FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER
PHASE II
LOTS 5-29, 31-36, 38-43, 45-67 & OPEN SPACE LOT 30,37,44,68 & 110 & NON-BUILDABLE PARCEL C & NON-BUILDABLE BULK PARCEL D,E&F RESUBDIVISION OF EXISTING LOT 1, 2, 3 & BULK PARCEL A HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
2. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS: 1-800-257-7777

MISS UTILITY	725-9976
BELL ATLANTIC TELEPHONE CO:	313-2366
HOWARD COUNTY BUREAU OF UTILITIES:	393-3553
VERIZON CABLE LOCATION DIVISION:	850-4620
B.G.&E. CO. CONTRACTOR SERVICES:	787-4620
B.G.&E. CO. UNDERGROUND DAMAGE CONTROL:	531-5533
STATE HIGHWAY ADMINISTRATION:	

3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK.
4. ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
5. ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSTEAD IN TO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE-3' LONG). A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
6. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
   A) WIDTH – 14 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE)
   B) SURFACE – 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
   C) GEOMETRY – MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE, AND MINIMUM 45 FOOT TURNING RADIUS
   D) STRUCTURES (CULVERTS/BRIDGES) – MUST SUPPORT 25 GROSS TON LOADING (H25 LOADING)
   E) DRAINAGE ELEMENTS – CAPABLE OF SAFELY PASSING 100 YEAR FLOOD EVENTS WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE
   F) STRUCTURE CLEARANCES – MINIMUM 12 FEET
   G) MAINTENANCE – SUFFICIENT TO INSURE ALL WEATHER USE
7. ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
8. DEED REFERENCE: 3883/725 AND 3883/735.
9. THE TOPOGRAPHY SHOWN HEREON IS BASED ON AN AERIAL TOPOGRAPHIC SURVEY PREPARED BY WINGS AERIAL MAPPING COMPANY, INC. PHOTOGRAPHED MARCH 1995.
10. WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC. WATER WILL PROVIDED THROUGH CONTRACT NO. 266-W. SEWER WILL BE PROVIDED THROUGH CONTRACT NO. 680-S & 10-3898. FROM NEW PUMPING STATION.
11. STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY MICROPOOL EXTENDED DETENTION FACILITY LOCATED IN OPEN SPACE LOT 30. A FACILITY IS HAZARD CLASS 'A' AND WILL BE PRIVATELY OWNED & JOINTLY MAINTAINED.
12. STREAMS AND WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PREPARED BY CHESAPEAKE ENVIRONMENTAL DATED MARCH, 1995.
13. THE 100-YR FLOODPLAIN DRAINAGE AND UTILITY EASEMENT SHOWN ON-SITE IS BASED ON A FLOODPLAIN STUDY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED DEC. 2006.
14. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
15. THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
16. THE ACCOMMODATION OF AND ACCESS TO THE CEMETERY ON NON-BUILDABLE PARCEL A-1 WAS APPROVED BY THE PLANNING BOARD ON JANUARY 27, 1999.
17. STREET TREES ARE PROVIDED FOR THIS SUBDIVISION IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL.
18. WP-07-095: A WAIVER PETITION HAS BEEN SUBMITTED AND APPROVED, DATED AUGUST 22, 2007, TO WAIVE SECTION 16.116(a)(1) TO ALLOW GRADING REMOVAL OF VEGETATIVE COVER AND TREES, PAVING AND NEW STRUCTURES WITHIN 25 FEET OF A WETLAND; SECTION 16.116(a)(2) TO ALLOW GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, PAVING AND STRUCTURES WITHIN 75' OF A PERENNIAL STREAM BANK AND SECTION 16.116 (b) TO ALLOW GRADING REMOVAL OF VEGETATIVE COVER AND TREES, NEW STRUCTURES AND PAVING ON LAND WITH STEEP SLOPES.
   APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
   a. COMPLIANCE WITH ALL SUBDIVISION REVIEW COMMITTEE COMMENTS.
   b. COMPLIANCE WITH THE COMMENTS DATED AUGUST 14, 2007 FROM THE HOWARD SOIL CONSERVATION DISTRICT.
   c. APPROVAL OF ANY STATE PERMITS REQUIRED FOR THE ENVIRONMENTAL DISTURBANCES. THE PERMIT NUMBER MUST BE SHOWN AS A GENERAL NOTE ON THE FINAL PLAN.
19. A DESIGN MANUAL WAIVER TO WAIVE VOLUME IV, DETAIL R-1.02 WHICH REQUIRES A 50-FOOT WIDE RIGHT-OF-WAY FOR A PUBLIC ACCESS PLACE AND PUBLIC ACCESS STREET, HAS BEEN SUBMITTED AND APPROVED, DATED OCTOBER 15, 2008. APPROVAL WAS BASED ON THE FOLLOWING.
   A. THE PLAN WAS ORIGINALLY DESIGNED & APPROVED UNDER SEPARATE REGULATIONS WHICH ONLY REQUIRED A 40-FOOT RIGHT-OF-WAY. UPDATING THE PLAN TO CURRENT STANDARDS WOULD HAVE A SIGNIFICANT AFFECT ON THE SUBDIVISION AS ALREADY APPROVED.
   B. THE REQUEST TO ALLOW THE 40-FOOT RIGHT-OF-WAY WIDTH IS APPROVED BUT THE MINIMUM PAVEMENT WIDTHS MUST BE PROVIDED AS SPECIFIED WITH THE WAIVER REQUEST.
20. IN LIEU OF PROVIDING RETAINING WALLS ON OPEN SPACE LOT 30 (BEHIND LOTS 33 AND 34), THE AREA WILL BE GRADED, BUT NOT TO EXCEED THE LOD SHOWN ON THE WAIVER PETITION EXHIBIT, AND RESTABILIZED AND PLANTED.
21. REFUSE COLLECTION, SNOW REMOVAL, AND MAINTENANCE FOR LOTS 6, 7, 8, 9, & 10. SHALL BE PROVIDED AT THE JUNCTION OF PRIVATE USE-IN-COMMON ACCESS EASEMENT AND THE RIGHT-OF-WAY OF PROPOSED ROAD.
22. A NOISE STUDY IS NOT REQUIRED FOR THIS DEVELOPMENT.
23. TREE PROTECTION FENCING WILL BE PROVIDED AT THE LIMITS OF DISTURBANCE WHERE GRADING IS ADJACENT TO ENVIRONMENTAL AREAS.
24. THIS SUBDIVISION COMPLIES WITH THE AMENDED 4TH EDITION OF THE SUBDIVISION AND ZONING REGULATIONS, BOTH AS AMENDED BY COUNCIL BILL 75-2003.
25. FOREST STAND DELINEATION PLAN PREPARED BY CHESAPEAKE ENVIRONMENTAL AND APPROVED ON 10, 1999 UNDER P-99-16., DATED JUNE 2004. (FOR LOTS 1, 2, 3 & BULK PARCEL 'A' AND FOR OPEN SPACE LOT 4 AND BULK PARCEL 'B')
26. FOREST CONSERVATION PLAN PREPARED BY CHESAPEAKE ENVIRONMENTAL AND APPROVED ON NOVEMBER 10, 1999 UNDER P-99-16. (FOR LOTS 1, 2, 3 & BULK PARCEL 'A' AND FOR OPEN SPACE LOT 4 AND BULK PARCEL 'B')
27. WETLANDS AREA DELINEATED BY CHESAPEAKE ENVIRONMENTAL AND APPROVED ON NOVEMBER 10, 1999 UNDER P-99-16., DATED JUNE 2004. (FOR LOTS 1, 2, 3 & BULK PARCEL 'A')
28. NO TIDAL WETLANDS, WETLAND BUFFERS, STREAM OR STREAM BUFFERS ARE LOCATED WITHIN OPEN SPACE LOT 4 WETLAND LOCATIONS DETERMINED BY CHESAPEAKE ENVIRONMENTAL IN MARCH, 1995 SHOWN ON S-98-16. (FOR OPEN SPACE LOT 4 AND BULK PARCEL 'B') SEE PLAT# 14513 & PLAT#15794. WETLAND DELINEATION CONFIRM BY ECO-SCIENCE PROFESSIONALS. INC. ON NOVEMBER 24, 2008.
29. FOREST CONSERVATION REQUIREMENTS AS SET FORTH IN SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL, 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.
   THE FOREST CONSERVATION OBLIGATION HAS BEEN FULFILLED BY THE RETENTION OF 13.81 AC. (601,564 SF) OF CREDITED EASEMENT AND 0.12 ACRES OF NON-CREDITED EASEMENT WHICH EXCEEDS THE BREAKEVEN POINT OBLIGATION OF 13.81 ACRES FOR THE SITE. THE TOTAL FINANCIAL SURETY AMOUNT IS $120,313.00 (601,564 SF X 0.20 = $120,313.00)
30. A TRAFFIC IMPACT ANALYSIS WAS PREPARED BY THE TRAFFIC GROUP AND APPROVED ON FEBRUARY 8, 1999 UNDER S-98-16.
31. A NOISE STUDY IS NOT REQUIRED FOR THIS SUBDIVISION.
32. COLLEGE AVENUE IS A SCENIC ROAD. A 35' WIDE FOREST BUFFER IS PROVIDED FOR SCENIC ROAD AS PROVIDED ON S-98-16. AND TYPE "B" BUFFER LANDSCAPING IS PROVIDED ALONG COLLEGE AVE.
33. TREE PROTECTION FENCING WILL BE PROVIDED AT THE LIMITS OF DISTURBANCE WHERE GRADING IS ADJACENT TO ENVIRONMENTAL AREAS AND RETENTION FOREST CONSERVATION AREAS.
34. INGRESS AND EGRESS IS RESTRICTED ALONG COLLAGE AVENUE
35. OPEN SPACE LOT 68 TO BE OWNED AND MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. OPEN SPACE LOTS 30,*40&110* ARE TO BE OWNED AND MAINTAINED BY THE HOA. OPEN SPACE LOT 37 TO BE OWNED AND MAINTAINED BY DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY.
36. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND TREE.
37. NON-BUILDABLE BULK PARCEL D & E WILL BE RE-SUBDIVIDED WITH PHASE III & NON-BUILDABLE PARCEL C WILL BE PRIVATELY OWNED AND WILL BE UTILIZE TO PROVIDED ACCESS TO THE EXISTING HOUSE ON THE ADJACENT PROPERTY OF HOWARD COUNTY SANITARIUM INC. *NON BUILDABLE BULK PARCEL F WILL BE RESUBDIVIDED WITH PHASE IV.*
38. *TRAFFIC ENGINEERING DIVISION TO INSPECT TRAFFIC CIRCLE LAYOUT PRIOR TO CONSTRUCTION*
39. *A DESIGN MANUAL WAIVER TO VOLUME IV, SECTION 2.4B AND APPENDIX A WHICH REQUIRES A MINIMUM 26' PAVEMENT WIDTH ALONG TOWNHOMES HAS BEEN APPROVED 12/22/2011. APPROVAL WAS BASED ON THE FOLLOWING:*
   A. NO PARKING SHALL BE PERMITTED ALONG RUSHING RIVER DRIVE.
   B. IF THE PARKING QUATITIES CHANGE WITH THE SUBMITTAL OF THE SDP (2-CAR GARAGE AND 2 CARS IN DRIVEWAY) THIS APPROVAL SHALL BE RE-EVALUATED TO ENSURE IT MEETS THE MINIMUM REQUIREMENTS FOR OVERFLOW PARKING. AS SHOWN ON THE SDP, THE GARAGES (AND POSSIBLY THE DRIVEWAYS) ARE TOO NARROW TO DOUBLE PARK.

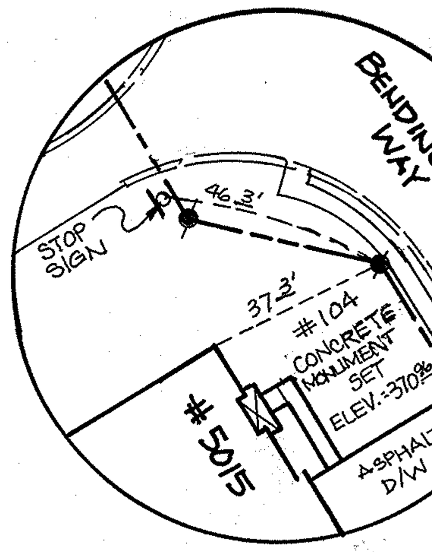
APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] — CHIEF, BUREAU OF HIGHWAYS — DATE *6-22-10*

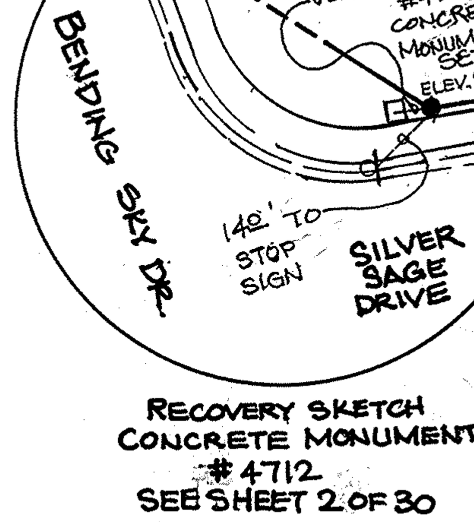
APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] — CHIEF, DIVISION OF LAND DEVELOPMENT — DATE *7/19/10*

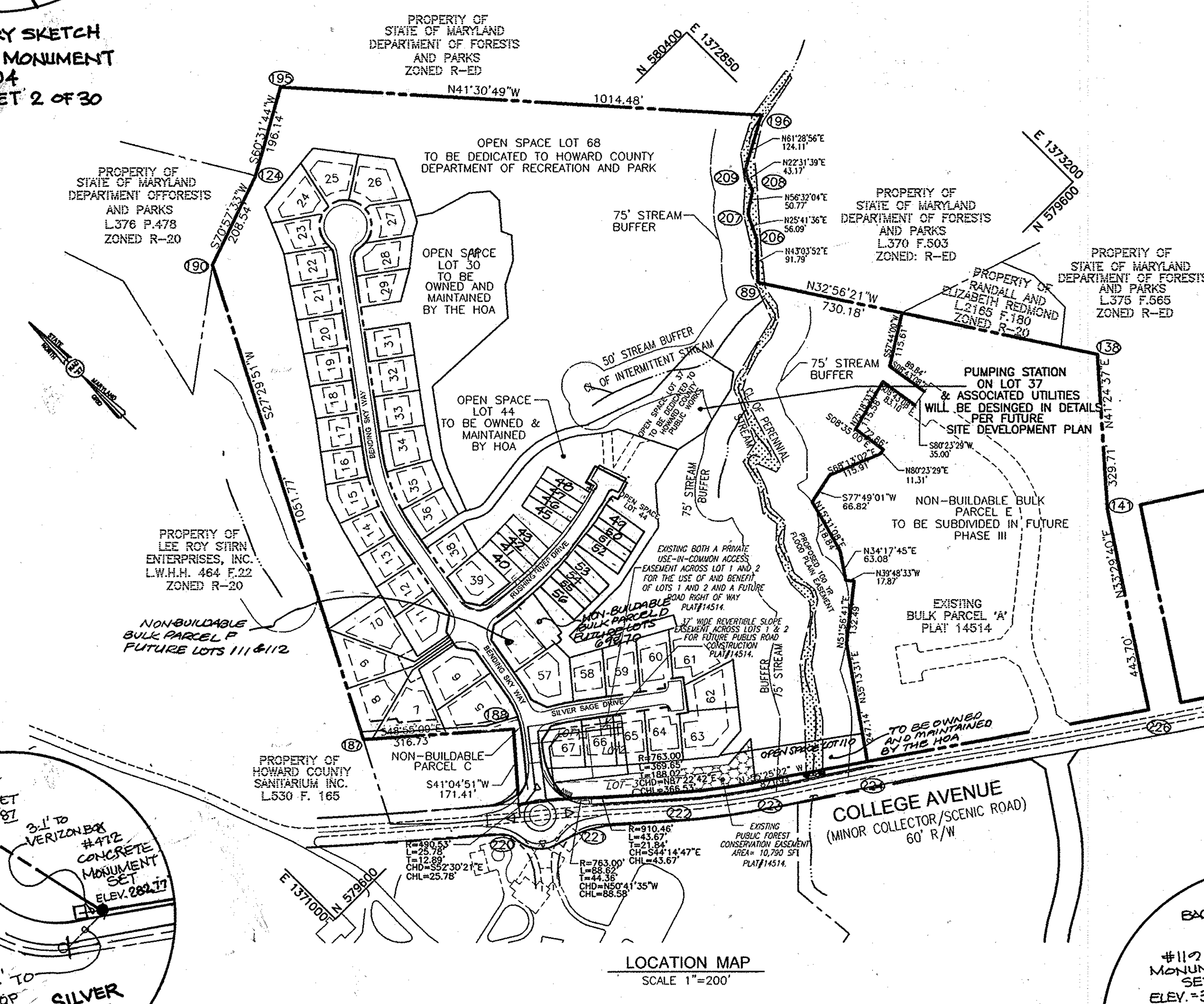
[signature] — CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE *7.13.10*



RECOVERY SKETCH
CONCRETE MONUMENT
#104
SEE SHEET 2 OF 30



RECOVERY SKETCH
CONCRETE MONUMENT
#4712
SEE SHEET 2 OF 30



LOCATION MAP
SCALE 1"=200'

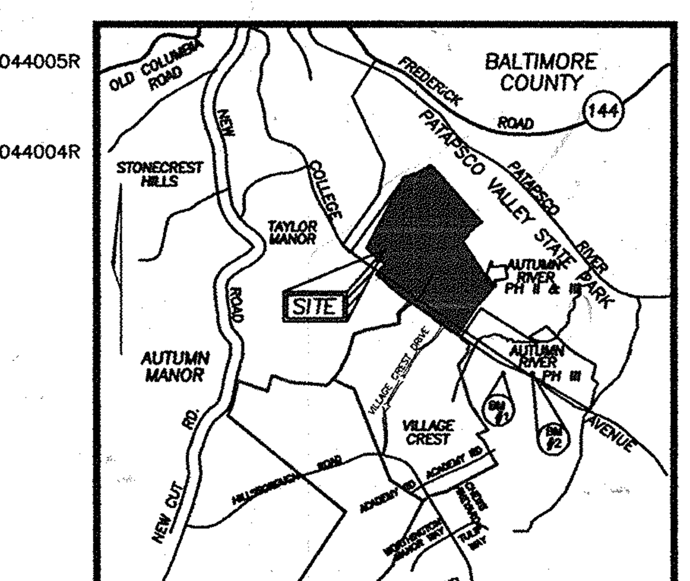
BENCHMARKS

BENCHMARK NO. 1: COUNTY CONTROL #3044005R
3/4" REBAR 0.8' BELOW SURFACE
N. 578233.92, E. 1473142.33
ELEV. = 374.389

BENCHMARK NO. 2: COUNTY CONTROL #3044004R
3/4" REBAR 0.6' BELOW SURFACE
N. 578128.03, E. 1473460.71
ELEV. =362.575

ADC MAP COORDINATES:

N: 517,000
E: 860,000
ADC MAP PAGE: 12 & 16
ADC MAP GRID: H-13



VICINITY MAP
SCALE 1"=2000'

