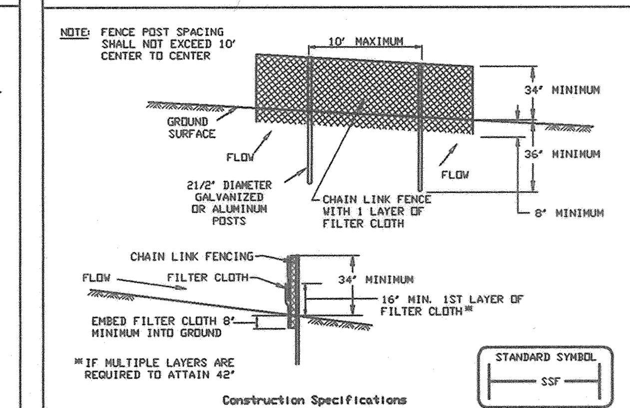


Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).
2. Width – 10' minimum, should be flared 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 plan approval 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" deep 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 with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 – SUPER SILT FENCE



Construction Specifications

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

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

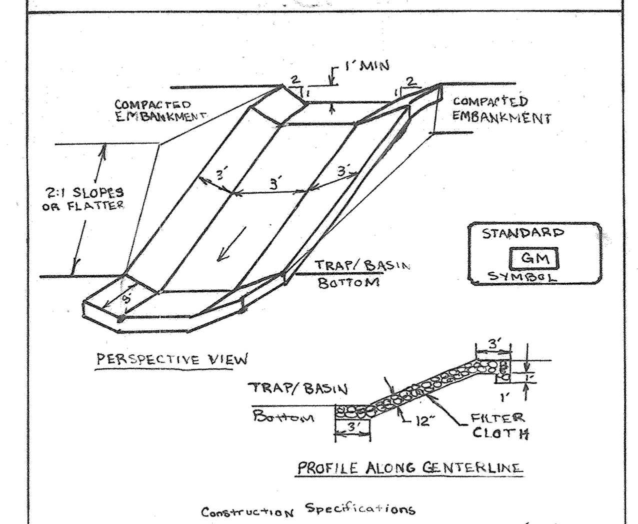
SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 6 – GABION INFLOW PROTECTION

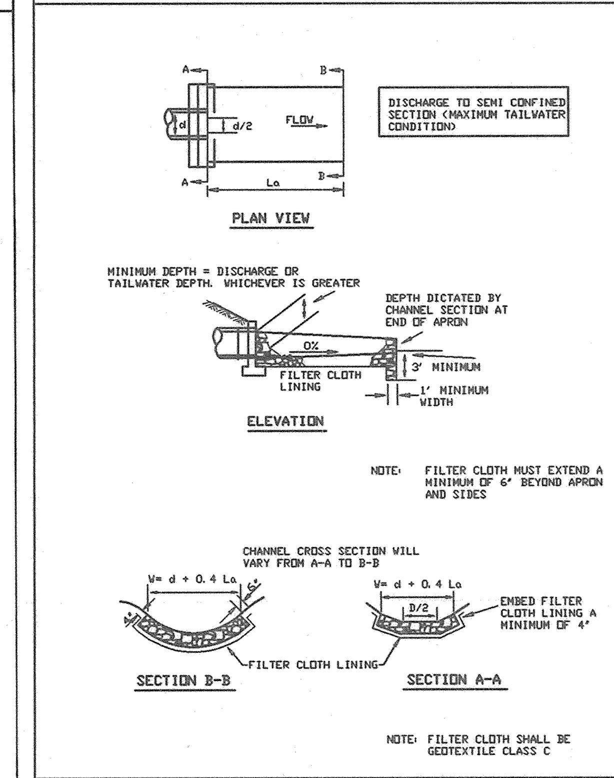


Construction Specifications

1. Gabion Inflow protection Shall Be constructed of 9'x3'x3' Gabion Baskets Forming a trapezoidal Cross Section 1' deep, with 2:1 Sideslopes, 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. Gabion Shall be installed In accordance with manufacturer's Recommendations.
5. Gabion Inflow protection Shall be used where Concentrated Flow is present on Slopes Greater than 4:1.

US DEPT. of AGRICulture Soil Conservation Service	PAGE B-7-2	MD. DEPT. of Environment WATER MANAGEMENT ADMIN.

DETAIL 25 – ROCK OUTLET PROTECTION I



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 8	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

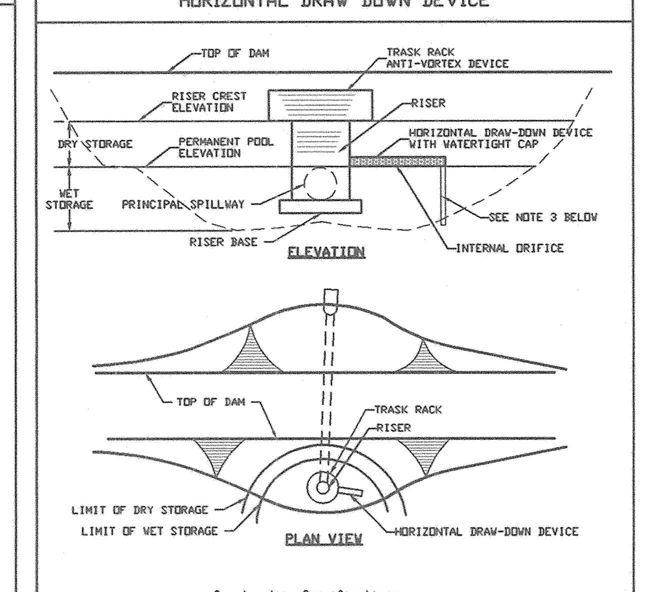
ROCK OUTLET PROTECTION

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 8A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BASIN DRAW DOWN SCHEMATIC HORIZONTAL DRAW DOWN DEVICE

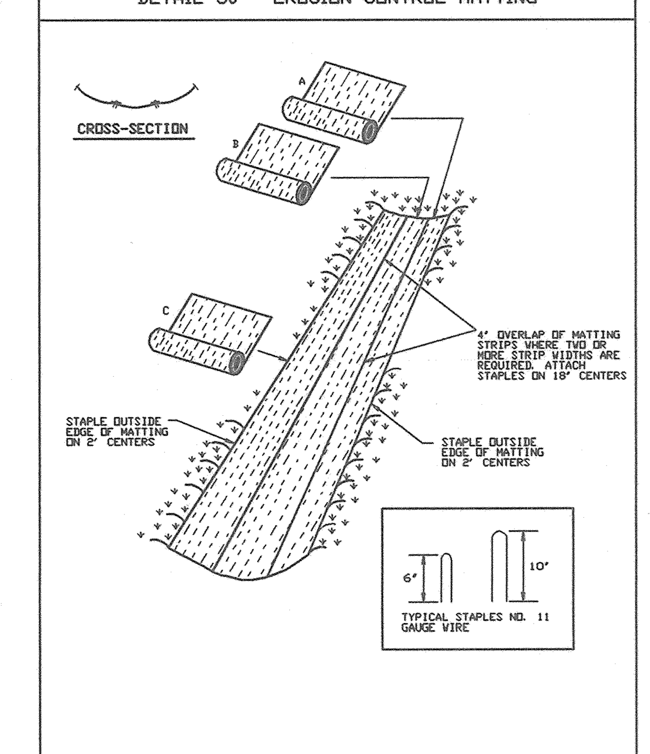


Construction Specifications

1. The total area of the preforations must be greater than 4 times the area of the internal orifice.
2. The preforated portion of the draw-down deviceshall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet specifications for Geotextile Class E.
3. Provide support of draw-down device to prevent sagging and flotation. 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 then to the device by wrapping with 12 guage minimum wire.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 10 - 29	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 – EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

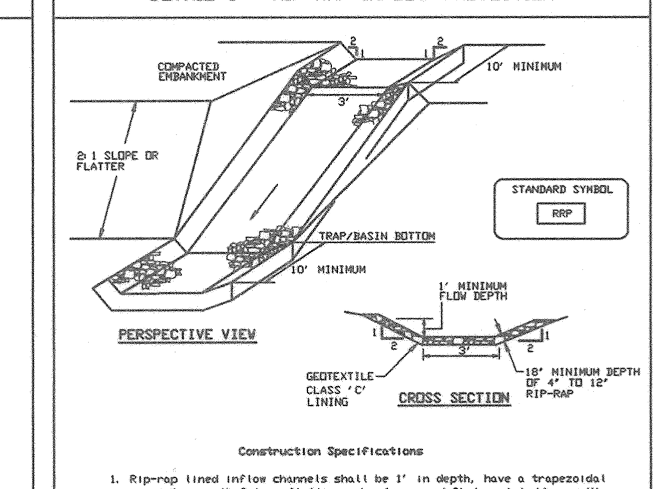
Construction Specifications

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

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 5 – RIP-RAP INFLOW PROTECTION