SITE DATA

LOCATION: TAX MAP 25, PARCEL 172 & 279
DEED REFERENCE: L. 3883, F. 735
2ND ELECTION DISTRICT
EXISTING ZONING: R-ED
LOCATION EAST SIDE OF COLLEGE AVENUE, APPROX. 1.5 MILES SOUTH OF HISTORIC ELLICOTT CITY
ELECTION DISTRICT: 2ND
DENSITY: SEE DENSITY TABULATION THIS SHEET.
GROSS AREA OF PARCEL : 48.2285 AC.
TOTAL AREA OF ROAD RIGHT OF WAY : *97,967 SF (2.2490 AC)*
AREA OF 100 YR FLOODPLAIN : 37463.20
AREA OF STEEP SLOPES : 5.786 AC.
NET AREA OF PROJECT : 30.783 AC.
AREA OF NON-BUILDABLE BULK PARCELS : *480,650 SF (11.0342 AC)*
NUMBER OF PROPOSED RESIDENTIAL LOTS (SFD) : *44*
NUMBER OF PROPOSED RESIDENTIAL LOTS (SFA) : *16*
AREA OF PROPOSED RESIDENTIAL LOTS (SFD): *359,569 SF (8.2546 AC)*
AREA OF PROPOSED RESIDENTIAL LOTS (SFA): *42,536 SF (0.9765 AC)*
NUMBER OF PROPOSED OPEN SPACE LOTS: *5*
OPEN SPACE CALCULATION: 25% OF GROSS PROPERTY AREA
OPEN SPACE REQUIRED: 12.06 AC.
TOTAL AREA OF OPEN SPACE PROPOSED: *1,111,594 SF (25.5187 AC)*
NON CREDITED OPEN SPACE : *9,367 SF (0.2150 AC)*
CREDITED OPEN SPACE : *1,102,227 SF (25.3037 AC)*
DPZ FILE REFERENCES: S-02-004, P-07-006.
APPLICABLE DPZ FILE REFERENCE: S-98-16, P-99-16, F-00-131, F-01-08 P.B. 325., P. B. 148, PLAT#15794 & 15795 PLAT# 14513 TO 14515
PROPOSED USE OF SITE: SINGLE FAMILY DETACHED SINGLE FAMILY ATTACHED
PROPOSED WATER SYSTEM: PUBLIC
PROPOSED SEWER SYSTEM: PUBLIC
EX. 2 SFD UNIT LOTS TO BE RECONFIGURED
58 PROPOSED BUILDABLE LOTS
TOTAL DWELLING UNITS FOR THIS SUBMISSION: 60
NO. OF SINGLE FAMILY DETACHED: *44*
NO. OF SINGLE FAMILY ATTACHED: *16*
NO. OF OPEN SPACE LOTS: *5*
NON-BUILDABLE BULK PARCELS: *3*

OPEN SPACE LOT-30 : (OWNED AND MAINTAINED BY HOA)
OPEN SPACE LOT-44 : (OWNED AND MAINTAINED BY HOA)
OPEN SPACE LOT-37 : (TO BE DEDICATED TO HOWARD COUNTY DEPARTMENT PUBLIC WORKS).
OPEN SPACE LOT 68: (TO BE DEDICATED TO HOWARD COUNTY DEPARTMENT OF REC. AND PARK.).
OPEN SPACE LOT 110: (OWNED AND MAINTAINED BY HOA

PARKING:
DWELLING UNITS *60*
REQUIRED AT *2.3 SPACES PER* DU. *138*

TOTAL PARKING SPACES REQUIRED: =*138* SPACES
TOTAL PARKING SPACES PROVIDED: =*240* SPACES

IN ACCORDANCE WITH ZONING SECTIONS 133.C.1.a AND 133.D.2.a IN THE GARAGES IN ATTACHED DWELLING UNITS MUST BE USED FOR PARKING ONLY.

RECREATION OPEN SPACE

RECREATION OPEN SPACE REQUIRED: *14,200 SF*
FOR SINGLE FAMILY DETACHED UNIT: *44* (250 SF PER UNIT)= *11,000 SF*
FOR SINGLE FAMILY ATTACHED UNIT: *16* (200 SF PER UNIT)= *3,200 SF*

PASSIVE/ACTIVE
RECREATION OPEN SPACE PROVIDED:
LOT 30 : PICNIC AREA = 6 TABLES X 500 SF.= 3,000 SF PER S-98-16
CREDITED FOR EXCESS WOODED OPEN SPACE = 8,000 SF. PER S-98-16
8,500 SF. OF REC. OPEN SPACE WILL BE PROVIDED IN PHASE III.
PASSIVE RECREATIONAL OPEN SPACE ONLY:
NO STRUCTURES ARE ALLOWED.

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FINAL ROAD CONSTRUCTION PLAN	4 OF 30
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER

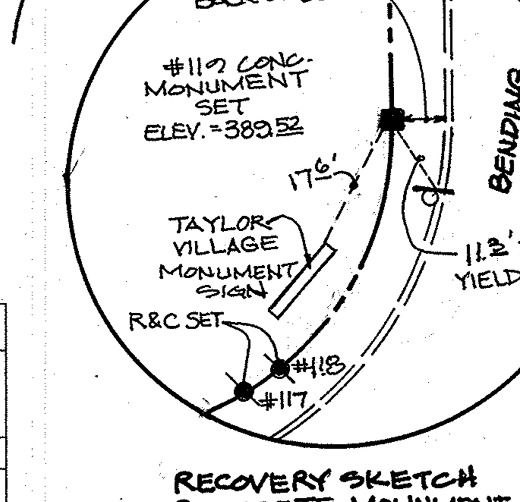
AS-BUILT CERTIFICATION

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.

[signature]
Signature
PE NO. *16193*
Date: *7/27/15*

AUTUMN RIVER DENSITY TABULATION								
PHASE	TOTAL SUBDIVISION AREA (GROSS AREA)	PREVIOUSLY RECORDED PLATS	FLOODPLAIN	STEEP SLOPES	NET AREA	UNITS PERMITTED BY NET AREA	UNITS PROPOSED	TOTAL UNITS REMAINING 97 *
I (F-00-131)	48.229 AC.	(# 14513)	–	–	–	–	02	95
II (P-07-016)	37.429 AC.	–	0.86	5.786 AC.	30.783 AC.	62	60 **	35
III	10.8 AC. 20.30 AC.	(# 14513) (# 15794)	0.84	9.964 AC.	20.296 AC.	40	35 **	0
TOTAL			1.7	15.75 AC.	51.079 AC.	–	97	–

* SKETCH PLAN S-98-016 APPROVED A TOTAL OF 97 UNITS.
** THIS PLAN PROPOSE 58 UNITS PLUS 2 EXSITING UNITS FOR A TOTAL OF 60 UNITS PHASE III PROPOSES 35 UNITS (33 LOTS) ALLOWING FOR THE RESUBDIVISION OF PHASE II, NON BUILDABLE BULK PARCEL D INTO 2 LOTS.



RECOVERY SKETCH
CONCRETE MONUMENT
#119
SEE SHEET 2 OF 30

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

NO.	REVISION	DATE
2	*MODIFICATION TO PROPOSED RUSHING RIVER DRIVE BASED ON RECONFIGURATION OF LOTS ALONG ROADWAY*	*2/7/12*

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
COVER SHEET
LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68 *& 110*
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, *E&F*
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A
TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL PROFESSIONAL ENGINEER *5/7/10*
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2010

AS-BUILT 7/24/15

F-09-021

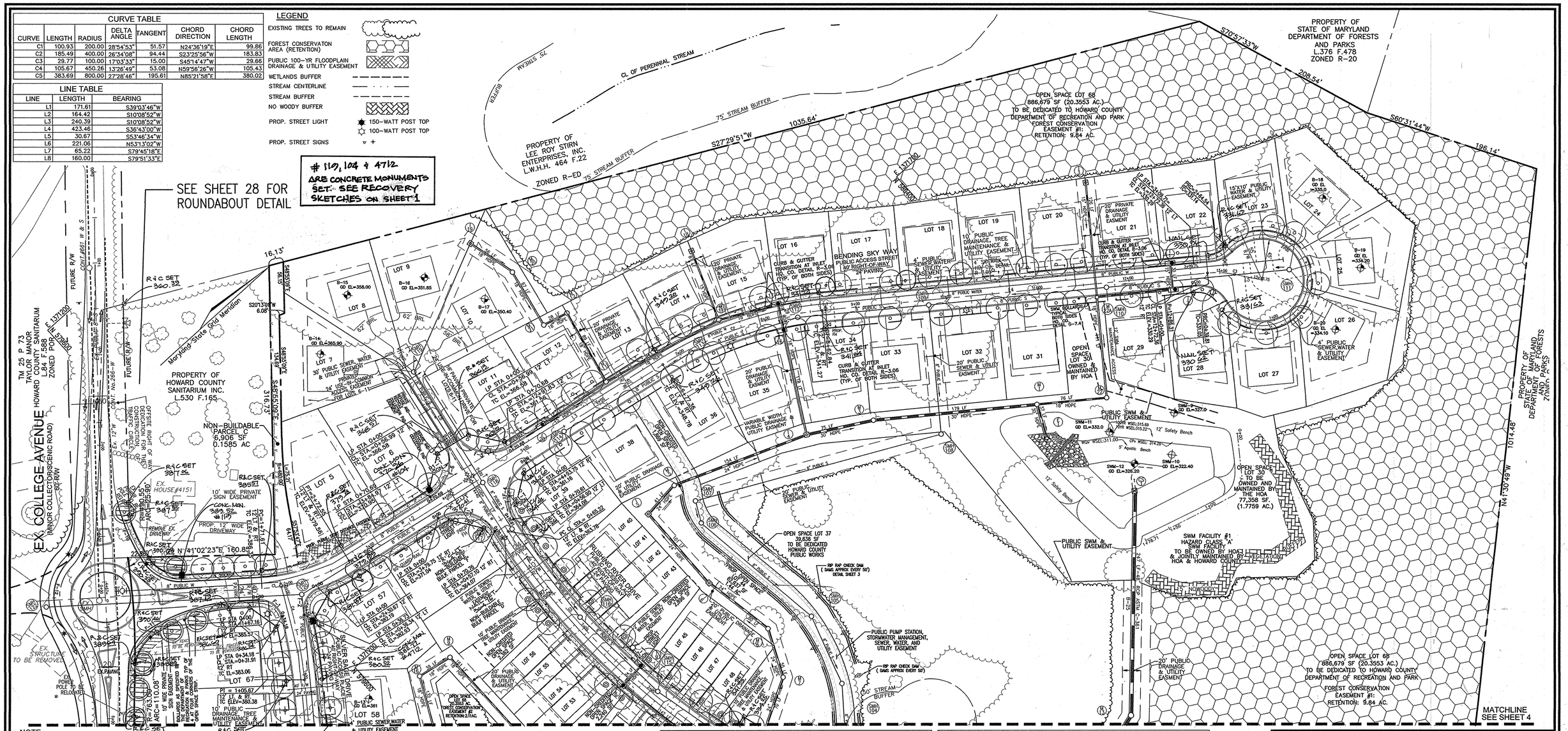
CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	100.93	200.00	28°54'53"	51.57	N24°36'19"E	99.86
C2	185.49	400.00	26°34'08"	94.44	S23°25'56"W	183.83
C3	29.77	100.00	17°03'33"	15.00	S45°14'47"W	29.66
C4	105.67	450.26	13°26'49"	53.08	N59°56'26"W	105.43
C5	383.69	800.00	27°28'46"	195.61	N85°21'58"E	380.02

LINE TABLE		
LINE	LENGTH	BEARING
L1	171.61	S39°03'46"W
L2	164.42	S10°08'52"W
L3	240.39	S10°08'52"W
L4	423.46	S36°43'00"W
L5	30.67	S53°46'34"W
L6	221.06	N53°13'02"W
L7	65.22	S79°45'18"E
L8	160.00	S79°51'33"E

LEGEND

- EXISTING TREES TO REMAIN
- FOREST CONSERVATON AREA (RETENTION)
- PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- NO WOODY BUFFER
- PROP. STREET LIGHT — 150-WATT POST TOP; 100-WATT POST TOP
- PROP. STREET SIGNS

119, 104 & 47 1/2 ARE CONCRETE MONUMENTS SET. SEE RECOVERY SKETCHES ON SHEET 1



NOTE:
ALL HANDICAP RAMPS TO BE HOWARD COUNTY STANDARD DETAIL R-4.01

STREET TREE CALCULATIONS			
STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
BENDING SKY WAY	2847/40	71	71
SILVER SAGE DRIVE	756/40	19	19
RUSHING RIVER DRIVE	870/40	22	22
COLLEGE AVE-RD IMPROV.	103/40	04	04

LIGHT LOCATIONS			
STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE
COLLEGE AVENUE	5+04	47' RIGHT	150 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
COLLEGE AVENUE	5+14	47' LEFT	
COLLEGE AVENUE	4+18	38' RIGHT	
COLLEGE AVENUE	4+32	47' LEFT	
BENDING SKY WAY	1+76	28' RIGHT	100 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
BENDING SKY WAY	3+96	24' RIGHT	
BENDING SKY WAY	4+65	21' LEFT	
BENDING SKY WAY	7+54	15' RIGHT	
BENDING SKY WAY	10+20	15' RIGHT	
BENDING SKY WAY	12+90	21' RIGHT	
SILVER SAGE DRIVE	2+97	22' LEFT	
RUSHING RIVER DRIVE	2+54	23' LEFT	

STREET TREES				
KEY	QUAN.	BOTANICAL NAME	SIZE	REM.
	67	ACER SACCHARUM 'GOLDSPIRE' COLUMNAR SUGAR MAPLE	2 1/2"-3" CAL.	B & B
	04	AMUR MAPLE ACER GINNALA (SHADE TREES-GROWTH HEIGHT=20') FOR BG&E WIRE ZONE		
	19	ACER RUBRUM 'RED SUNSET' RED SUNSET RED MAPLE	2 1/2"-3" CAL.	B & B
	22	ACER SACCHARUM 'GREEN MOUNTAIN' GREEN MOUNTAIN SUGAR MAPLE	2 1/2"-3" CAL.	B & B
	04	AMUR MAPLE ACER GINNALA (SHADE TREES-GROWTH HEIGHT=20')	2 1/2"-3" CAL.	B & B

ROAD NAMES	ROAD CLASSIFICATION	DESIGN SPEED	PAVING
BENDING SKYWAY STA. 0+00 13+46.75	PUBLIC ACCESS STREET 24' WIDE PAVING	35 MPH	P-2
SILVER SAGE DRIVE STA. 0+00 3+26.23	PUBLIC ACCESS PLACE 24' WIDE PAVING	25 MPH	P-2
RUSHING RIVER DR. STA. 0+00 4+48.90	PUBLIC ACCESS PLACE 24' WIDE PAVING	25 MPH	P-2
24' USE IN COMMON DRIVE FOR LOT 6, 7, 8, 9, 10, & 11	16' WIDE PAVING	-	P-1

NOTE: A MINIMUM OF 20' IS REQUIRED BETWEEN ANY STREET LIGHT AND ANY TREE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-20-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/08/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/12

SIGNAGE LOCATION CHART		
FOR ADDITIONAL SIGNAGE AT ROUNDABOUT, CONTACT HOWARD COUNTY TRAFFIC DIVISION, CONTACT 410-313-5752		
R2-1 (25 MPH)	BENDING SKY WAY	CL RD. STA. 1+26.11, 14' RT.
R1-1 (STOP)	SILVER SAGE DR.	CL RD. STA. 0+36, 21.5' LT.
TEE TURN AROUND	3' BEHIND THE CURB AS SHOWN - SILVER SAGE DR.	NO PARKING IN TEE TURN AROUND
R1-1 (STOP)	RUSHING RIVER DRIVE	CL RD. STA. 0+32, 21.5' LT.
TEE TURN AROUND	3' BEHIND THE CURB AS SHOWN - RUSHING RIVER DRIVE	NO PARKING IN TEE TURN AROUND
R1-1 (STOP)	USE-IN-COMMON DRIVE	CL RD. STA. 0+32, 18.9' LT.
R7-1 (NO PARKING ANYTIME)	RUSHING RIVER DRIVE	CL RD. STA. 1+53, 14' RT.
R7-1 (NO PARKING ANYTIME)	RUSHING RIVER DRIVE	CL RD. STA. 2+61, 14' LT.

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 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.

Signature

PE No. 16193
Date: 7/27/15

SEE SHEET 5 FOR ROADWAY SECTIONS AND DETAILS

OWNERS
AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER
AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

REVISED FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
ROAD CONSTRUCTION PLAN
LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21
2ND ELECTION DISTRICT

PARCELS 172 & 279
HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER 07/27/15

ROBERT H. VOGEL, PE No.16193

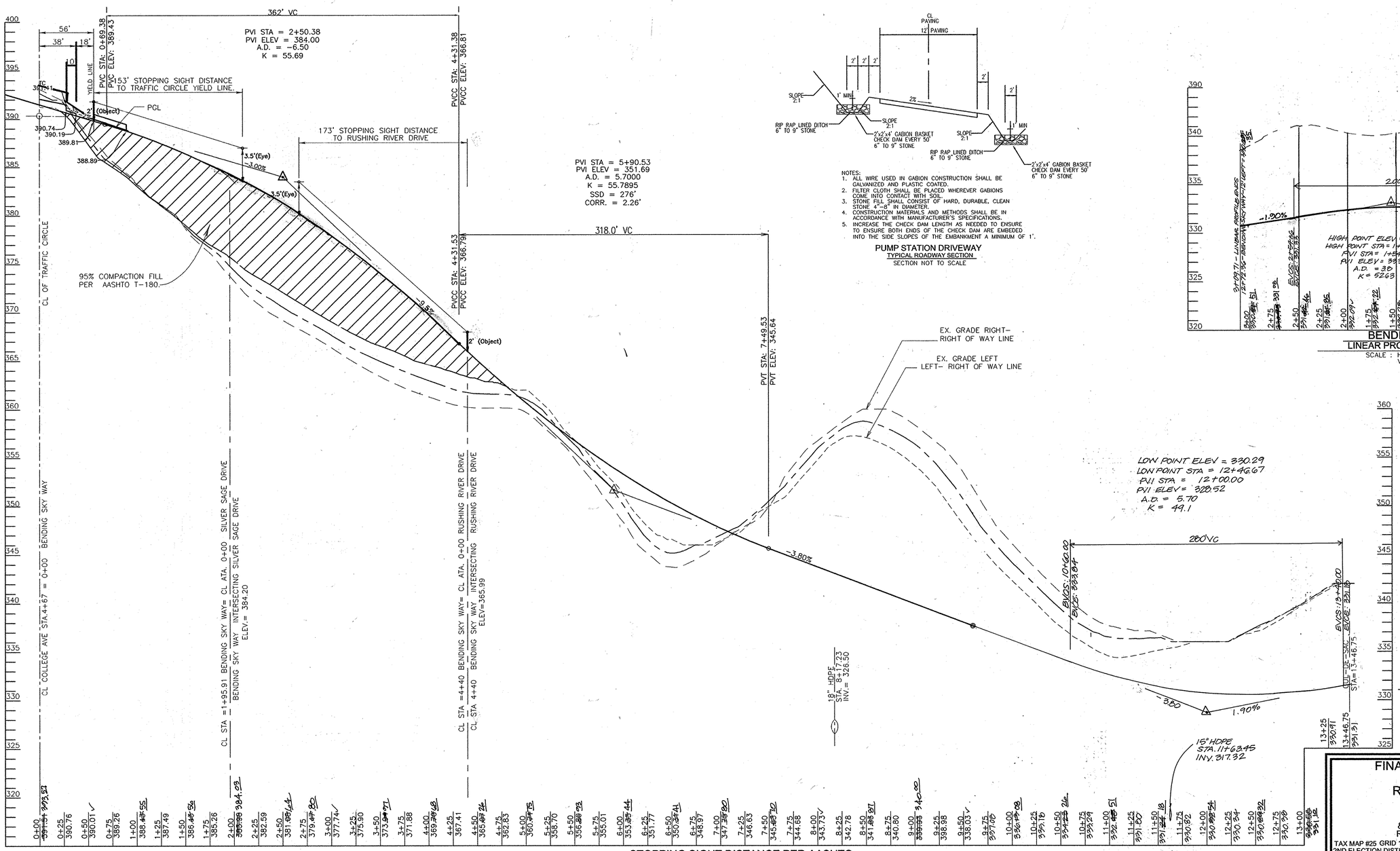
DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	1"=50'
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 2 OF 30

AS-BUILT 7/24/15

F-09-021



STOPPING SIGHT DISTANCE PER AASHTO

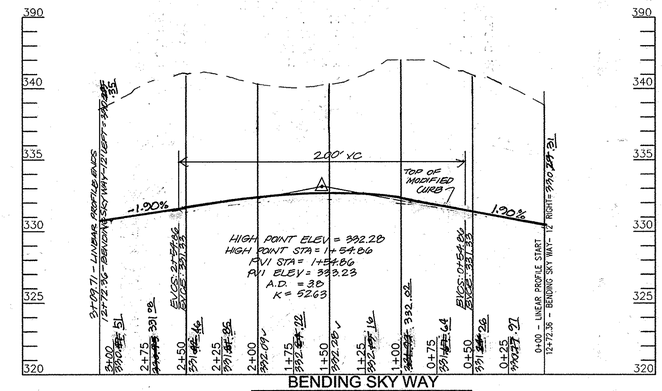
PUBLIC ACCESS STREET – BENDING SKY WAY – DESIGNED FOR 35 MPH

POSTED DESIGN SPEED = 25 MPH

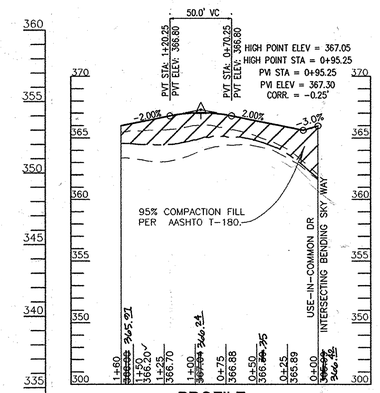
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

NOTES:
1. ALL WIRE USED IN GABION CONSTRUCTION SHALL BE GALVANIZED AND PLASTIC COATED.
2. FILTER CLOTH SHALL BE PLACED WHEREVER GABIONS COME INTO CONTACT WITH SOIL.
3. STONE FILL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE 4"-8" IN DIAMETER.
4. CONSTRUCTION MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. INCREASE THE CHECK DAM LENGTH AS NEEDED TO ENSURE TO ENSURE BOTH ENDS OF THE CHECK DAM ARE EMBEDDED INTO THE SIDE SLOPES OF THE EMBANKMENT A MINIMUM OF 1'.