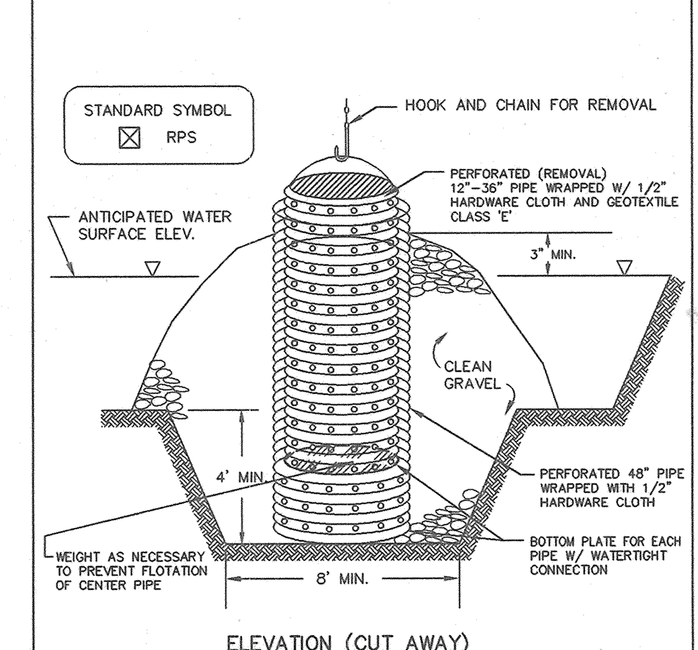


Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip- rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
6. Rip-rap should blend into existing ground.
7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 6 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 20A – REMOVABLE PUMP STATION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SPECIFICATIONS FOR REMOVABLE PUMP STATION

12.0 DEWATERING SPECIFICATIONS FOR REMOVABLE PUMPING STATION

Description of Practice

A temporary sturcture which is used to remove water from exacvated areas, sediment traps and basins.

Purpose

The pumping staton provides a device that fiters sediment laden water for pumping to a suitable discharge area.

Conditions Where Practice Applies

The pumping station will be used to dewater sediment traps and basins for maintenance or removal.

Design Criteria

A design is not requierd but construction must conform to the general criteria outlined on the next page.

A perforated vertical stand pipe is placed inside another pipe. The outside pipe is then enveloped by a cone of washed 2" aggreagate. Water is then pumped from the center of the inside pipe to a suitable dischage area.

Water pumped from the standpipe should discharge into a sediment traap, sediment basin of stabilized area. If water from the sump pit will be pumped directley to a storm drainage system, geotextile fabric and wire mesh must be wrapped around the standpipe to ensure clean water discharge.

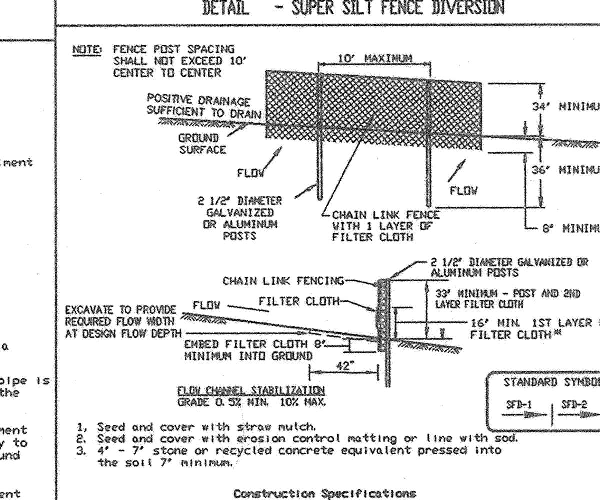
Water pumped from the standpipe should discharge into a sediment trap, sediment basin or stabilized area.

Construction Specifications

1. the inner pipe shall be constructed by perforating a 12" to 36" diameter pipe with a watertight cap on the bottom end and wrapping it with 1/2" hardware cloth and Geotexrile Class E. The perforations shall be 1/2"X6" slits or 1" diameter holes 6" on center.
2. The outer pipe shall be at least 4" larger in diameter than the inside pipe. Both the inner and outer pipes should extend 12" to 18" above the riser crest elevation, or anticipated high water elevation.
3. Filter material ranging from clean gravel (minimum fines) to #57 stone (1 1/2" maximum diameter) should be backfilled around the outer pipe.
4. The suction hose from the pump shall be placed inside the inner pipe to begin dewatering. the discharge hose shall be placed in a stabilized areas downslope of unstabilized area to prevent erosion. Meadow or wooded areas are preferred discharge locations, but storm drains and paved areas are acceptable.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D-12-5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL – SUPER SILT FENCE DIVERSION



1. Seed and cover with straw mulch.
2. Seed and cover with erosion control matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

Construction Specifications

Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.

1. The poles do not need to set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Filter cloth and erosion control matting shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when 'bulges' develop in the silt fence.

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

SUPER FENCE DIVERSION

Construction Specifications (Continued)

7. All temporary SFD dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grade less than 1%.
8. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
9. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
10. All trees, brush, stumps, obstructions and other objectional material shall be removed and disposed of so as not to interfere withe the proper funtioning of the dike.
11. The dike shall be excavated or shaped to lin, 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.
12. Fill shall be compacted by earth moving equipment.
13. All earth removed and not needed for construction shall be placed so that it will not interfere withe the functioning of the dike.
14. Inspection and maintenance must be provided periodically and after each rain event.

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

project	date
98108	APR 2001
illustration	engineering
KR/SA	
scale	approval
NTS	

no.	description revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 – WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 – P/O PARCEL 454 – BLOCK 19
SIXTH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

AS-BUILT 5-25-04

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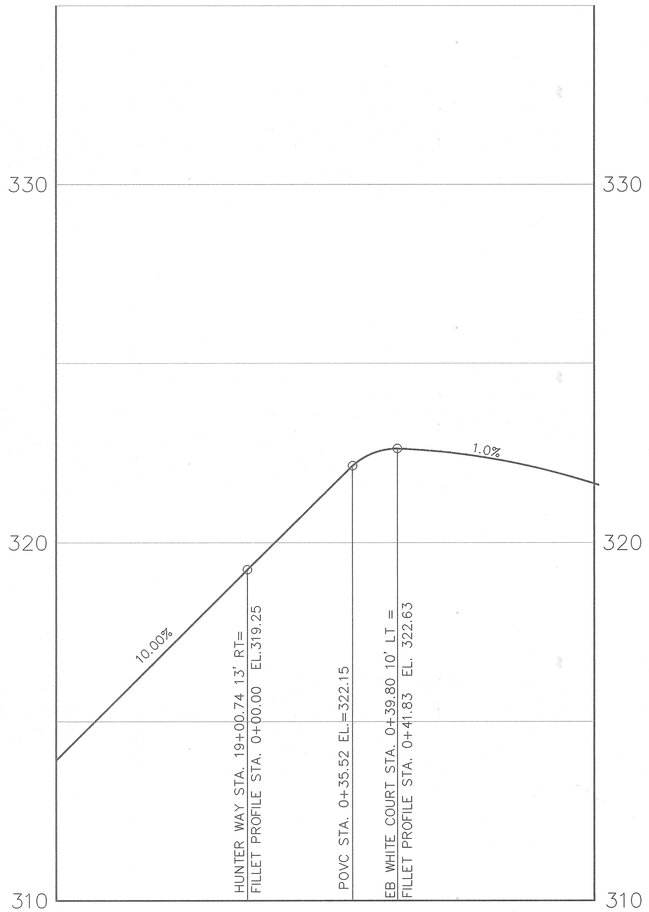
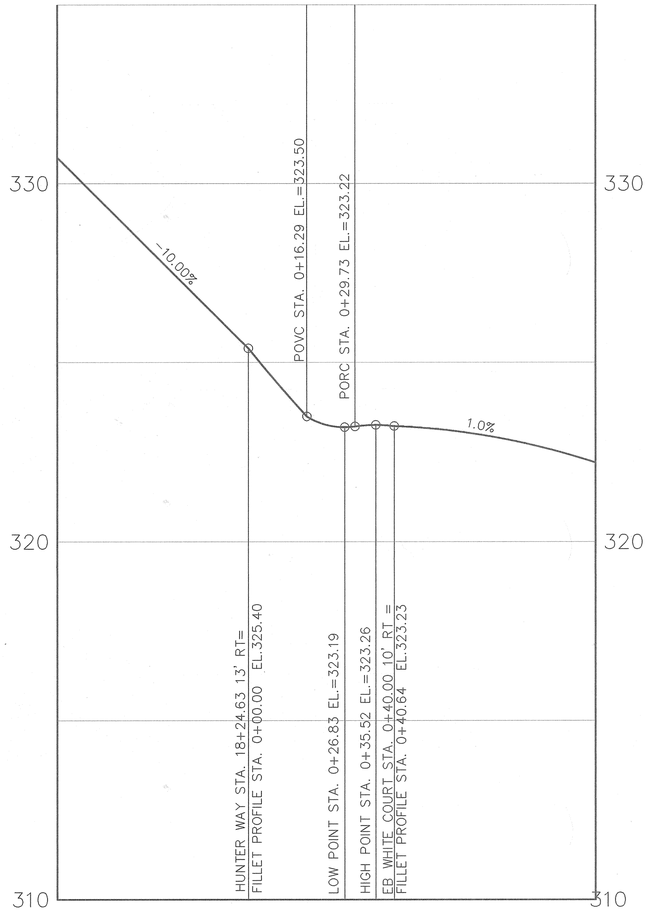