PUMP STATION DRIVEWAY
TYPICAL ROADWAY SECTION
SECTION NOT TO SCALE



BENDING SKY WAY
LINEAR PROFILE OF CUL-DE-SAC
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



PROFILE
PRIVATE
USE IN COMMON DRIVE FOR LOTS - 5, 6,7 & 8
SCALE: 1"=50'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6.22.10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/12/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.17.10

NO.	REVISION	DATE
1	MODIFY GRADING TOWARDS END OF BENDING SKY WAY TO LOWER ROADWAY, CULDESAC & STORM DRAIN	2-2-11

SEE SHEET 5 FOR ROADWAY SECIONS AND DETAILS

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

PE No. 16193
Date: 7/27/15

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER

OWNERS
AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

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ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
ROAD CONSTRUCTION PLAN
LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 4.10
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 7/27/15
ROBERT H. VOGEL, P.E. No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
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EXPIRATION DATE: 09-27-2010

SHEET 3 OF 30

AS-BUILT 7/24/15

F-09-021

PLAN
SCALE: 1"=50'

LEGEND

EXISTING TREES TO REMAIN	
FOREST CONSERVATON AREA (RETENTION)	
PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT	
WETLANDS BUFFER	
STREAM CENTERLINE	
STREAM BUFFER	
NO WOODY BUFFER	
PROP. STREET LIGHT	150-WATT POST TOP; 100-WATT POST TOP
PROP. STREET SIGNS	

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 6-20-12
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 8/08/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 7/30/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

AS-BUILT CERTIFICATION

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[signature]
Signature

PE NO. ______
Date: 7/27/15

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SEE SHEET 5 FOR ROADWAY SECIONS AND DETAILS

REVISED FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
ROAD CONSTRUCTION PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
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TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
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ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
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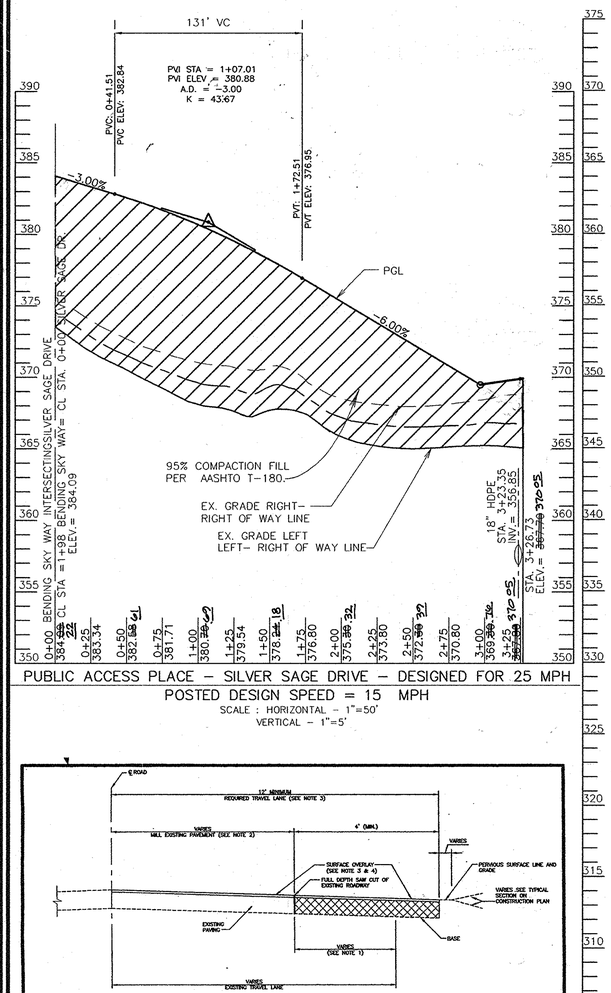
AS-BUILT 7/24/15

F-09-021

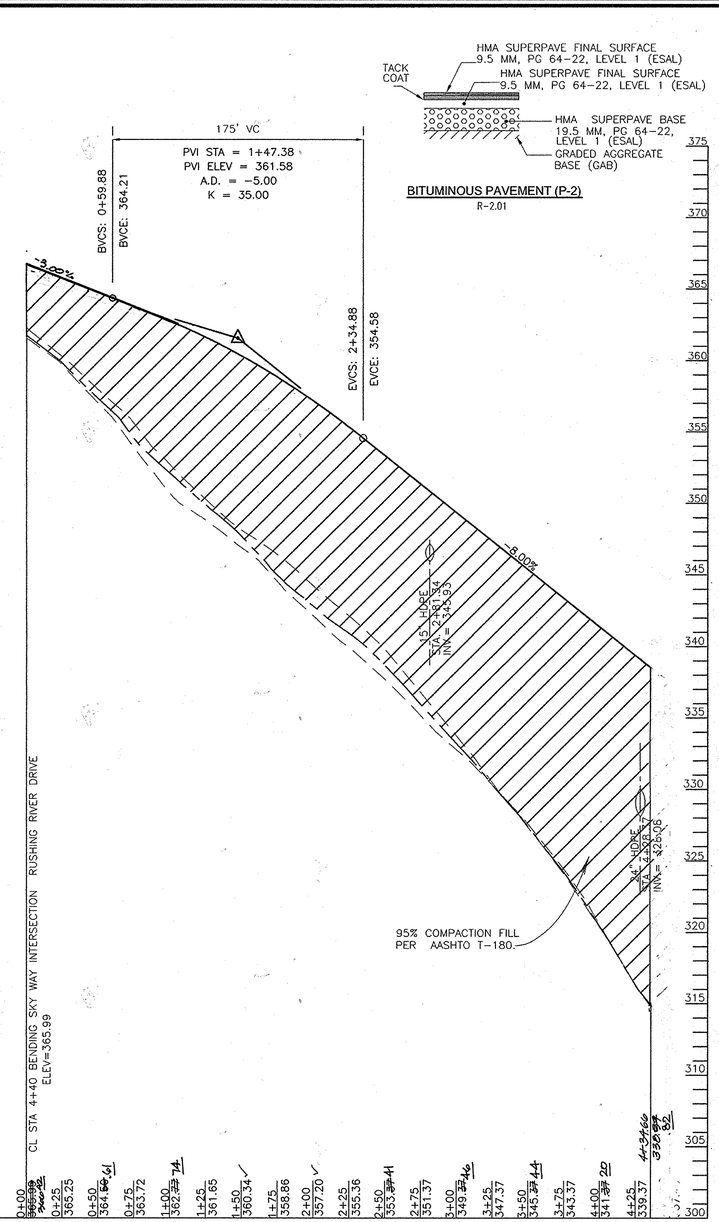
K:\Projects\04-145\ENGR\dwg\FINAL\FINAL ROAD\REDLINE_112011\SHEET_04_NEW.dwg, 4/3/2012 2:44:13 PM, Mirrored\HPDesignjet770HPGL2.pc3



PUBLIC ACCESS PLACE – SILVER SAGE DRIVE – DESIGNED FOR 25 MPH

POSTED DESIGN SPEED = 15 MPH

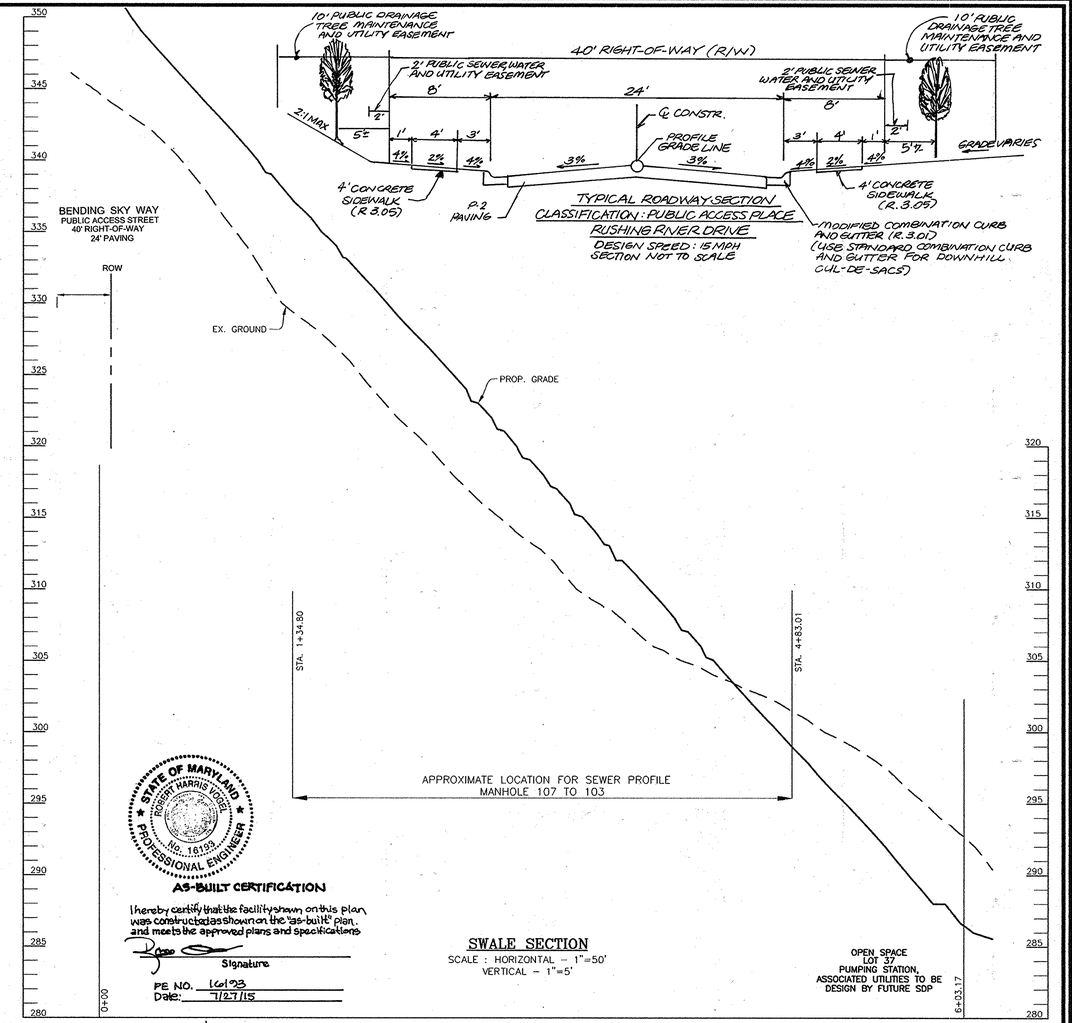
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



PUBLIC ACCESS PLACE – RUSHING RIVER DRIVE – DESIGNED FOR 25 MPH

POSTED DESIGN SPEED = 15 MPH

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



STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plan, and meets the approved plans and specifications

Signature

PE NO. 16193
Date: 7/27/15

SWALE SECTION

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

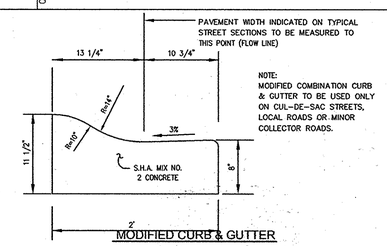
NOTES:

1. WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE CONTRACTOR SHALL REMOVE A MINIMUM OF 1' FULL DEPTH OF THE EXISTING ROADWAY. IF CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4' OF WIDENING FROM FACE OF GUTTER PAN.
2. THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" (MINIMUM).
3. THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.
4. RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION.

Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Existing Roadway Widening Strip	Detail R-1.08

BITUMINOUS PAVEMENT (P-2)

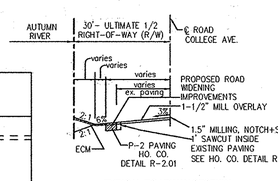
R-2.01



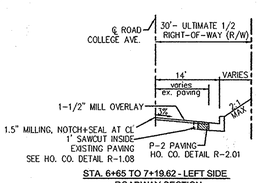
NOTE:
MODIFIED COMBINATION CURB & GUTTER TO BE USED ONLY ON CUL-DE-SAC STREETS, LOCAL ROADS OR MINOR COLLECTOR ROADS.

MODIFIED CURB & GUTTER

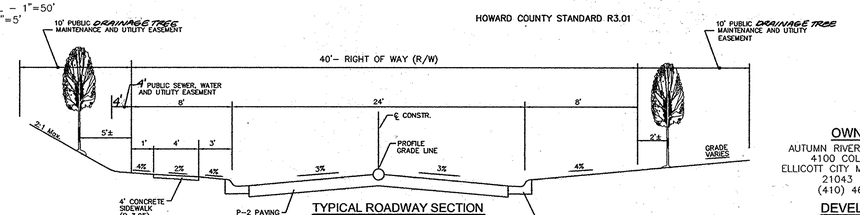
HOWARD COUNTY STANDARD R.3.01



TYPICAL ROADWAY SECTION
WIDENING DETAIL
CLASSIFICATION: MINOR COLLECTOR ACENIC ROAD
COLLEGE AVENUE
DESIGN SPEED : 35 MPH
SECTION NOT TO SCALE



STA. 6+65 TO 7+19.62 - LEFT SIDE
ROADWAY SECTION
WIDENING DETAIL
CLASSIFICATION: MINOR COLLECTOR ACENIC ROAD
COLLEGE AVENUE
DESIGN SPEED : 35 MPH
SECTION NOT TO SCALE



TYPICAL ROADWAY SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
SILVER SAGE DRIVE
BENDING SKY WAY
DESIGN SPEED : 15 MPH
SECTION NOT TO SCALE

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
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21043 – 5506
(410) 465-3500

DEVELOPER

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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

NO.	REVISION	DATE
2	MODIFICATION TO PROPOSED RUSHING RIVER DRIVE BASED ON RECONFIGURATION OF LOTS ALONG ROADWAY	2/7/12

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
ROAD CONSTRUCTION PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68 & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER 7/27/15
ROBERT H. VOGEL P.E. No. 16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

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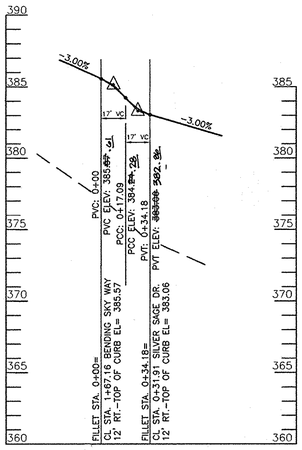
EXPIRATION DATE: 09-27-2010

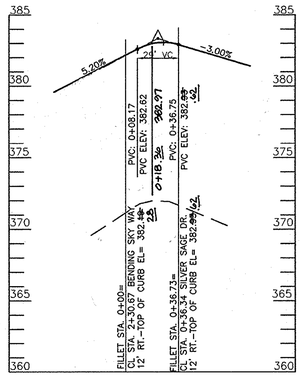
SHEET 5 OF 30

AS-BUILT 7/24/15

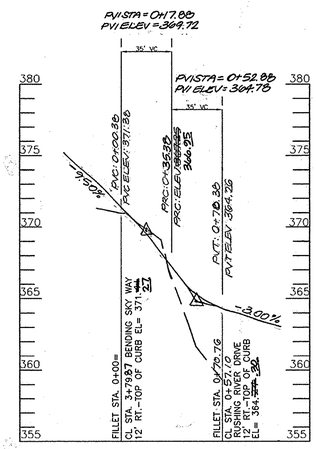
F-09-021



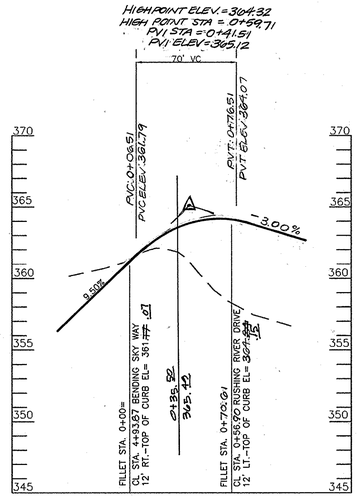
TOP OF CURB
FILLET PROFILE-(F-1)
SILVER STAGE DRIVE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



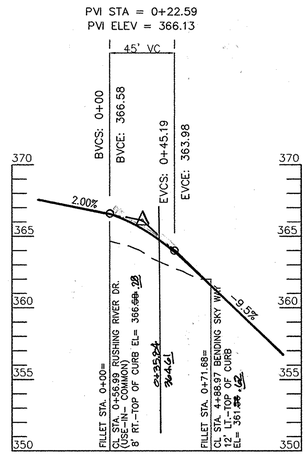
TOP OF CURB
FILLET PROFILE-(F-2)
SILVER STAGE DRIVE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



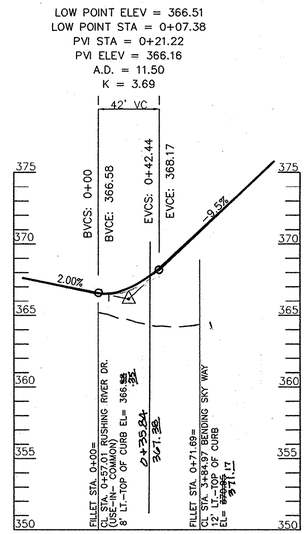
TOP OF CURB
FILLET PROFILE-(F-3)
RUSHING RIVER DRIVE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



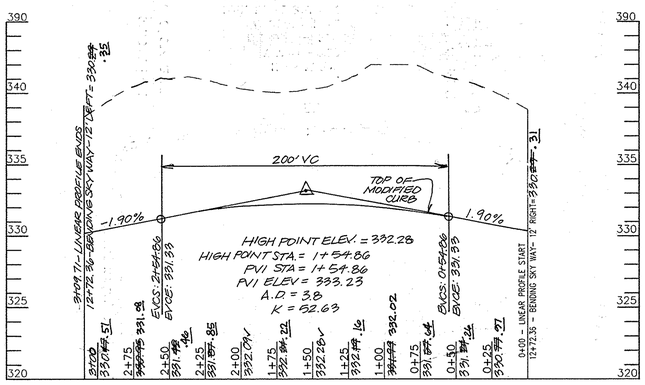
TOP OF CURB
FILLET PROFILE-(F-4)
RUSHING RIVER DRIVE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



TOP OF CURB
FILLET PROFILE-(F-5)
USE IN COMMON DRIVE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



TOP OF CURB
FILLET PROFILE-(F-6)
USE IN COMMON DRIVE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



LINEAR PROFILE OF CUL- DE-SAC
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6.22.10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

NO.	REVISION	DATE
2	MODIFICATION TO PROPOSED RUSHING RIVER	2/7/12
	DRIVE BASED ON RECONFIGURATION	
	OF LOTS ALONG ROADWAY	
1	MODIFY GRADING BENDING SKY WAY TO LOWER	2-2-11
	ROADWAY, CUL-DE-SAC AND STORM DRAIN	

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — 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.