HUNTERS WAY LEFT TURN TO EB WHITE COURT

SCALE: HOR. 1" = 20'
VER. 1" = 2'



HUNTERS WAY RIGHT TURN TO EB WHITE COURT

SCALE: HOR. 1" = 20'
VER. 1" = 2'

6/28/01

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 8/10/01

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/24/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/15/01

108-fillet

AS-BUILT 5-25-04

project 98106 | date APR 2001
illustration SAA | engineering KR/SAA
scale 1"=50' | approval

no.	description revisions	date

WARFIELDS RANGE II, LOTS 77 THRU 92

A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

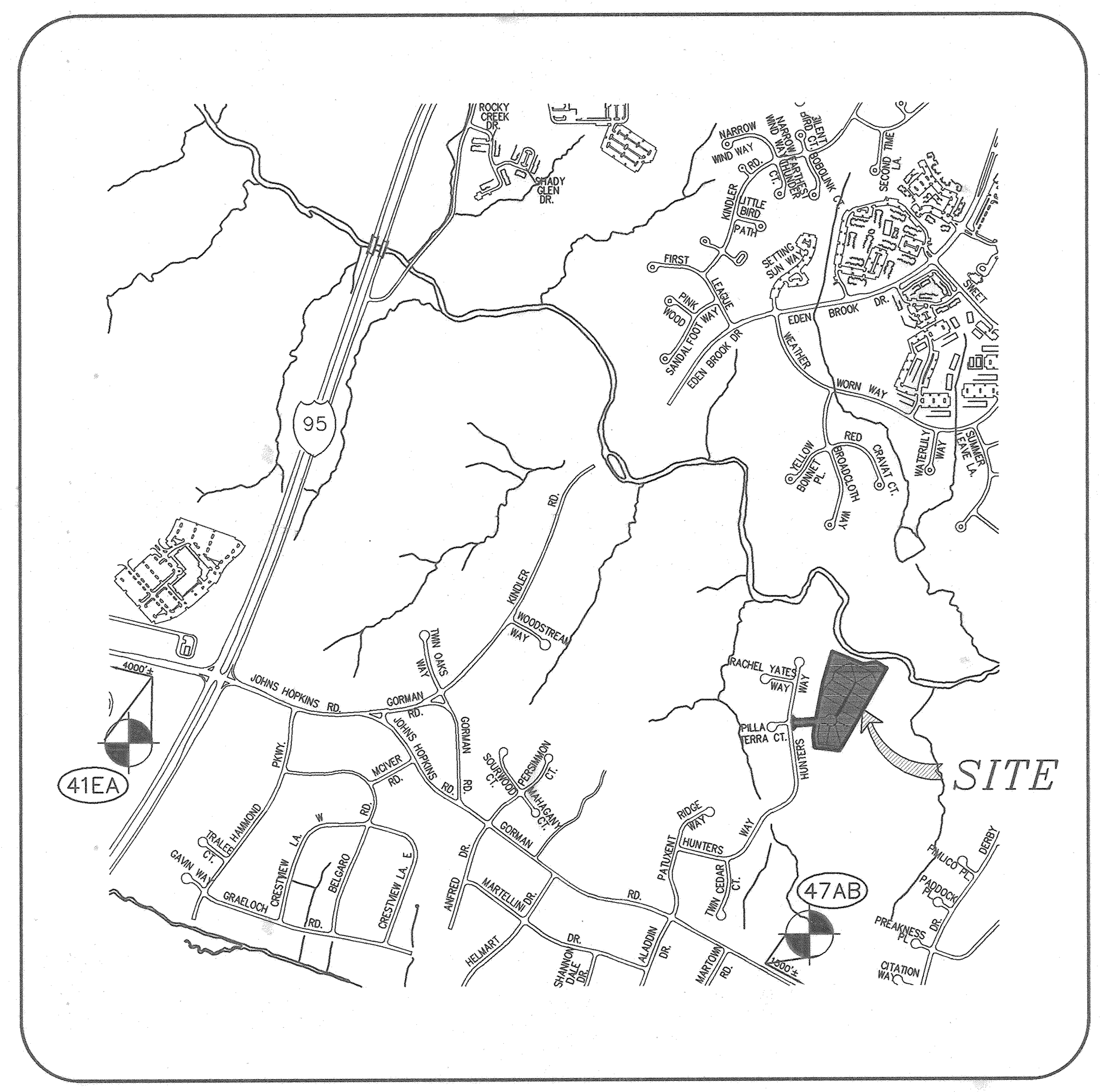
FILLET PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

SHEET INDEX

COVER SHEET	1
ROAD PLAN AND PROFILES	2
ROAD PLAN AND PROFILES	3
FILLET PROFILES	4
GRADING, EROSION AND SEDIMENT CONTROL PLAN	5
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	6
STORMDRAIN PROFILES	7
STORMWATER MANAGEMENT PROFILES AND DETAILS	8
STORMWATER MANAGEMENT DETAILS	9
STORMWATER MANAGEMENT NOTES AND SPECIFICATIONS	10
DRAINAGE AREA MAP	11
LANDSCAPE PLAN	12
FOREST CONSERVATION PLAN	13

ROAD CONSTRUCTION PLANS
WARFIELDS RANGE II
LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69
WARFIELDS RANGE, SECTION 2, AREA 4
SIXTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



VICINITY MAP
SCALE: 1'=1000'

OWNER
THE ESTATE OF JANET PHELPS
C/O DONALD WYVELL
8706 CARRIAGE HILLS DRIVE
COLUMBIA, MD 21046

DEVELOPER
WARFIELDS RANGE ASSOCIATES, LLC
5570 STERRETT PLACE, SUITE 201
COLUMBIA, MD 21044
(410) 997-3815

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) DAYS PRIOR TO ANY EXCAVATION WORK:

MISS UTILITY	1-800-257-7777
C&P TELEPHONE COMPANY	(410) 725-9976
HOWARD COUNTY BUREAU OF UTILITIES	(410) 313-4900
AT&T CABLE LOCATION DIVISION	(410) 393-3533
BALTIMORE GAS & ELECTRIC	(410) 685-0123
STATE HIGHWAY ADMINISTRATION	(410) 531-5533
HOWARD COUNTY DEPT. OF PUBLIC WORKS/ CONSTRUCTION INSPECTION DIVISION	(410) 313-1880

4. PROJECT BACKGROUND:

LOCATION:	TAX MAP 41, P/O PARCEL 454, BLOCK , LOT 69
ZONING:	R-20
ELECTION DISTRICT:	SIXTH
TOTAL ACRES:	7.00 ±AC.
AREA OF BUILDABLE LOTS:	4.35 ±AC
AREA OF OPEN SPACE REQUIRED:	30% x 7.00 AC = 2.10 ±AC
AREA OF OPEN SPACE PROVIDED:	2.13 ±AC
NON-CREDITED OPEN SPACE:	0.03 ±AC
NET OPEN SPACE PROVIDED:	2.10 ±AC
AREA OF RECREATIONAL OPEN SPACE:	N/A
AREA OF ROAD DEDICATION:	0.52 ±AC
NUMBER OF BUILDABLE LOTS:	13
NUMBER OF OPEN SPACE LOTS:	3
TOTAL NUMBER OF LOTS:	16
MINIMUM AREA OF BUILDABLE LOT:	14,000 SQ.FT.
DPZ FILE:	F-86-168; WP-87-132; S-99-14, P-00-11