Signature

PE NO. 16193
Date: 7/27/15

OWNERS
AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER
AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
ROAD CONSTRUCTION PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68 & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 8/7/10
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2010

SHEET 6 OF 30

AS-BUILT 7/24/15

F-09-021

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
AdB2	ALDINO SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	D
AdC2	ALDINO SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	D
BrB2	BRANDYWINE LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
BrD2	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	C
BrD3	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C
GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
LeB2	LEGORE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
LgC3	LEGORE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
MrE	MANOR LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
MsD	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
MsF	MONTALTO AND RELAY VERY STONY SILT LOAMS, 3 TO 25 PERCENT SLOPES	B
NeC2	NESHAMINY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
ReC2	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	B
St	STONY LAND	B
WaB	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	D

GENERAL NOTES

1. *ALL EARTH DIKES ARE TO BE PLACED IN WORKING ORDER AT THE END OF EACH WORKING DAY.*
2. *IMBRICATE SF/SSF IN 25' SEGMENTS AS REQUIRED UPHILL BY 2' IN ELEVATION.*
3. *NO IN STREAM CONSTRUCTION MAY OCCUR FROM 3/1 TO 6/15.*
4. *PROVIDE IMMEDIATE STABILIZATION OF ALL LIMIT OF DISTURBANCE WITHIN BUFFER AREA WITH EROSION CONTROL MATTING.*

LEGEND

FOREST CONSERVATION AREA (RETENTION)
NO WOODY BUFFER
WETLANDS
PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
EXISTING CONTOUR — 440 —
EXISTING TREES TO REMAIN
WETLANDS BUFFER
STREAM CENTERLINE
STREAM BUFFER
EROSION CONTROL MATTING
AREA OF 15 TO 24.9 PERCENT SLOPES
AREA OF 25 PERCENT OR GREATER SLOPES
SUPER SILT FENCE —SSF—
LIMIT OF DISTURBANCE
EARTHDIKE
STABILIZED CONSTRUCTION ENTRANCE SCE

NO AS-BUILT INFORMATION THIS SHEET.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-20-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/08/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/12

ENGINEERS CERTIFICATE

"I HEREBY 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 ROBERT H. VOGEL — DATE 5/7/12

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER RONALD SOPMAN — DATE 4/13/12

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

HOWARD S.C.D. — DATE 6/12/12

OWNERS

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REVISED FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
GRADING & SEDIMENT CONTROL PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
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TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
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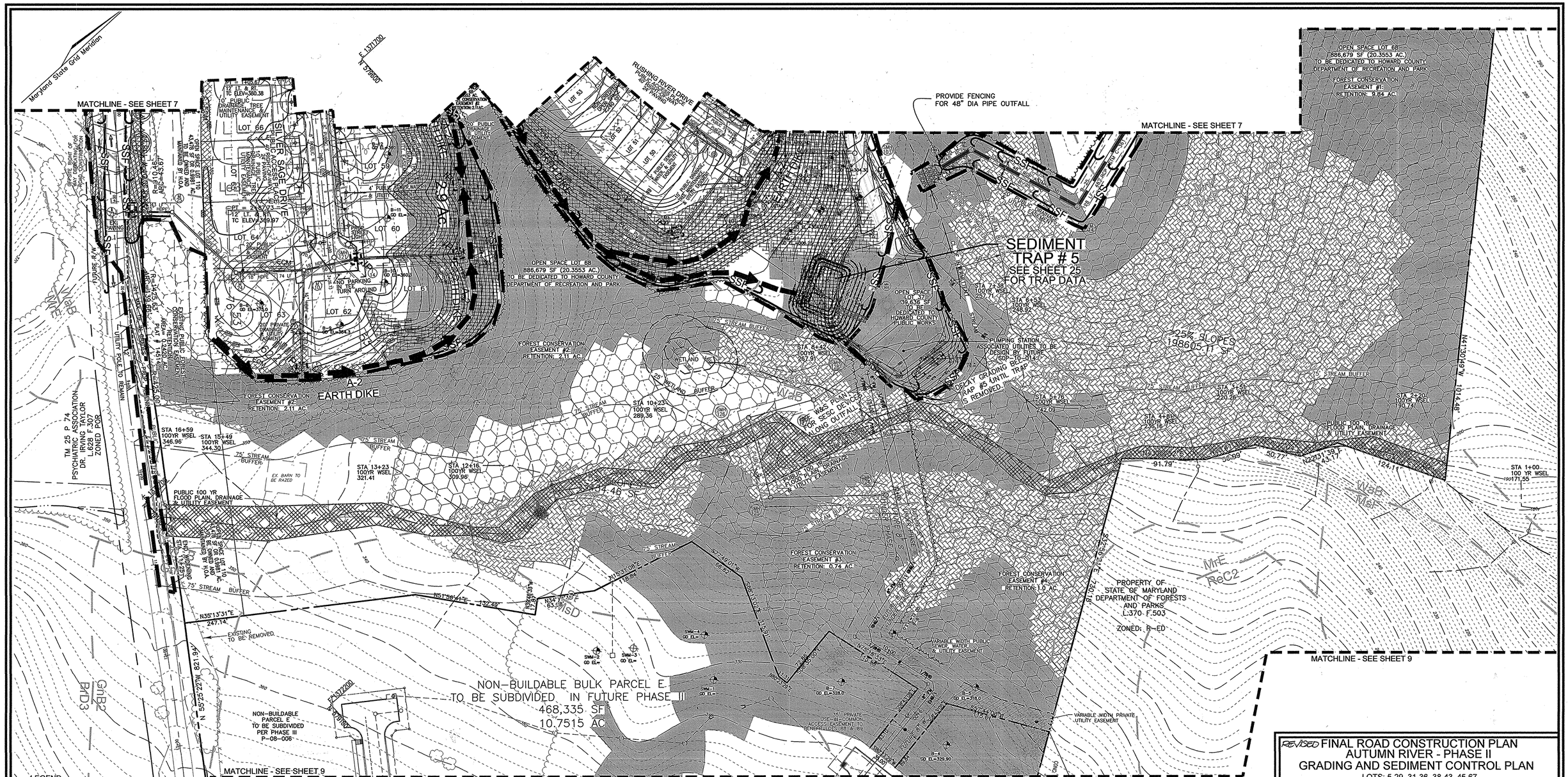
SHEET 7 OF 30

AS-BUILT 7/24/15

F-09-021



LEGEND

- EXISTING CONTOUR
- EXISTING TREES TO REMAIN
- PROPOSED STREET TREE
- FOREST CONSERVATON AREA (RETENTION)
- PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
- WETLANDS
- NATURAL AREA CONSERVATION EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- NO WOODY BUFFER
- AREA OF 15 TO 24.9 PERCENT SLOPES
- AREA OF 25 PERCENT OR GREATER SLOPES
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EARTHDIKE
- STABILIZED CONSTRUCTION ENTRANCE
- EROSION CONTROL MATTING

NO AS-BUILT INFORMATION THIS SHEET.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-20-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/08/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/12

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SIGNATURE OF ENGINEER ROBERT H. VOGEL — DATE 5/17/12

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER RONALD GRAHAM — DATE 4/13/12

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HOWARD S.C.D. — DATE 6/12/12

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AUTUMN RIVER - PHASE II
GRADING AND SEDIMENT CONTROL PLAN

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OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
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TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
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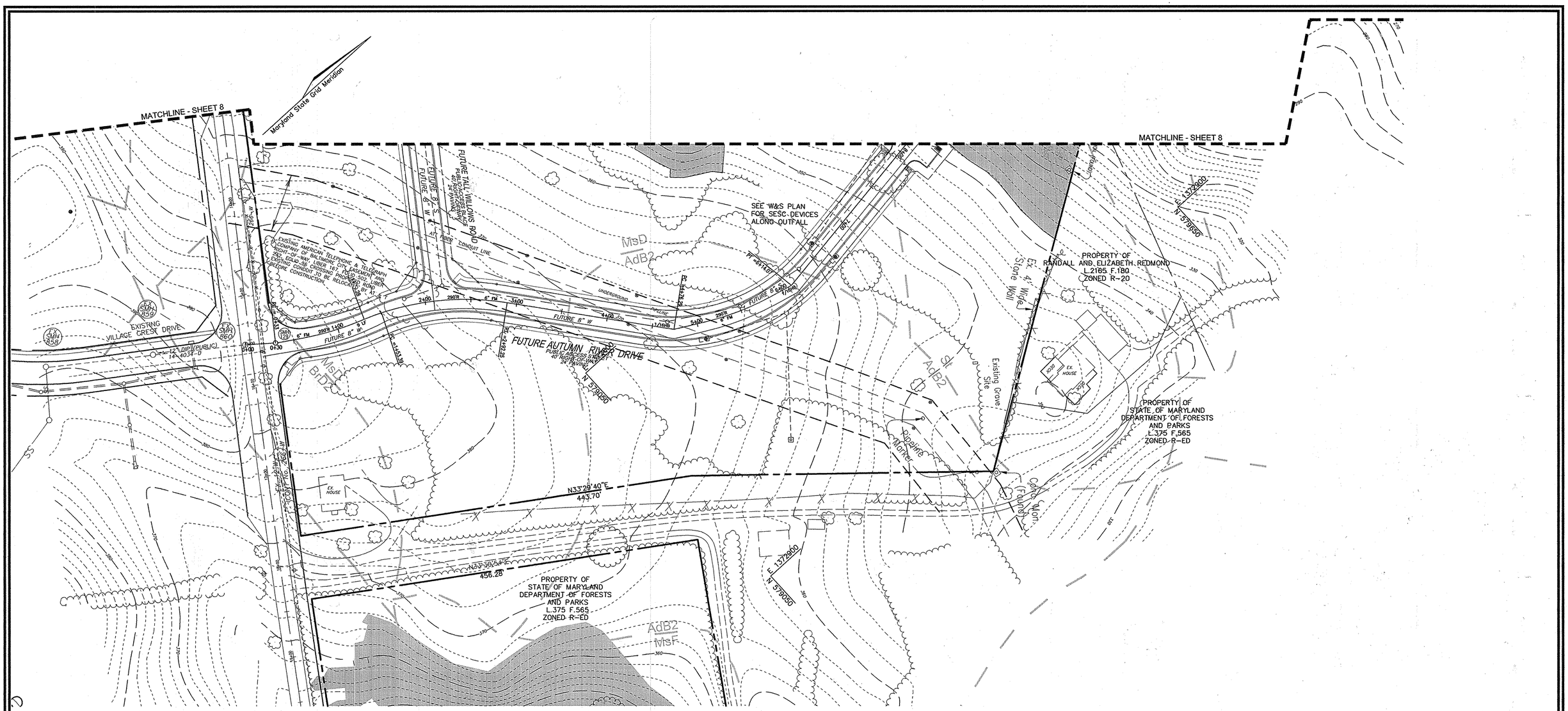
SHEET 8 OF 30

AS-BUILT 7/24/15

F-09-021



LEGEND

- EXISTING CONTOUR — 440 —
- EXISTING TREES TO REMAIN
- PROPOSED STREET TREE
- PROP. STREET LIGHT — 150-WATT POST TOP; 100-WATT POST TOP
- AREA OF 15 TO 24.9 PERCENT SLOPES
- AREA OF 25 PERCENT OR GREATER SLOPES
- 10' PUBLIC STREET TREE MAINTENANCE & UTILITY EASEMENT
- PUBLIC UTILITY EASEMENT
- FOREST CONSERVATON AREA (RETENTION)
- FOREST CONSERVATON AREA (REFORESTATION)
- PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
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- NATURAL AREA CONSERVATION EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- NO WOODY BUFFER
- PROP. STREET SIGNS
- TREE PROTECTION FENCE — // —

NO AS-BUILT INFORMATION THIS SHEET.

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
GRADING AND SEDIMENT CONTROL PLAN

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CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

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SIGNATURE OF ENGINEER ROBERT H. VOGEL — DATE 5/7/10

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SIGNATURE OF DEVELOPER ROSS TAYLOR — DATE 5/7/2010

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

HOWARD S.C.D. — DATE 6/15/10

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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 5/7/10
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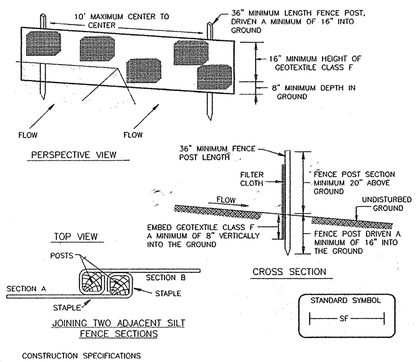
EXPIRATION DATE: 09-27-2010

SHEET 9 OF 30

AS-BUILT 7/24/15

F-09-021

DETAIL 22 - SILT FENCE



CONSTRUCTION SPECIFICATIONS

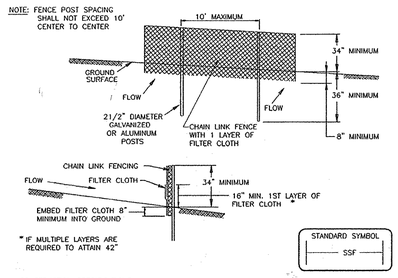
1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG, DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" X 1 1/2" SQUARE (MINIMUM) CUT, OR 1 3/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.
2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL/FT /MINUTE (MAX.)	TEST: MSMT 322
FILTERING EGGECIENCY	75% (MIN.)	TEST: MSMT 322

3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHES 50% OF THE FABRIC HEIGHT.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE



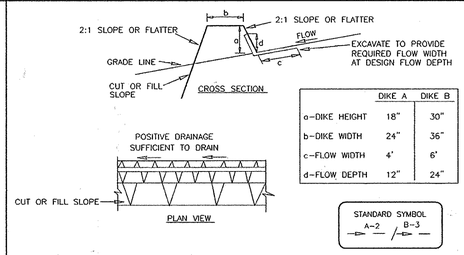
CONSTRUCTION SPECIFICATIONS

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/FT /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

DETAIL 1 - EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

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

1. ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET. SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
5. THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

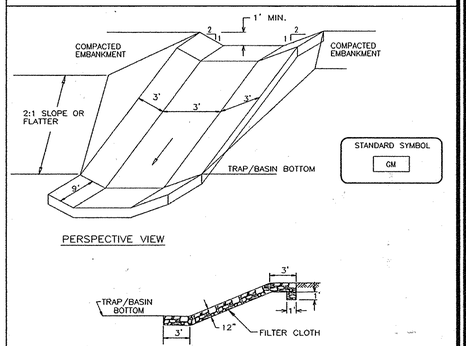
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A - 1 - 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