5. DEED REFERENCE: LIBER 706, FOLIO 340.
6. TWO FOOT CONTOUR TOPOGRAPHY AND EXISTING CONDITIONS BASED ON AERIAL TOPOGRAPHIC SURVEY BY WINGS AERIAL MAPPING, INC. PERFORMED ON OR ABOUT FEBRUARY 2000.
7. HORIZONTAL AND VERTICAL DATUMS BASED ON (NAD'83) MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS.
   STA. 41EA ✓ N 544,825.809 ✓ E 1,339,217.444 ✓
   STA. 47AB ✓ N 540,058.231 ✓ E 1,350,005.027 ✓
8. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
9. STORMWATER MANAGEMENT IS PROVIDED VIA THE METHOD OF DETENTION. STORMWATER MANAGEMENT WILL BE JOINTLY OWNED AND MAINTAINED BY HOWARD COUNTY AND THE HOA.
10. GEOTECHNICAL REPORT PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC., DATED OCTOBER 1999.
11. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
12. DRY WELLS OR OTHER APPROVED BEST MANAGEMENT PRACTICE SHALL BE APPLIED AT THE SITE DEVELOPMENT PLAN TO ANY ROOF DRAINAGE NOT MANAGED BY THE STORMWATER MANAGEMENT FACILITY FOR LOTS 81-86.
13. COMPACTION IN FILL AREAS TO BE 95% AS DETERMINED PER AASHTO T-180.
14. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION.
15. FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING, OF CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OR CONSERVATION EASEMENT ARE ALLOWED.
16. FOREST STAND DELINEATION PERFORMED BY ECO-SCIENCE PROFESSIONALS ON JANUARY 12, 1998.
17. PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
18. SLOPES IN EXCESS OF 25% EXIST AND ARE IDENTIFIED WHERE THEY EXCEED 20,000 SQ. FT.
19. ALL EXISTING STRUCTURES TO BE REMOVED.
19. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION HAS BEEN FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 1.16 ACRES (50,529.6 SQ. FT. AT $10,105.92), REFORESTATION IN THE AMOUNT OF 0.17 ACRES (7,405.2 SQ. FT. AT $3,702.60), AND BY THE PURCHASE OF CREDITS EQUAL TO 1.41 ACRES AT THE FOREST MITIGATION BANK LOCATED ON WINKLER PROPERTY. FOREST CONSERVATION SURETY IN THE AMOUNT OF $13,808.52 FOR RETENTION AND REFORESTATION HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
20. THE 4'X10' TRASH PAD (4" IN DEPTH) WITHIN THE PUBLIC RIGHT OF WAY SHALL BE MAINTAINED BY THE OWNERS OF LOTS 81-89 PERSUANT TO THE DECLARATION OF RIGHTS OF ACCESS AND MAINTENANCE OBLIGATIONS RECORDED AMONG THE LAND RECORDS FOR HOWARD COUNTY, MARYLAND.

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 ______ P.E. NO.: ______ DATE: ______

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH 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 AND ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

STATE OF MARYLAND — CHARLES J. CROVO — 13204 — REGISTERED PROFESSIONAL ENGINEER

As Built 5-24-04
Fisher, Collins & Carter, Inc.

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] 7-17-01
SIGNATURE OF DEVELOPER — DATE
James L Newburn
PRINTED NAME OF DEVELOPER

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 ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 7/17/01
SIGNATURE OF ENGINEER — DATE
R. JACOB HIKMAT
PRINTED NAME OF ENGINEER

STATE OF MARYLAND — R. JACOB HIKMAT — 17942 — PROFESSIONAL ENGINEER

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] 8/9/01
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] 8/9/01
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] for 8/10/01
CHIEF BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONNING

[signature] 8/24/01
CHIEF, DIVISION OF LAND DEVELOPMENT HB — DATE

[signature] 8/15/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

F:\98108\DWG\FINAL\ROAD\108-COVER

project	date
98108	JULY 2001
illustration	engineering
KR/SA	KR
scale	approval
NTS	

no.	description	date
0	SUBMITTED TO HOWARD COUNTY FOR SIGNATURE	7/19/01

revisions

WARFIELDS RANGE II, LOTS 77 THRU 92
A RESUBDIVISION OF LOT 69 - WARFIELDS RANGE, SECTION 2, AREA 4
TAX MAP 42 - P/O PARCEL 454 - BLOCK 19
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

COVER SHEET

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042
(410) 997-0296 Balt. (301) 621-5521 Wash. (410) 997-0298 Fax.

AS-BUILT 5-25-04

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