	DURATION
1. OBTAIN HOWARD COUNTY GRADING PERMIT.	1 DAY
2. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.	1 DAY
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.	1 DAY
4. INSTALL TREE PROTECTION FENCE AS SHOWN ON PLAN.	1 WEEK
PHASE I (See sheet 25)	
5. CLEAR AND GRUB PHASE I AREA AS NECESSARY TO INSTALL SILT FENCE AND SUPER SILT FENCE ASSOCIATED WITH THE POND/BASIN #1, BASIN #4, TRAP#2, TRAP #3 AND TRAP #5 AS SHOWN ON PLAN.	1 WEEK
6. WITH PERMISSION FORM SEDIMENT CONTROL INSPECTOR CLEAR AND GRUB SITE AS NECESSARY TO INSTALL POND/BASIN #1, SEDIMENT BASIN #4, SEDIMENT TRAP#2, SEDIMENT TRAP #3 AND SEDIMENT TRAP #5	2 DAYS
7. CONSTRUCT POND/BASIN #1 AND SEDIMENT BASIN #4 (ALL MATERIAL FOR POND/BASIN CONSTRUCTION MUST BE ON-SITE, AND PERMISSION FROM THE INSPECTOR GRANTED, BEFORE PROCEEDING). UPON COMPLETION, AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONSTRUCT ASSOCIATED EARTH DIKES TO DIRECT DRAINAGE TOWARDS BASIN #1 AND SEDIMENT BASIN #4.	4 WEEKS
8. INSTALL SEDIMENT TRAP 2, SEDIMENT TRAP 3 AND SEDIMENT TRAP #5. UPON COMPLETION, AND WITH THE PERMISSION OF THE INSPECTOR, CONSTRUCT ASSOCIATED EARTH DIKES TO DIRECT DRAINAGE TOWARDS TRAPS.	2 WEEKS 1 WEEK
9. CLEAR AND GRUB THE REMAINDER OF THE PHASE I AREA. DELAY GRADING BELOW TRAP #5 UNTIL TRAP #5 IS REMOVED AS NOTED.	1 WEEK
10. WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR BEGIN GRADING OPERATION REQUIRED TO INSTALL THE STORM DRAIN SYSTEM FROM E-1 TO M-5 & I-7 TO M-16. UPON COMPLETION OF GRADING INSTALL THE STORM DRAIN SYSTEM FROM E-1 TO M-5 & I-7 TO M-16. PROVIDE INLET PROTECTION AS SHOWN ON THE PLAN. TEMPORARILY DIRECT OUTFALL FROM I-7 TO BASIN #4.	2 WEEKS
11. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR PARTIALLY FILL SEDIMENT BASIN #4 AS NECESSARY TO CONSTRUCT STORM DRAIN M-5 TO I-7.	2 DAYS
12. UPON COMPLETION OF THE CONSTRUCTION OF THE STORM DRAIN SYSTEM FROM M-5 TO I-7 AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE THE EARTH DIKES DIRECTING DRAINAGE TO SEDIMENT CONTROL BASIN #4 & TRAP #5 AND REDIRECT DRAINAGE TO STORM DRAIN SYSTEM. REMOVE SEDIMENT CONTROL BASIN #4 & TRAP #5 GRADE AREAS TO BRING THEM TO ULTIMATE GRADE AND STABILIZE AREAS NOT DIRECTED TO STORM DRAIN SYSTEM WITH EROSION CONTROL MATTING. ALLOW A 5 DAY CLEAR (NO PRECIPITATION) FORCAST FROM THE NWS BEFORE BEGINING THIS SEQUENCE ITEM.	1 WEEK
13. COMPLETE GRADING OPERATION OF REMAINDER OF PHASE I AREA.	2 WEEKS
14. CONSTRUCT REMAINDER OF STORM DRAIN AND BEGIN CONSTRUCTION OF WATER AND SEWER SYSTEM.	4 WEEKS
15. GRADE ROADS TO SUB-BASE AND APPLY DUST CONTROL SPECIFICATIONS.	2 WEEKS
16. WITH ROAD GRADED TO SUB-BASE BEGIN CURB AND GUTTER CONSTRUCTION AND ROAD PAVING.	4 WEEKS
17. FINE GRADE SITE IN CONFORMANCE WITH PLAN.	2 WEEK
18. WITH INSPECTOR APPROVAL AND FINAL ROAD PAVING COMPLETE STABILIZE ANY REMAINING DISTURBED AREAS. TOTAL	1 DAY 28 WEEKS
PHASE II	
19. CLEAR AND GRUB PHASE II AREA AS NECESSARY TO INSTALL SUPER SILT FENCE.	1 WEEK
20. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CLEAR, GRUB AND GRADE AS NECESSARY TO INSTALL M-16 TO I-15, AND N-10 TO I-21 AND CONSTRUCT STORM DRAIN SYSTEM. INSTALL INLET PROTECTION.	2 DAYS
21. INSTALL EARTH DIKES AND DIRECT DRAINAGE TOWARDS STORM DRAIN SYSTEM. STABILIZE AREAS BELOW EARTH DIKES WITH EROSION CONTROL MATTING.	2 WEEKS
22. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CLEAR, GRUB AND GRADE REMAINDER OF PHASE II AREA	2 WEEKS
23. BEGIN CONSTRUCTION OF WATER & SEWER SYSTEM.	1 WEEK
24. GRADE ROADS TO SUB-BASE, APPLY DUST CONTROL SPECIFICATIONS.	2 WEEKS
25. WITH ROAD GRADED TO SUB-BASE BEGIN CURB AND GUTTER CONSTRUCTION AND ROAD PAVING.	4 WEEKS
26. FINE GRADE SITE IN CONFORMANCE WITH PLAN.	1 DAY
27. WITH INSPECTOR APPROVAL AND FINAL ROAD PAVING COMPLETE STABILIZE ANY REMAINING DISTURBED AREAS. TOTAL	12 WEEKS
PHASE III	
NOTE: PHASE III CAN PROCEED DURING PHASE II WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR.	1 WEEK
28. CLEAR AND GRUB PHASE III AREA AS NECESSARY TO INSTALL SEDIMENT CONTROL DEVICES.	1 WEEK
29. WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR CLEAR, GRUB AND GRADE REMAINDER OF PHASE III AREA. STABILIZE SLOPES ASSOCIATED WITH THE ROAD CONSTRUCTION WITH EROSION CONTROL MATTING.	2 WEEKS
30. INSTALL TRAFFIC BYPASS.	12 WEEKS
31. BEGIN CONSTRUCTION OF TRAFFIC CIRCLE. UPON COMPLETION REMOVE TEMPORARY PAVING AND STABILIZE DISTURBED AREA WITH EROSION CONTROL MATTING.	1 WEEK
32. INSTALL STREET TREES AND ALL LANDSCAPING. TOTAL	17 WEEKS
OVERALL PROJECT	
30. CONVERT SEDIMENT BASINS TO FINAL STORMWATER MANAGEMENT FACILITIES AND REMOVE SEDIMENT CONTROL MEASURES.	
31. REMOVE ALL NEW AND OLD JUNK, TRASH, DEBRIS AND OTHER MAN-MADE OBJECTS FROM THE ENTIRE FOREST CONSERVATION EASEMENT, FLOODPLAIN, WETLANDS, STREAMS AND THEIR BUFFERS.	

NOTE 1: BASIN 1 IS TO REMAIN UNTIL CONSTRUCTION FOR ALL PHASES INCLUDING DWELLING UNITS ARE FINISHED.

DETAIL 6 - GABION INFLOW PROTECTION



CONSTRUCTION SPECIFICATIONS

1. GABION INFLOW PROTECTION SHALL BE CONSTRUCTED OF 9' X 3' X 9" GABION BASKETS FORMING A TRAPEZOIDAL CROSS SECTION 1' DEEP, WITH 2:1 SIDE SLOPES, AND A 3' BOTTOM WIDTH.
2. GEOTEXTILE CLASS C SHALL BE INSTALLED UNDER ALL GABION BASKETS.
3. THE STONE USED TO FILL THE GABION BASKETS SHALL BE 4" - 7".
4. GABIONS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. GABION INFLOW PROTECTION SHALL BE USED WHERE CONCENTRATED FLOW IS PRESENT ON SLOPES STEEPER THAN 4:1.

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NOTES

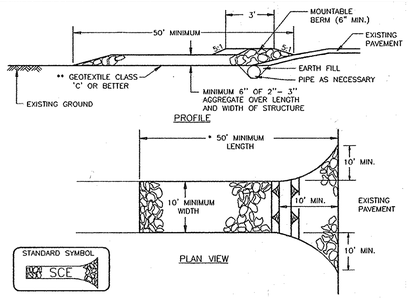
DURING GRADING AND AFTER EACH RAINFALL, THE CONTRACTOR SHALL INSPECT AND PROVIDE THE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN HEREON.

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

A. 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, SWALES, DITCH PERIMETER SLOPES SLOPES AND ALL SLOPES GREATER THAN 3:1.

B. 14 CALENDAR DAYS FOR ALL OTHER DISTURBED AREAS.

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



CONSTRUCTION SPECIFICATION

1. LENGTH - MINIMUM OF 50' (* 30' FOR A 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 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.

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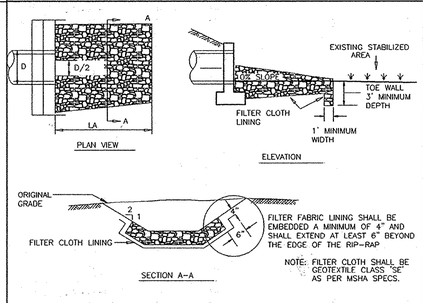
DETAIL 27 - ROCK OUTLET PROTECTION III



NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS 'SE' AS PER MSHA SPECS.

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PEREPARED 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 REPARIED 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.

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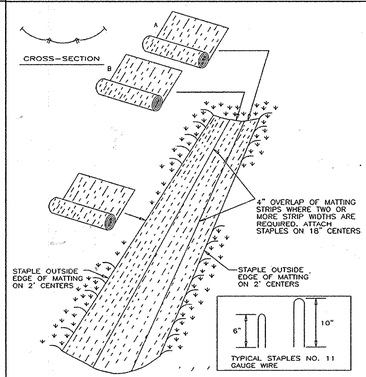
DETAIL 30 - EROSION CONTROL MATTING



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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.

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NO AS-BUILT INFORMATION THIS SHEET.

30.0 DUST CONTROL

DEFINITION

CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

PURPOSE

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE HEALTH HAZARDS, AND IMPROVE TRAFFIC SAFETY.

CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

SPECIFICATIONS

TEMPORARY METHODS

1. MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
2. VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
3. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
4. IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.
5. BARRIERS - SOLID BOARD FENCES, SILT FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALES, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
6. CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

PERMANENT METHODS

1. PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER, AND PERMANENT STABILIZATION WITH SOD. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
2. TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
3. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

REFERENCES

1. AGRICULTURAL HANDBOOK 346, WIND EROSION FORCES IN THE UNITED STATES AND THEIR USE IN PREDICTING SOIL LOSS.
2. AGRICULTURAL INFORMATION BULLETIN 354. HOW TO CONTROL WIND EROSION, USDA-ARS.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

ENGINEERS CERTIFICATE

"I HEREBY 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 5/7/10
ROBERT H. VOGEL

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER — DATE 5/7/2010
ROS TAYLOR

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

HOWARD S.C.D. — DATE 6/15/10

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
SEDIMENT AND EROSION CONTROL DETAILS

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

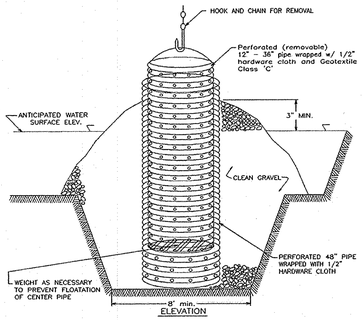
TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — PROFESSIONAL ENGINEER — ROBERT H. VOGEL, PE, No.16193 — 5/7/10

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:

DETAIL 20A - REMOVABLE PUMPING STATION



Construction Specifications

1. THE OUTER PIPE SHOULD BE 48" DIA. OR SHALL, IN ANY CASE, BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.

2. AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.

3. THE INSIDE STAND PIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORATING A CORRUGATED OR PVC PIPE BETWEEN 12" AND 36" IN DIAMETER. THE PERFORATIONS SHALL BE 1/2" X 6" SLITS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS C.

4. THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

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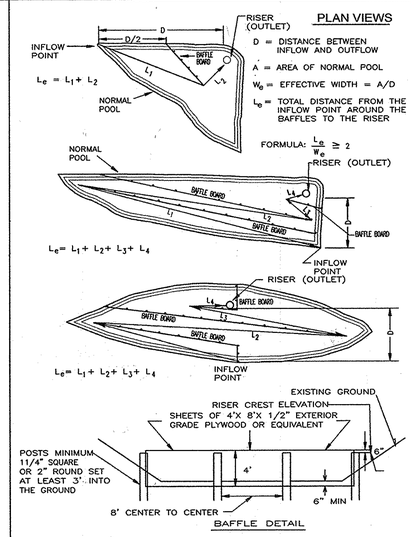
DETAIL 18 - SEDIMENT BASIN BAFFLES



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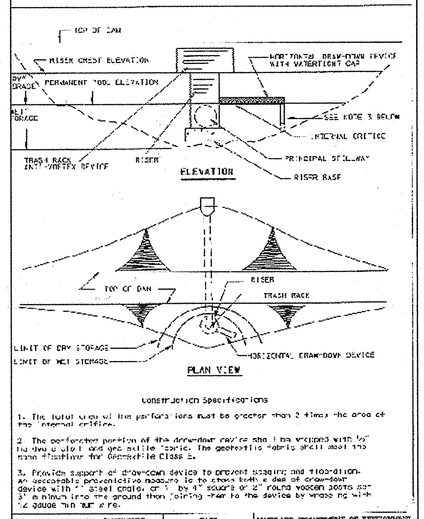
BASIN DRAWDOWN SCHEMATIC
HORIZONTAL DRAW-DOWN DEVICE



Construction Specifications

1. The total area of the perforations must be greater than 2 times the area of the internal orifice.

2. The perforated portion of the drawdown device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric should be non-stabilized and meet Geotextile Class C.

3. Provide support of drawdown device to prevent floating and flotation. An acceptable preventative measure is to cross both ends of drawdown device with 4" diameter logs or 1" by 4" square or 2" round wooden posts 52" 3' minimum into the ground then joining them to the device by wrapping with 14 gauge annealed wire.

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PIPE SLOPE DRAIN

PIPE SLOPE DRAIN
PIPE SLOPE DRAIN
CONSTRUCTION SPECIFICATIONS – PIPE SLOPE DRAIN
PIPE SLOPE DRAIN

1. THE PIPE SLOPE DRAIN (PSD) SHALL HAVE A SLOPE OF 3 PERCENT OR STEEPER.

2. THE TOP OF THE EARTH DIKE OVER THE INLET PIPE SHALL BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED AT THE INVERT OF THE PIPE.
PIPE.
3. FLEXIBLE TUBING IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. ALL CONNECTIONS SHALL BE WATERTIGHT.
PIPE.
4. A FLARED END SECTION SHALL BE ATTACHED TO THE INLET END OF PIPE WITH A WATERTIGHT CONNECTION. FILTER CLOTH SHALL BE PLACED UNDER THE INLET OF THE PIPE SLOPE DRAIN AND SHALL EXTEND OUT 5' FROM THE INLET. THE FILTER CLOTH SHALL BE "KEYED IN" ON ALL SIDES.
PIPE.
5. THE PIPE SLOPE DRAIN SHALL BE SECURELY ANCHORED TO THE SLOPE BY STAKING AT THE GROMMETS PROVIDED. SPACING FOR ANCHORS SHALL BE AS PROVIDED BY MANUFACTURER'S SPECIFICATION. IN NO CASE SHALL LESS THAN TWO (2) ANCHORS BE PROVIDED, EQUALLY SPACED ALONG THE LENGTH OF PIPE. THESE DETAILS SHOULD BE PROVIDED BY PIPE SUPPLIERS.
PIPE.
PIPE.
6. THE SOIL AROUND AND UNDER THE PIPE AND END SECTION SHALL BE HAND TAMPED IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.

7. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.

8. WHENEVER POSSIBLE WHERE A PSD DRAINS AN UNSTABILIZED AREA, IT SHALL OUTLET INTO A SEDIMENT TRAP OR BASIN. IF THIS IS NOT POSSIBLE THEN THE SLOPE DRAIN WILL DISCHARGE INTO A STABLE CONVEYANCE THAT LEADS TO A SEDIMENT TRAP OR BASIN. WHEN DISCHARGING INTO A TRAP OR BASIN THE PSD SHALL DISCHARGE AT THE SAME ELEVATION AS THE WET POOL ELEVATION. THE DISCHARGE FROM THE PSD MUST BE AS FAR AWAY FROM THE SEDIMENT CONTROL OUTLET AS POSSIBLE.

9. WHEN THE DRAINAGE AREA IS STABILIZED, THE PSD SHALL DISCHARGE ONTO A STABILIZED AREA AT A NON-EROSIVE VELOCITY.

10. INSPECTION AND ANY REQUIRED MAINTENANCE SHALL BE PERFORMED PERIODICALLY AND AFTER EACH RAIN EVENT.

11. THE INLET MUST BE KEPT OPEN AT ALL TIMES.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 5 - 4A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 4 - PIPE SLOPE DRAIN

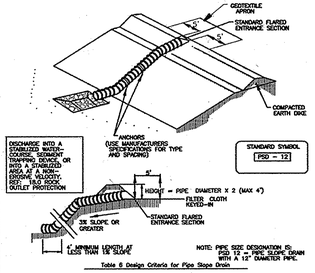
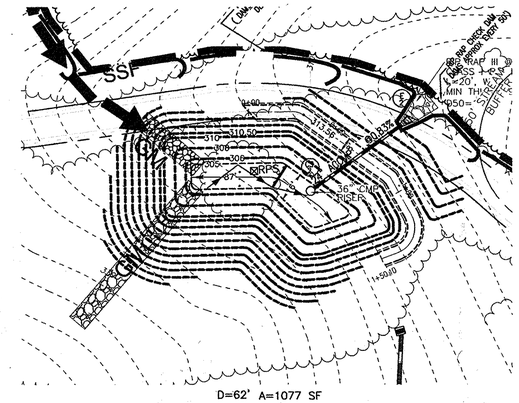


Table 8 Design Criteria for Pipe Slope Drain

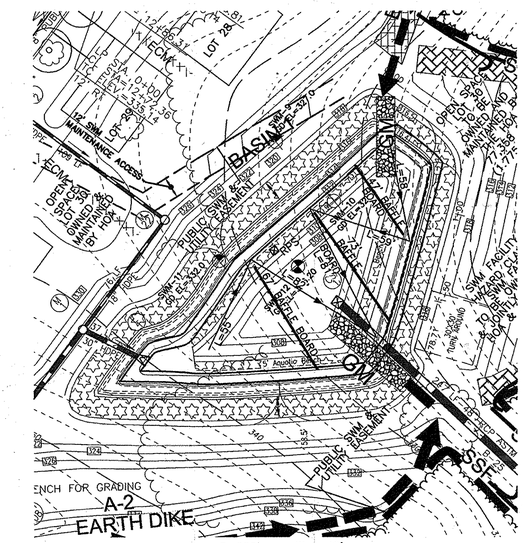
Size	Pipe/Tubing Diameter (D) in	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B - 5 - 4	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



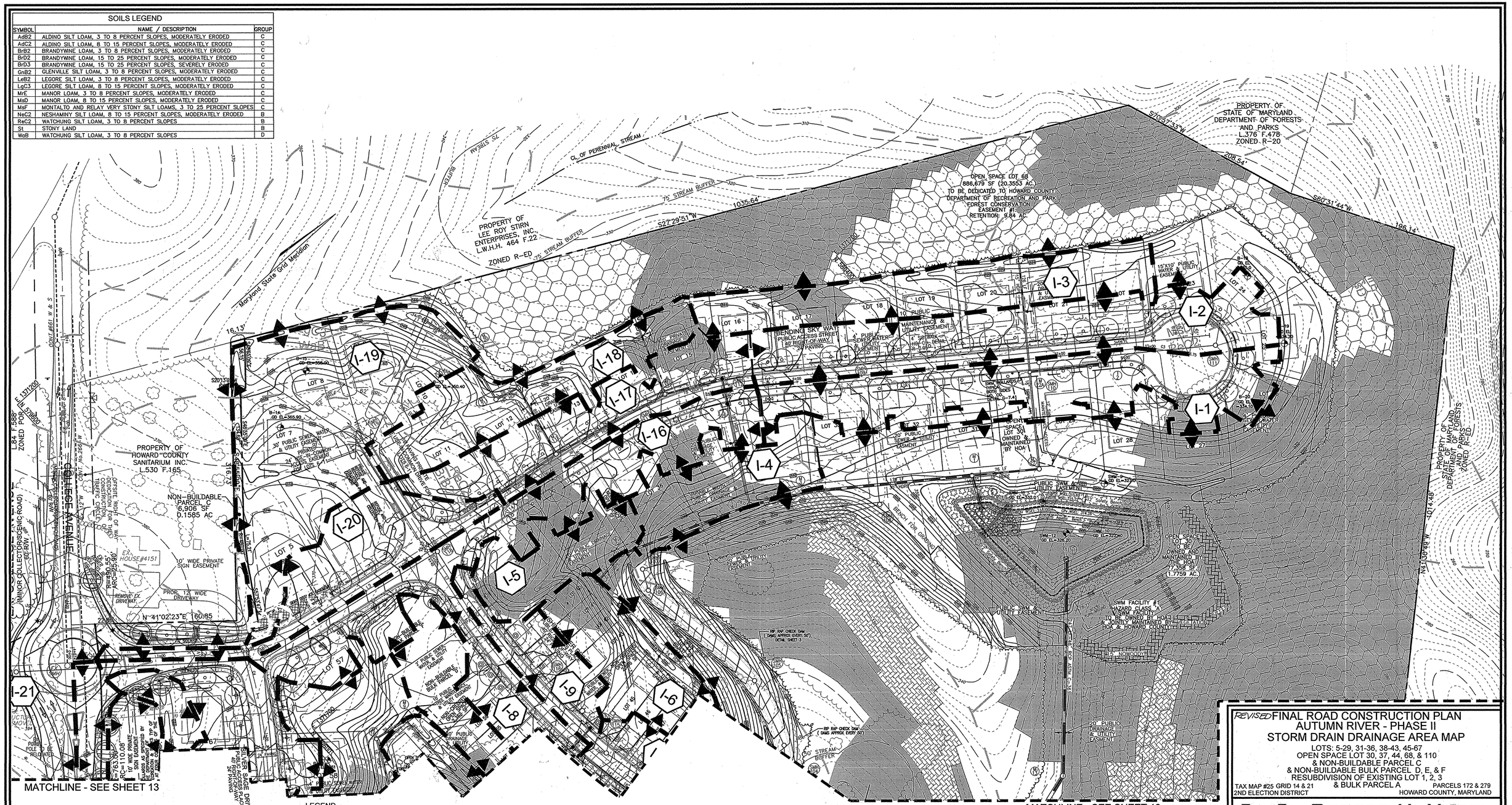
D=62' A=1077 SF
Le=64' We=17'
$\frac{Le}{We}$ 3.7

BAFFLE DETAIL
SEDIMENT BASIN NO. 4
SCALE: 1"=40'



SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP
AdB2	ALDINO SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
AdC2	ALDINO SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
BrB2	BRANDYWINE LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
BrD2	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED	C
BrD3	BRANDYWINE LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C
GnB2	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
LeB2	LEGORE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
LgC3	LEGORE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
MrE	MANOR LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
MsD	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
MsF	MONTALTO AND RELAY VERY STONY SILT LOAMS, 3 TO 25 PERCENT SLOPES	C
NeC2	NESHAMINY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
ReC2	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	B
St	STONY LAND	B
WoB	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	D



LEGEND

- FOREST CONSERVATON AREA (RETENTION)
- WETLANDS
- PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
- EXISTING CONTOUR — 440 —
- EXISTING TREES TO REMAIN
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- AREA OF 15 TO 24.9 PERCENT SLOPES
- AREA OF 25 PERCENT OR GREATER SLOPES

STORM DRAIN DRAINAGE AREA MAP

SCALE: 1"=50'

NO AS-BUILT INFORMATION THIS SHEET.

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-20-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/08/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/12

REVISED FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
STORM DRAIN DRAINAGE AREA MAP

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21
2ND ELECTION DISTRICT

PARCELS 172 & 279
HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 REGISTERED PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

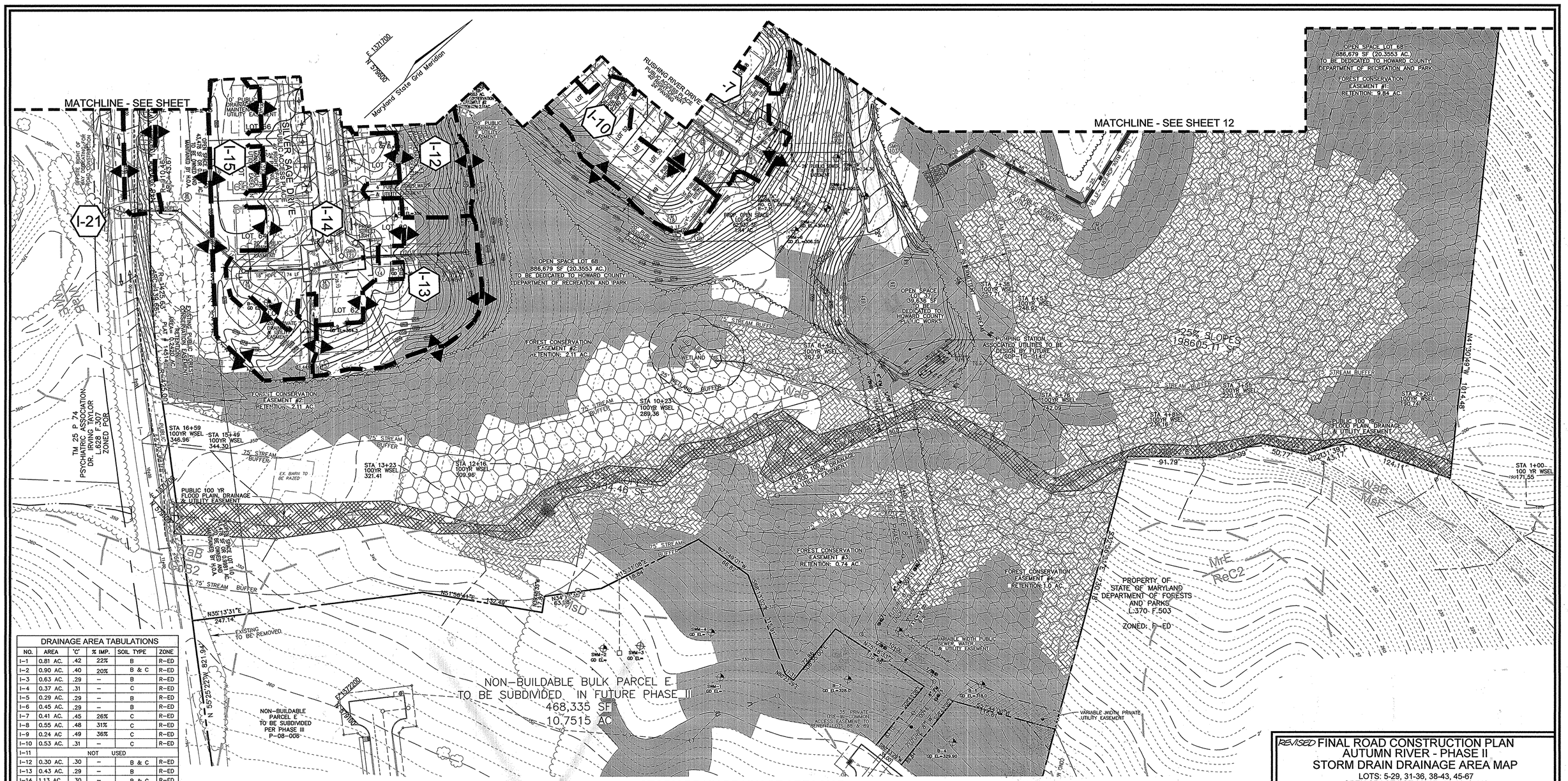
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 12 OF 30

AS-BUILT 7/24/15

F-09-021

K:\Projects\04-145\ENGR\Final\FINAL ROAD\REDLINE_11201\SHEET_12_REV.dwg, 4/20/2012 2:48:27 PM, Mentzer\dPDF\dwg\dPDF770\PDFCL2.pc3


MATCHLINE - SEE SHEET
MATCHLINE - SEE SHEET 12
Maryland State Grid Meridian
E 1371700
N 378600
RUSHING RIVER DRIVE
I-21
I-15
I-14
I-13
I-12
I-10
I-7
OPEN SPACE LOT 68
886,679 SF (20.3553 AC.)
TO BE DEDICATED TO HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARK
FOREST CONSERVATION
EASEMENT #1
RETENTION: 9.84 AC.
FOREST CONSERVATION
EASEMENT #2
RETENTION: 2.11 AC.
FOREST CONSERVATION
EASEMENT #3
RETENTION: 0.74 AC.
FOREST CONSERVATION
EASEMENT #4
RETENTION: 1.0 AC.
25% SLOPES
198605.11 SF
PUMPING STATION
ASSOCIATED UTILITIES TO BE
DESIGN BY FUTURE
SDP-10-914
PROPERTY OF
STATE OF MARYLAND
DEPARTMENT OF FORESTS
AND PARKS
L.370 F.503
ZONED: E-ED
TM 25 P 74
PSYCHIATRIC ASSOCIATION
DR. IRVING TAYLOR
L.628 F.307
ZONED POR
NON-BUILDABLE BULK PARCEL E
TO BE SUBDIVIDED IN FUTURE PHASE III
468,335 SF
10.7515 AC
NON-BUILDABLE
PARCEL E
TO BE SUBDIVIDED
PER PHASE III
P-08-006
EXISTING
TO BE REMOVED
PUBLIC 100 YR
FLOOD PLAIN, DRAINAGE
& UTILITY EASEMENT
VARIABLE WIDTH PRIVATE
UTILITY EASEMENT
VARIABLE WIDTH PUBLIC
SEWER, WATER
& UTILITY EASEMENT
75' STREAM BUFFER
25' WETLAND BUFFER
WETLAND
EX. BARN TO
BE RAZED
STA 16+59
100YR WSEL
346.96
STA 15+49
100YR WSEL
344.39
STA 13+23
100YR WSEL
321.41
STA 12+16
100YR WSEL
309.96
STA 10+23
100YR WSEL
289.36
STA 8+42
100YR WSEL
282.91
STA 7+76
100YR WSEL
282.09
STA 7+38
100YR WSEL
282.82
STA 6+37
100YR WSEL
282.82
STA 1+91
100YR WSEL
290.26
STA 2+20
100YR WSEL
290.74
STA 1+00
100 YR WSEL
171.55
N 41°01'49" W
101.48'
N 35°13'31" E
247.14'
N 55°52'27" W
N 51°56'41" E
N 34°18'05" E
63.08'
S 71°40'01" W
S 34°18'05" E
N 22°31'33" E
N 35°13'05" E
N 55°52'27" W
Wab
MsE
MrE
ReC2
B2
ISD
SWM-1
SWM-2
SWM-3
SWM-4
B-1
B-2
B-3
B-4
B-7
B-8
GD EL=
GD EL=328.0
GD EL=329.90
GD EL=318.0
35' PRIVATE
DSE-W/COMMON
ACCESS EASEMENT TO
BENEFIT LOTS 88 & 89
FUTURE STREET
FUTURE PHASE III
FUTURE PHASE IV
CLEAR INTERCEPTOR
STREAM
LOT 62
LOT 63
LOT 64
LOT 65
LOT 66
LOT 67
LOT 68
LOT 69
LOT 70
LOT 71
LOT 72
LOT 73
LOT 74
LOT 75
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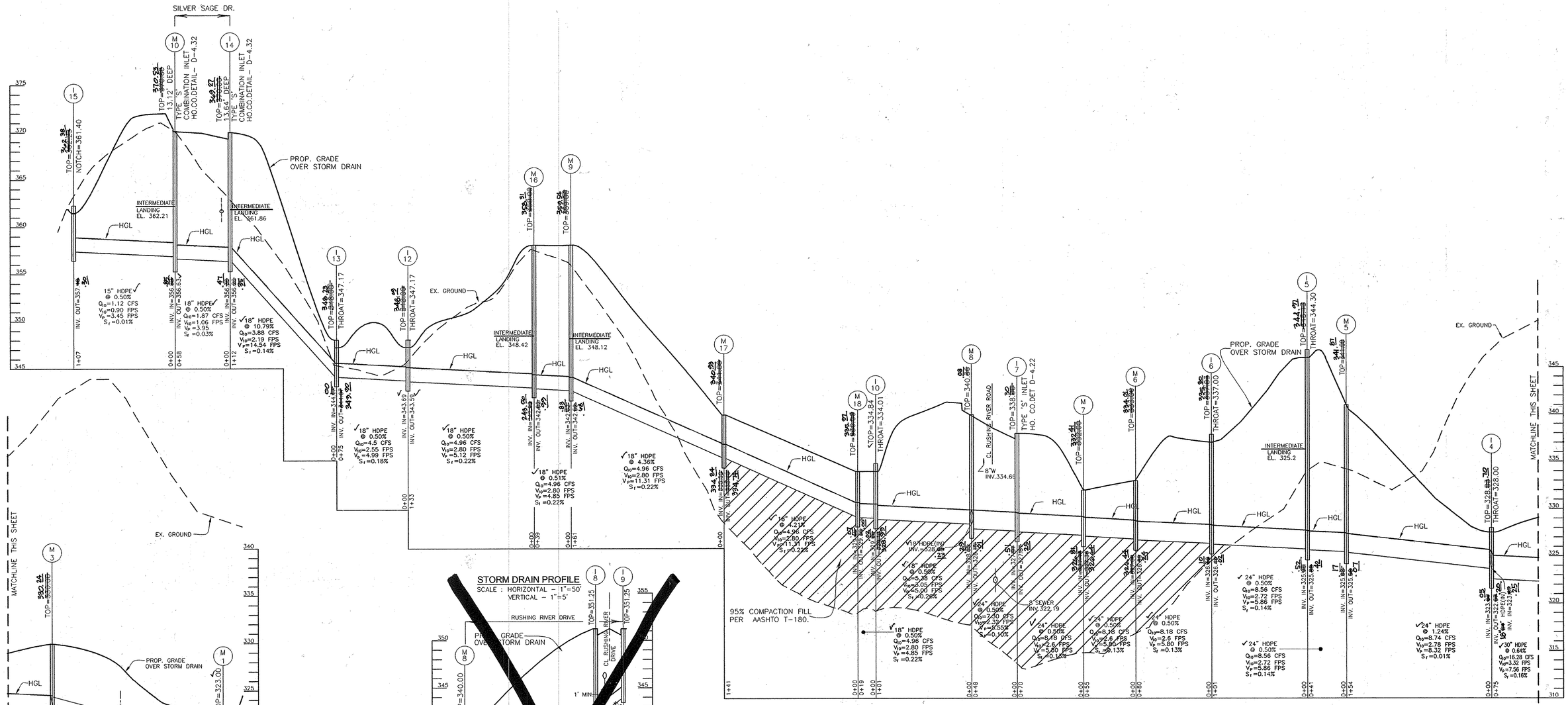
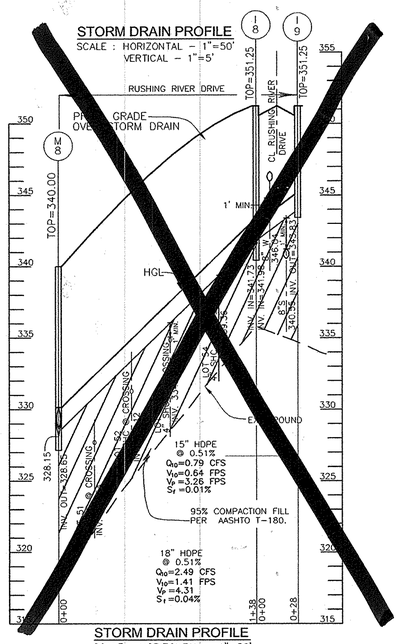
LOT 78
LOT 79
LOT 80
LOT 81
LOT





APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/9/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7-13-10

NO.	REVISION	DATE
2	MODIFICATION TO PROPOSED RUSHING RIVER DRIVE BASED ON RECONFIGURATION OF LOTS ALONG ROADWAY	2/7/12
1	MODIFY GRADING BENDING SKY WAY TO LOWER ROADWAY, CUL-DE-SAC, AND STORM DRAIN	2-2-11

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

PE NO. 16193
Date: 7/27/15

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER

OWNERS
AUTUMN RIVER CORPORATION
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ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

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FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
STORM DRAIN PROFILES

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OPEN SPACE LOT 30, 37, 44, 68 & 110
& NON-BUILDABLE PARCEL C
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RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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ROBERT H. VOGEL, PE No.16193

DESIGN BY: RJ/RHV
DRAWN BY: RJ
CHECKED BY: RHV
DATE: MAY 2010
SCALE: AS SHOWN
W.O. NO.: 04-145

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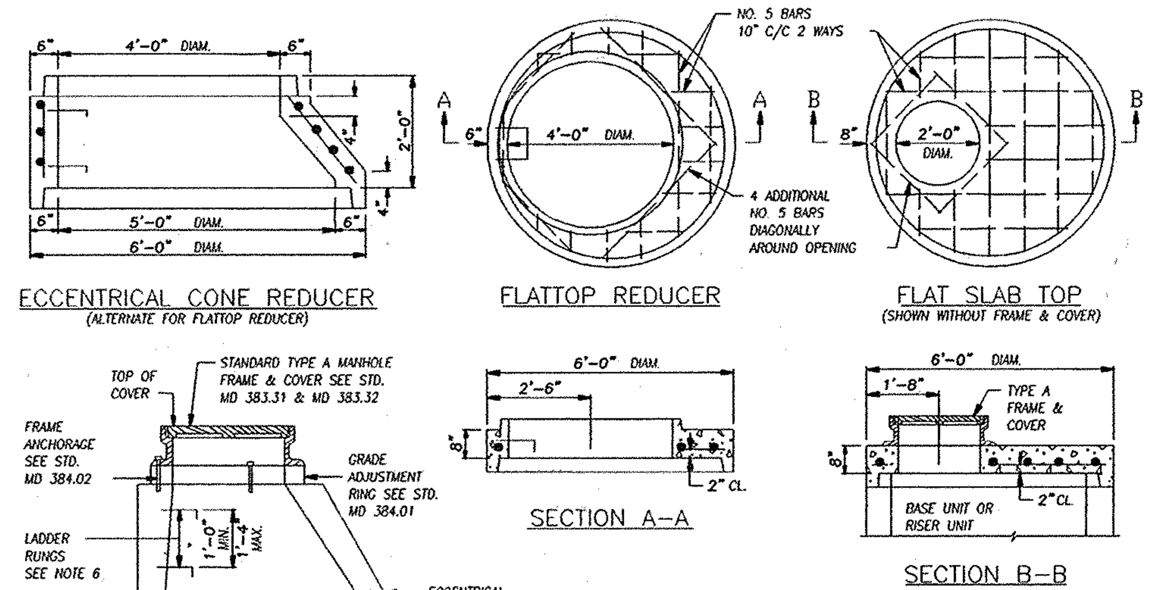
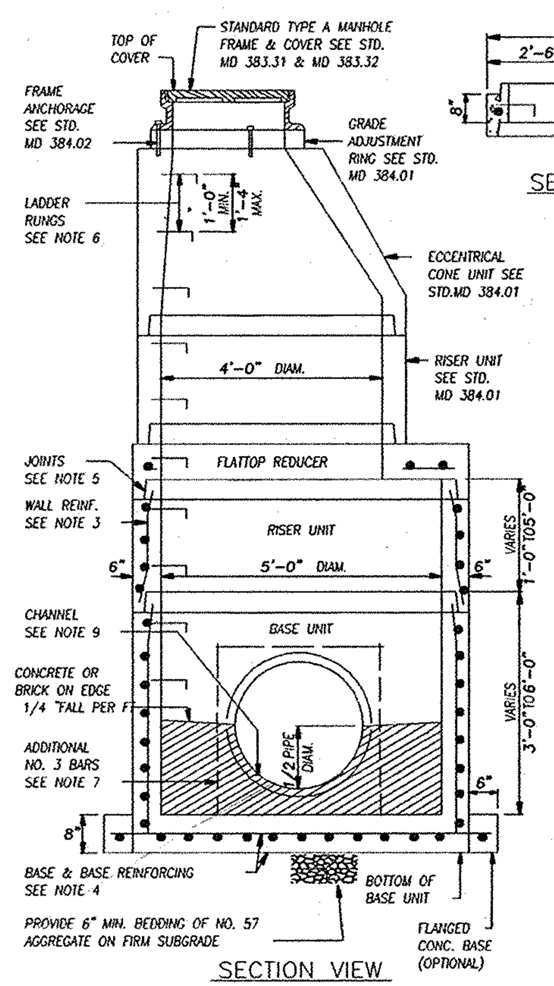
SHEET 14 OF 30

AS-BUILT 7/24/15

F-09-021





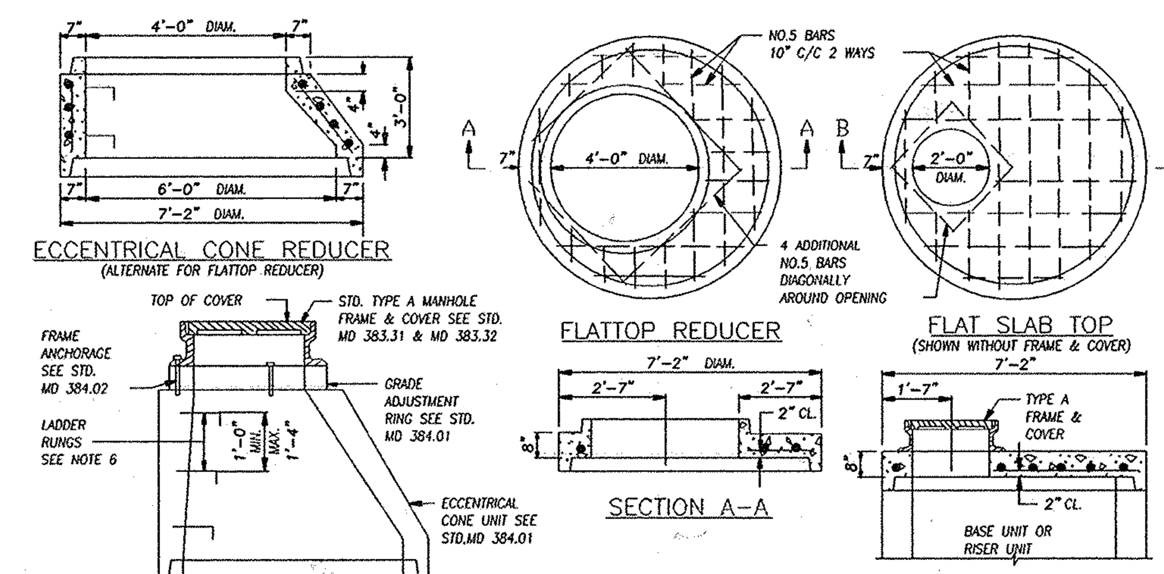
NOTES

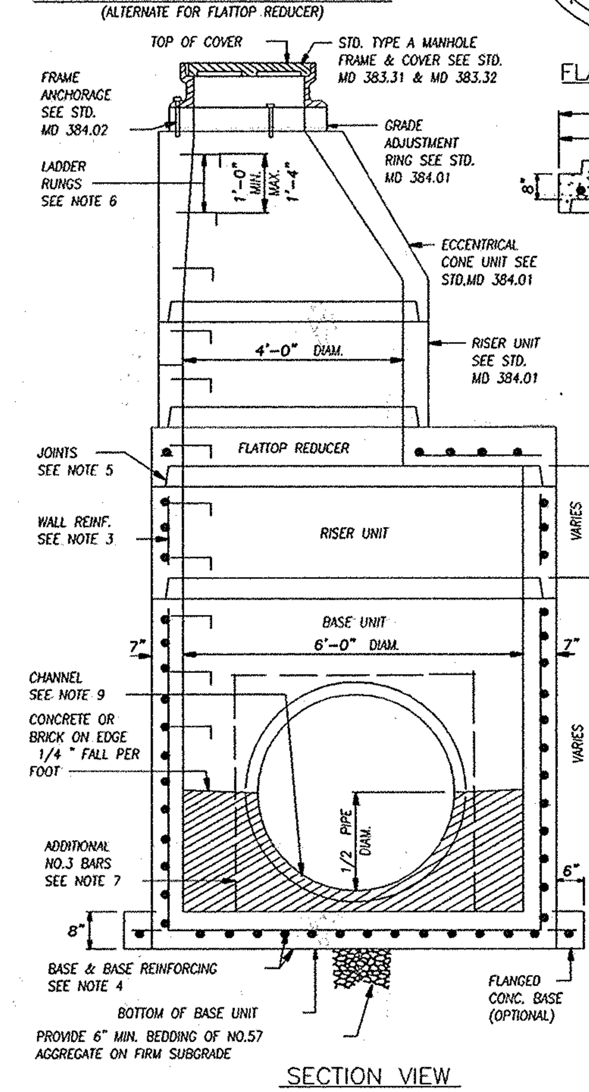
1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.
2. CONCRETE SHALL BE MIX NO.6 (4500PSI).
3. WALL REINFORCMENT FOR BASE UNITS, RISER UNITS AND ECCENTRICAL CONE UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.15 IN. /FT FOR THE 60" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82. REINFORCEMENT BARS SHALL MEET ASTM A 615, GRADE 60.
4. BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.17 IN. /FT. THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINTED PER MANUFACTURER'S DESIGN.
5. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING (WHERE APPLICABLE) MORTAR, RUBBER O-RING GASKETS MEETING ASTM C 361 AND C 443 OR FLEXIBLE PLASTIC GASKETS MEETING AASHTO M 198 TYPE B.
6. LADDER RUNGS SHALL BE INSTALLED IN VERTICAL ALIGNMENT AT 1'-4" MAXIMUM C/C. RUNG TYPES SHALL BE IN ACCORDANCE WITH STANDARDS MD 383.91 OR 383.92. LADDER RUNGS SHALL BE INCIDENTAL TO THE COST OF THE MANHOLE.
7. WHEN THE DISTANCE BETWEEN MUTIPLE OPENINGS IN THE BASE UNIT OR ANY RISER UNIT IS LESS THAN 6" ADDITIONAL NO.3 BARS ARE REQUIRED AROUND OPENINGS.
8. LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
9. MIX NO.2 CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED IN THE FIELD AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER.
10. THE DRIP STONE LANDING SHALL BE USED ONLY WHEN THERE ARE PIPES CONNECTED TO THE RISER UNITS. SEE STD. MD 384.13 FOR DETAILS.
11. MINIMUM DEPTH PAYMENT PER EACH SHALL BE 9'-0" MEASURED FROM THE BOTTOM OF THE BASE UNIT TO THE TOP OF THE MANHOLE COVER. VERTICAL DEPTH PAYMENT PER LINEAR FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 9'-0". THE COST OF THE DRIP STONE LANDING, NO.57 AGGREGATE, GROUT, SEALANT, AND ALL NECESSARY APPURTENANCES SHALL BE INCIDENTAL TO THE PRICE BID.

60" DIAMETER PRECAST MANHOLE
FOR 27" TO 36" PIPES

STANDARD NO. MD 384.03

MH-13 THROUGH MH-15





NOTES

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3. WALL REINFORCEMENT FOR BASE UNITS, RISER UNITS AND ECCENTRICAL CONE UNITS SHALL BE REINFORCMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.18 IN. /FT FOR THE 72" DIAMETER MANHOLES WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82 REINFORCEMENT BARS SHALL MEET ASTM A 615, GRADE 60.
4. BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.27 IN. /FT. THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINTED PER MANUFACTURER'S DESIGN.
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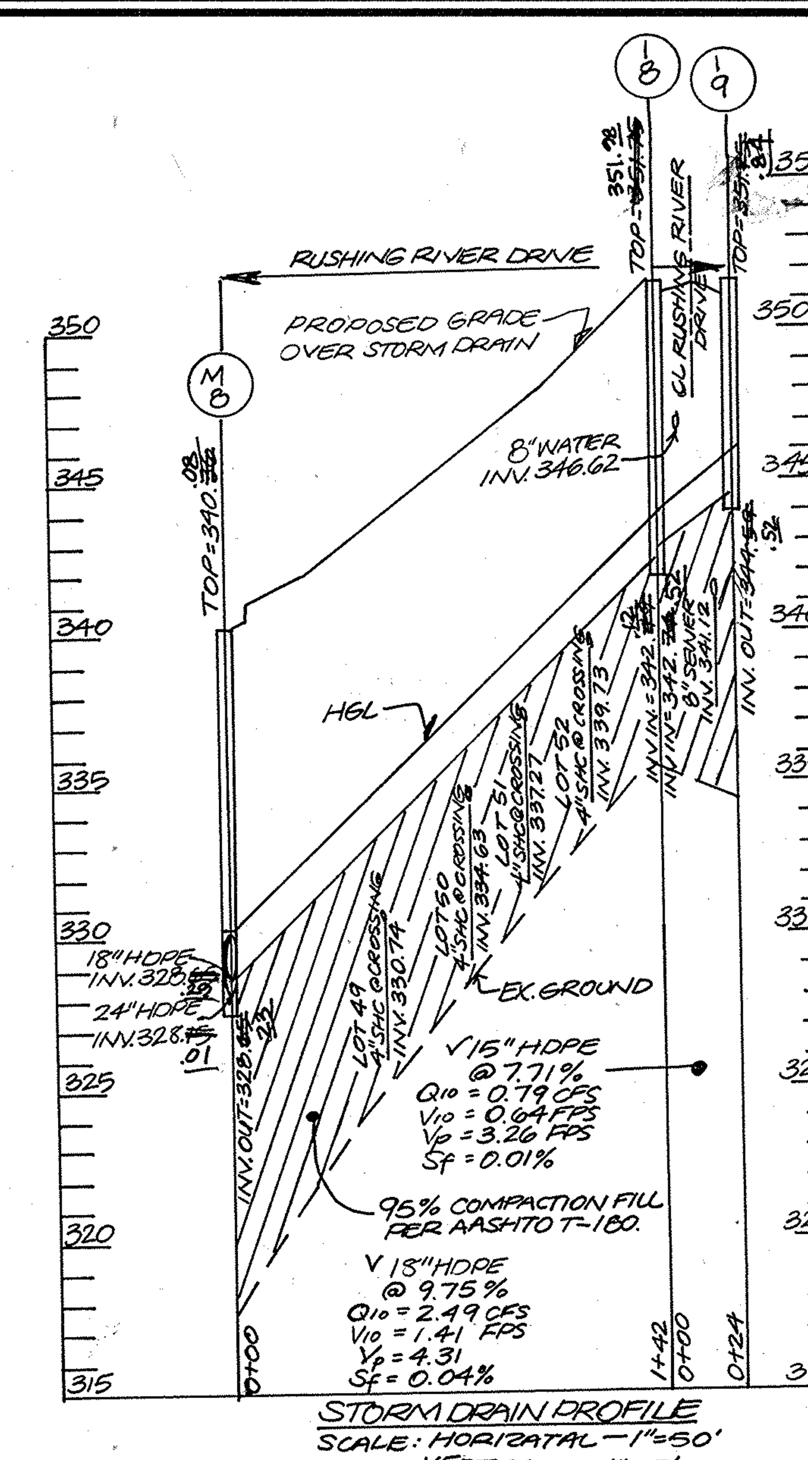
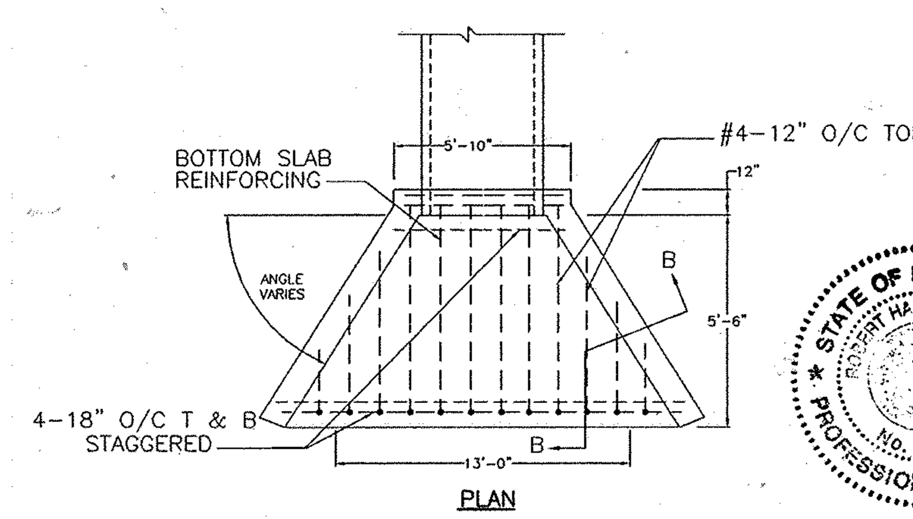
10. THE DRIP STONE LANDING SHALL BE USED ONLY WHEN THERE ARE PIPES CONNECTED TO THE RISER UNITS. SEE STD. MD 384.13 FOR DETAILS.
11. MINIMUM DEPTH PAYMENT PER EACH SHALL BE 9'-0" MEASURED FROM THE BOTTOM OF THE BASE UNIT TO THE TOP OF THE MANHOLE COVER. VERTICAL DEPTH PAYMENT PER LINEAR FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 9'-0". THE COST OF THE DRIP STONE LANDING, NO.57 AGGREGATE, GROUT, SEALANT, AND ALL NECESSARY APPURTENANCES SHALL BE INCIDENTAL TO THE PRICE BID.

72" DIAMETER PRECAST MANHOLE
FOR 42" & 48" PIPES

STANDARD NO. MD 384.05



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

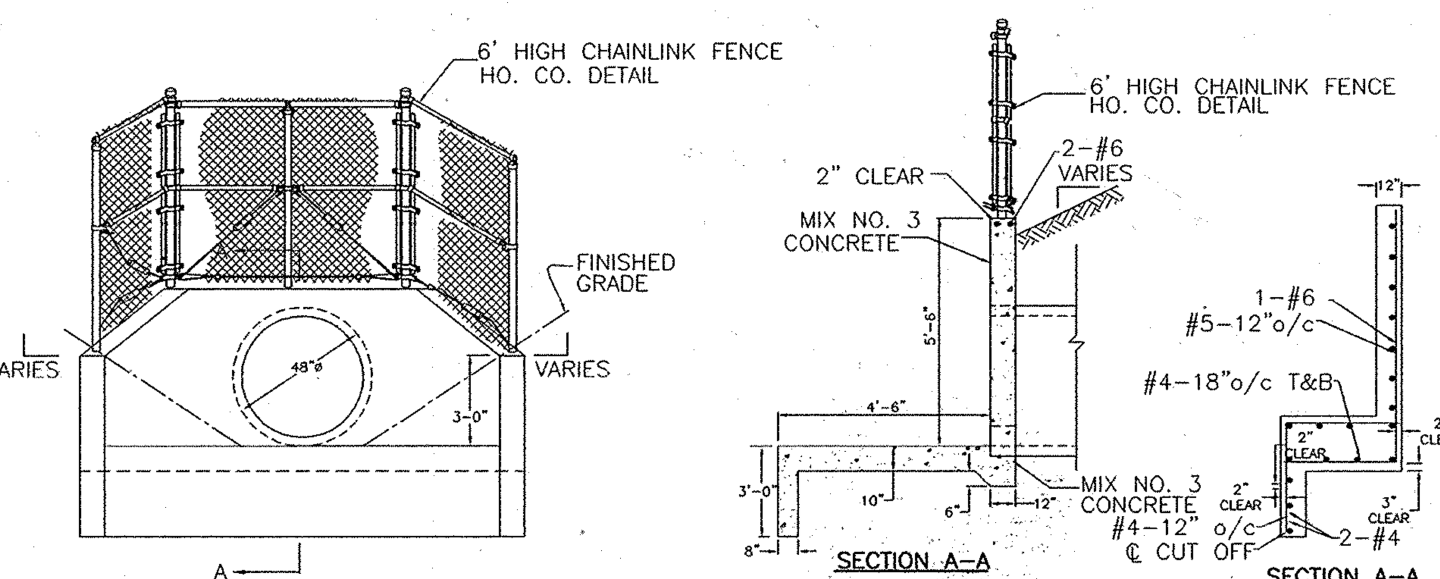


AS-BUILT CERTIFICATION

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

PE NO. 16193
Date: 7/27/15



(MODIFIED) TYPE 'A' HEADWALL DETAIL (D-5.11) FOR THE CHAIN LINK FENCE AROUND 48" PIPE OUTFALL HW-1

INLET SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.*	INV. IN	INV. OUT	REMARKS
I–1	TYPE 'A–5' INLET	CL BENDING SKY WAY STA. 12+46.67, 12' LT ~~330.59~~	330.69	—	322.52 ~~323.65~~	D–4.01
I–2	TYPE 'A–5' INLET	CL BENDING SKY WAY STA. 12+46.67 12' RT. ~~330.50~~	330.64	~~323.50~~ 322.42	322.05 ~~323.29~~	D–4.01
I–3	TYPE 'D' INLET	N = 580548.78 E = 1371843.67	323.82 ~~324.00~~	–	319.92 ~~320.40~~	D–4.10
I–4	TYPE 'D' INLET	N = 580136.87 E = 1371843.49	328.~~83~~ .70	323.~~87~~ .05	~~322.37~~ .20	D–4.10
I–5	TYPE 'D' INLET	N = 579950.39 E = 1371791.28	344.47 ~~335.13~~	325.~~98~~ .56	325.~~88~~ .20	D–4.10
I–6	TYPE 'D' INLET	N = 579946.73 E = 1371892.13	335.80 ~~337.89~~	326.~~59~~ .10	326.~~40~~ .42	D–4.10
I–7	DOUBLE TYPE 'S' INLET	CL RUSHING RIVER DRIVE STA. 4+32.06, 30.0" LT.	338.~~60~~ .30	327.~~91~~ .51	327.~~81~~ .76	D–4.23
I–8	TYPE 'A–5' INLET	CL RUSHING RIVER DRIVE STA. 2+71.92 12' RT.	~~351.75~~ .58	~~342.74~~ .52	342.~~49~~ .12	D–4.01
I–9	TYPE 'A–5' INLET	CL RUSHING RIVER DRIVE STA. 2+71.90 12' LT.	~~351.75~~ .82	–	344.~~84~~ .52	D–4.01
I–10	TYPE 'D' INLET	N = 579727.63 E = 1372072.15	334.84✓	329.~~28~~ .02	~~329.18~~ 328.24	D–4.10
I–11	NOT USED					
I–12	TYPE 'D' INLET	N = 579585.27 E = 1371873.62	348.~~00~~ .09	343.69✓	343.59✓	D–4.10
I–13	TYPE 'D' INLET	N = 579535.28 E = 1371928.86	348.~~00~~ .73	344.~~17~~ .00	~~344.07~~ 344.10	D–4.10
I–14	DOUBLE TYPE 'S' INLET	CL SILVER SAGE DRIVE STA. 3+14.73, 30.0' LT.	369.~~33~~ .77	356.~~38~~ .47	356.~~26~~ .33	D–4.22
I–15	TYPE 'D' INLET	N = 579323.98 E = 1371906.53	362.~~27~~ .38	–	357.~~40~~ .36	D–4.10
I–16	TYPE 'A–5' INLET	CL BENDING SKY WAY STA. 8+15.42, 12' RT.	343.~~36~~ .75	335.~~44~~ .27	334.~~94~~ .21	D–4.01
I–17	TYPE 'A–5' INLET	CL BENDING SKY WAY STA. 8+15.42, 12' LT.	343.~~36~~ .66	335.~~08~~ .50	335.~~50~~ .41	D–4.01
I–18	TYPE 'D' INLET	N = 580179.44 E = 1371609.36	340.~~77~~ .38	–	336.~~75~~ .53	D–4.10
I–19	TYPE 'D' INLET	N = 580006.03 E = 1371440.43	~~344.00~~ 344.69	–	340.~~72~~ .56	D–4.10
I–20	TYPE 'A–5' INLET	CL BENDING SKY WAY STA. 5+28.26, 12' LT.	358.~~22~~ .69	–	~~352.08~~ 351.52	D–4.01
I–21	TYPE 'A–10' INLET	CL COLLEGE AVENUE STA. 7+09.29 14' RT.	~~378.50±~~ 377.32*	–	372.~~70~~± .77	D–4.03

* FIELD VERIFY THE LOCATION AND ELEVATION AT EXISTING ROAD FOR TOP OF INLET. ADJUST AS NECESSARY TO MEET WIDENING SECTION AND EXISITNG EDGE OF PAVING.

STORM DRAIN MANHOLE SCHEDULE

NO.	TYPE	LOCATION		TOP ELEV.	INV. IN	INV. OUT	REMARKS
M–1	5' PRECAST MANHOLE (60" DIA PRECAST MANHOLE FOR 27" TO 36" PIPES	580345.55	1371988.14	323.~~00~~ .03	~~314.50~~ (18") ~~317.02~~ (30") 315.62	~~313.08~~ (30") 311.53	MD–384.03** SEE THIS SHEET
	NOT USED						
M–3	STANDARD 4' PRECAST MANHOLE	580201.67	1371880.80	330.~~00~~ .24	~~322.09~~ 321.72	321.~~49~~ .64	G–5.11
	NOT USED						
M–5	STANDARD 4' PRECAST MANHOLE	579992.43	1371787.21	341.~~00~~ .87	325.~~68~~ .17	325.~~58~~ .07	G–5.11
M–6	STANDARD 4' PRECAST MANHOLE	579962.54	1371972.73	334.81 ~~333.00~~	327.~~00~~ .44	326.~~90~~ .29	G–5.11
M–7	STANDARD 4' PRECAST MANHOLE	579938.91	1372023.19	~~332.00~~ .41	~~327.40~~ 326.01	~~327.30~~ 326.64	G–5.11
M–8	STANDARD 4' PRECAST MANHOLE	STA 4+16.43	18.4' RT	340.~~38~~ .98	328.~~65~~ .29	328.~~45~~ .19	G–5.11
M–9	STANDARD 4' PRECAST MANHOLE	579684.13	1371761.81	359.~~00~~ .54	342.~~62~~ .56	342.~~52~~ .46	G–5.11
M–10	STANDARD 4' PRECAST MANHOLE	STA 3+21.23	28' RT	370.~~00~~ .53	356.~~00~~ .85	356.63	G–5.11
M–11	STANDARD 4' PRECAST MANHOLE	6+14.77	17.0' LT	352.~~64~~ .64	338.~~73~~ .44 (18") 339.~~04~~ .04 (15")	338.~~88~~ .46	G–5.11
M–12	STANDARD 4' PRECAST MANHOLE	580032.77	1371568.01	349.~~00~~ .29	339.~~32~~ .09	~~339.22~~ 338.99	G–5.11
M–13	6' PRECAST MANHOLE (72" DIA PRECAST MANHOLE FOR 42" TO 48" PIPES	580192.17	1372310.23	321.~~50~~ .04	~~304.20~~ 303.89	~~304.10~~ 303.79	MD–384.05** SEE THIS SHEET
M–14	6' PRECAST MANHOLE (72" DIA PRECAST MANHOLE FOR 42" TO 48" PIPES	580068.86	1372345.23	~~325.50~~ .98	~~302.10~~ 300.69	~~302.00~~ 300.49	MD–384.05** SEE THIS SHEET
M–15	6' PRECAST MANHOLE (72" DIA PRECAST MANHOLE FOR 42" TO 48" PIPES	580025.11	1372220.96	305.~~00~~ .74	~~293.00~~ 292.44	291.~~70~~ .50	MD–384.05** SEE THIS SHEET
M–16	STANDARD 4' PRECAST MANHOLE	579645.62	1371754.59	358.~~00~~ .31	~~343.06~~ 342.92	342.~~82~~ .29	G–5.11
M–17	STANDARD 4' PRECAST MANHOLE	579683.71	1371922.57	340.23 ~~341.00~~	334.81 ~~335.50~~	334.75 ~~335.40~~	G–5.11
M–18	STANDARD 4' PRECAST MANHOLE	579711.87	1372060.90	335.71 ~~336.00~~	329.~~46~~ .07	329.~~36~~ .00	G–5.11
M–19	STANDARD 4' PRECAST MANHOLE	7+52.61	16.24' LT	346.06 ~~345.51~~	336.~~84~~ .81 (15") ~~336.00~~ (18")	335.~~99~~ .74	G–5.11
M–20	STANDARD 4' PRECAST MANHOLE	580018.74	1371494.84	346.~~00~~ .60	340.~~14~~ .04	339.~~88~~ .26	G–5.11
M–21	STANDARD 4' PRECAST MANHOLE	580005.23	1371560.80	352.48 ~~353.00~~	339.~~56~~ .53	339.~~46~~ .43	G–5.11
M–22	STANDARD 4' PRECAST MANHOLE	580406.89	1372033.91	324.~~50~~	314.~~08~~ .62	314.~~98~~ .52	G–5.11
M–22A	STANDARD 4' PRECAST MANHOLE	STA. 11+63.45	14.62' RT	~~331.10~~	316.~~48~~ .64 ~~322.83~~ 321.05	316.~~69~~ .30	G–5.11
M–24	STANDARD 4' PRECAST MANHOLE	579341.57	1371780.75	375.~~60~~ .54	366.~~64~~ .04	~~366.54~~ 365.94	G–5.11
M–25	STANDARD 4' PRECAST MANHOLE	579334.38	1371684.80	383.~~86~~ .70	372.~~45~~ .11	~~372.21~~ 371.91	G–5.11

** MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD DETAILS

NOTES

*TOP ELEV.=TOP OF THE CURB AT CENTER OF THE INLET FOR TYPE S INLET.
*TOP ELEV.=TOP OF THE CURB AT CENTER OF THE INLET FOR A–5 & A–10 INLET.
*TOP ELEV.=TOP OF THE FRAME & COVER FOR TYPE D INLET.

STRUCTURE SCHEDULE

NO.	TYPE	LOCATION NORTHING	LOCATION EASTING	TOP ELEV.	INV. IN	INV. OUT	REMARKS
E–1	END SECTION CIRCULAR PIPE	N=580325.21	E=1372015.40	~~316.50~~ 315.65	~~311.50~~ 311.65	–	HO. CO. DETAIL D–5.51
HW–1	TYPE 'A' HEADWALL (48") CIRCULAR PIPE PROVIDE FENCE AROUND 48" OUTFALL PIPE	N=579988.79	E=1372212.17	298.~~63~~ .75	291.~~00~~ .12	–	HO. CO. DETAIL D–5.11 MODIFIED SEE THIS SHEET
E–2	TYPE 'A' HEADWALL (24") CIRCULAR PIPE (FOR TEMP. BASIN #4)	N=579991.47	E=1372057.35	307.50	304.50	304.00	HO. CO. DETAIL D–5.11

PIPE SCHEDULE

PIPE SIZE	TYPE	TOTAL LENGTH
15"	HDPE	480 LF
18"	HDPE	1654 LF
24"	HDPE	729 LF
30"	HDPE	276 LF
36"	HDPE	37 LF

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/15/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

ENGINEERS CERTIFICATE

"I HEREBY 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 ROBERT H. VOGEL — DATE 5/7/10

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER ROSS TAYLOR — DATE 5/7/2010

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

HOWARD S.C.D. — DATE 6/15/10

NO.	REVISION	DATE
2	MODIFICATION TO PROPOSED RUSHING RIVER DRIVE BASED ON RECONFIGURATION OF LOTS ALONG ROADWAY	2-7-12
1	MODIFY GRADING TOWARDS END OF BENDING SKY WAY TO LOWER ROADWAY, CUL-DE-SAC AND STORM DRAIN	2-2-11

OWNERS
AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER
AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
STORM DRAIN PROFILES

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68 & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

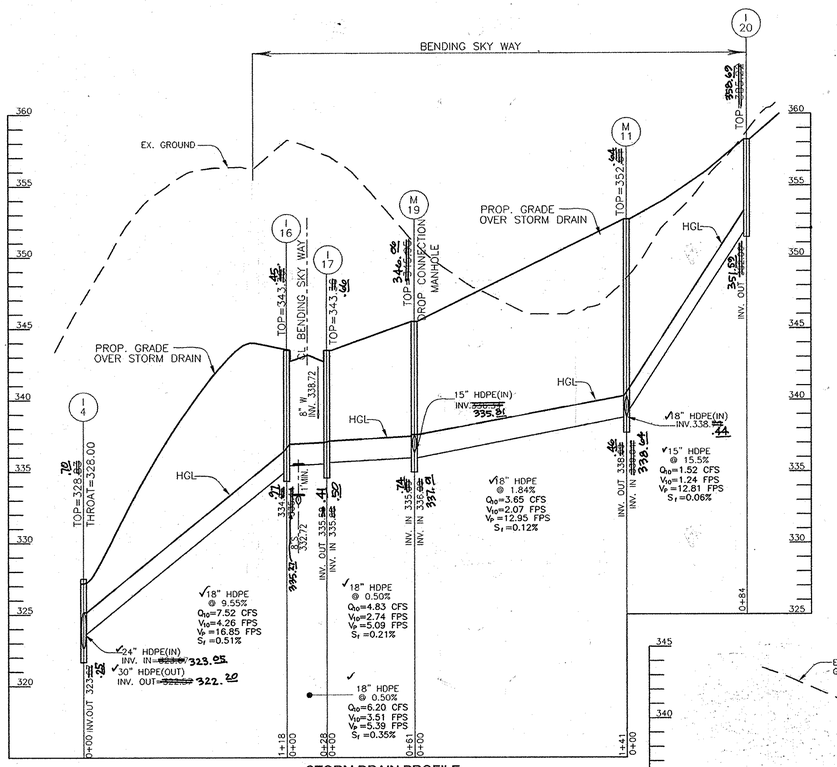
ROBERT H. VOGEL, PE No.16193

DESIGN BY: RJ/RHV
DRAWN BY: RJ
CHECKED BY: RHV
DATE: MAY 2010
SCALE: AS SHOWN
W.O. NO.: 04-145

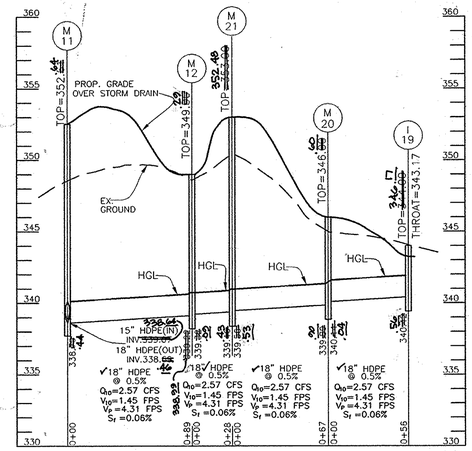
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2010

AS-BUILT 7/24/15

F-09-021



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



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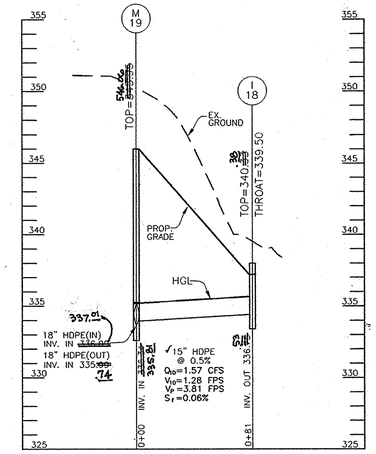

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SCALE : HORIZONTAL – 1"=50'
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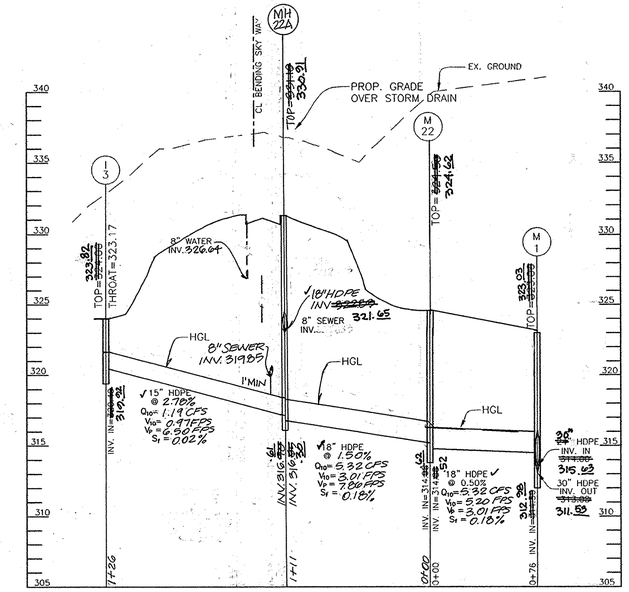
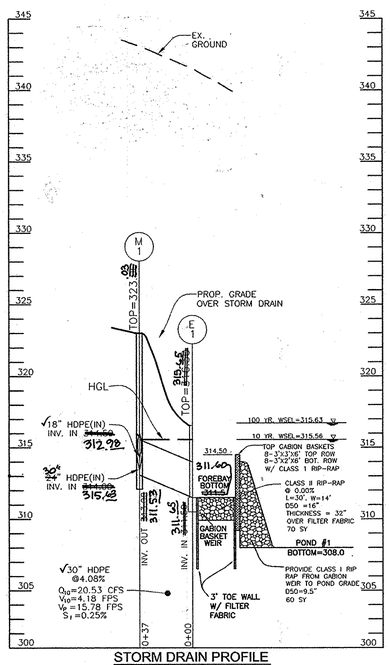


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

NOTE: MH22A TO HAVE GRANITE BLOCKING AT INVERT



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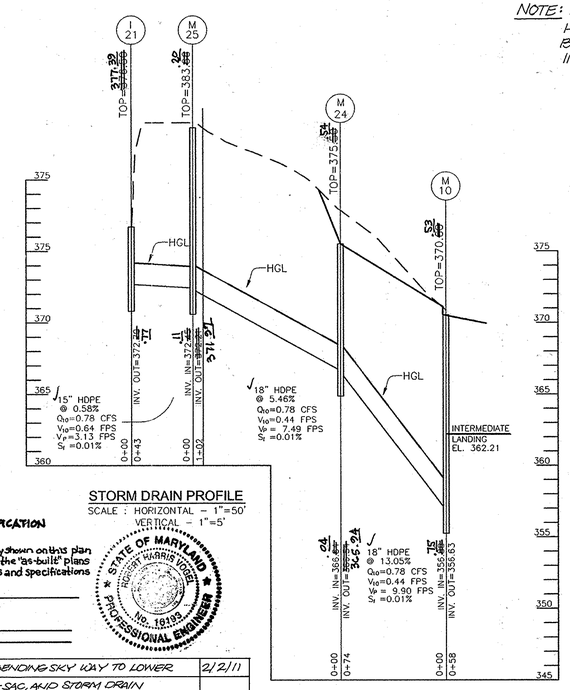
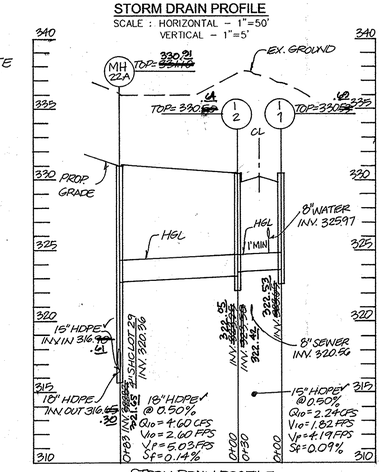


STORM DRAIN PROFILE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



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

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

PE NO. 16193
Date: 7/27/15

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER

NO.	REVISION	DATE
1	MODIFY GRADING BENDING SKY WAY TO LOWER ROADWAY, CUL-DE-SAC, AND STORM DRAIN	2/2/11

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
STORM DRAIN PROFILES

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TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
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STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
ROBERT H. VOGEL, P.E. No. 16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

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SHEET 16 OF 30

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

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SIGNATURE OF ENGINEER ROBERT H. VOGEL — DATE 5/7/10

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SIGNATURE OF DEVELOPER ROSS TAYLOR — DATE 5/7/2010

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HOWARD S.C.D. — DATE 6/15/10

OWNERS

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DEVELOPER

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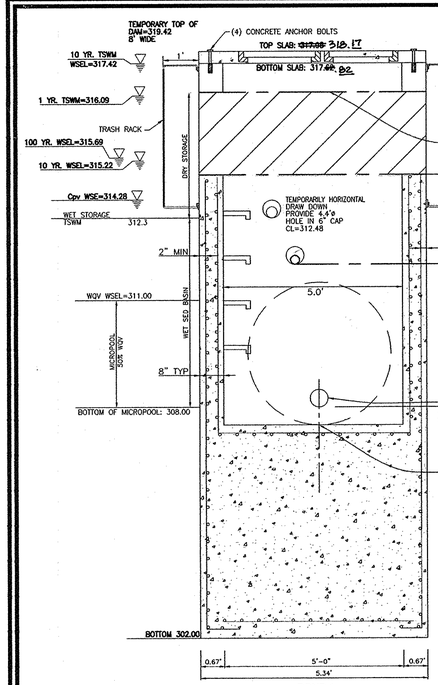
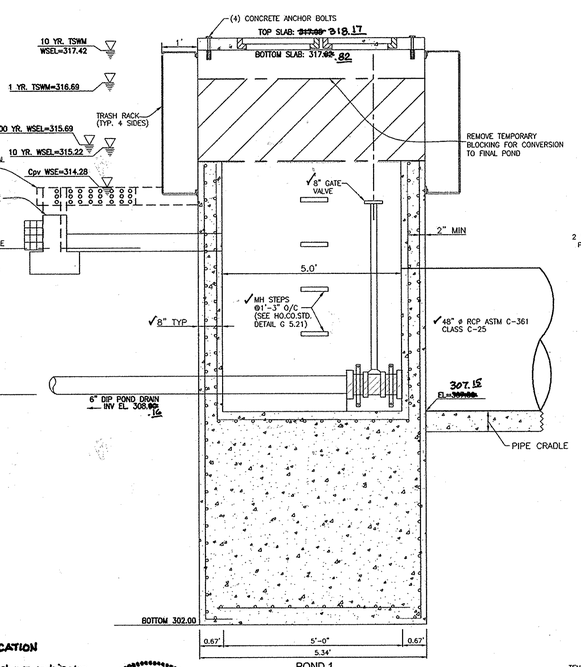
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

AS-BUILT 7/24/15

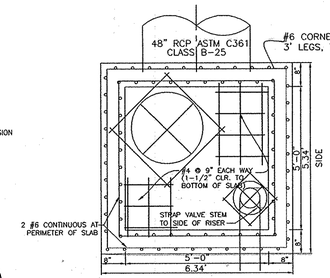
F-09-021



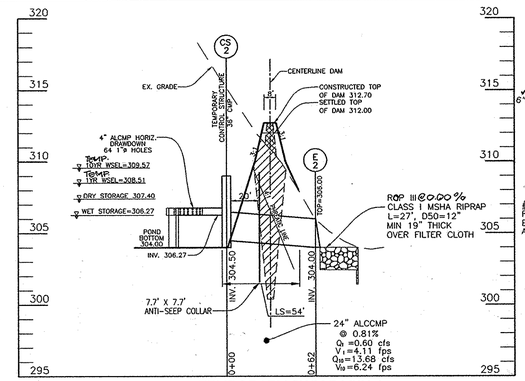
POND 1
FRONT SECTION
SCALE: 1"=2'



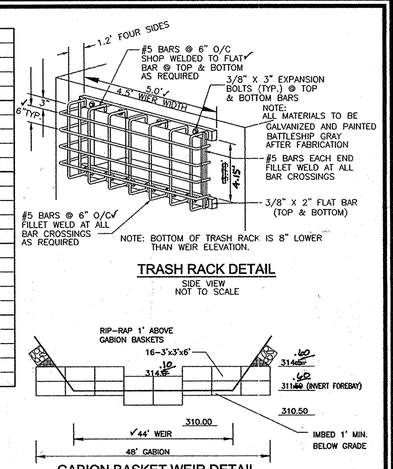
POND 1
SIDE SECTION
SCALE: 1"=2'



4" TOP SLAB
POND 1
SCALE: 1"= 2'



TEMPORARY SWM BASIN 4
PRINCIPLE SPILLWAY PROFILE
SCALE: 1"= 50' HORIZ. 1"= 5' VERT.

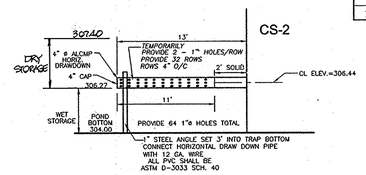


TRASH RACK DETAIL
SIDE VIEW
NOT TO SCALE

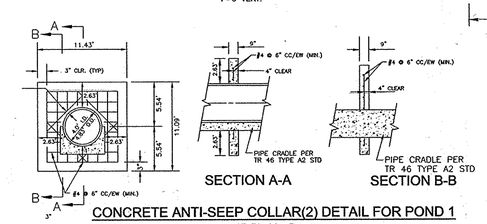
GABION BASKET WEIR DETAIL
POND #1
NOT TO SCALE

NOTES:

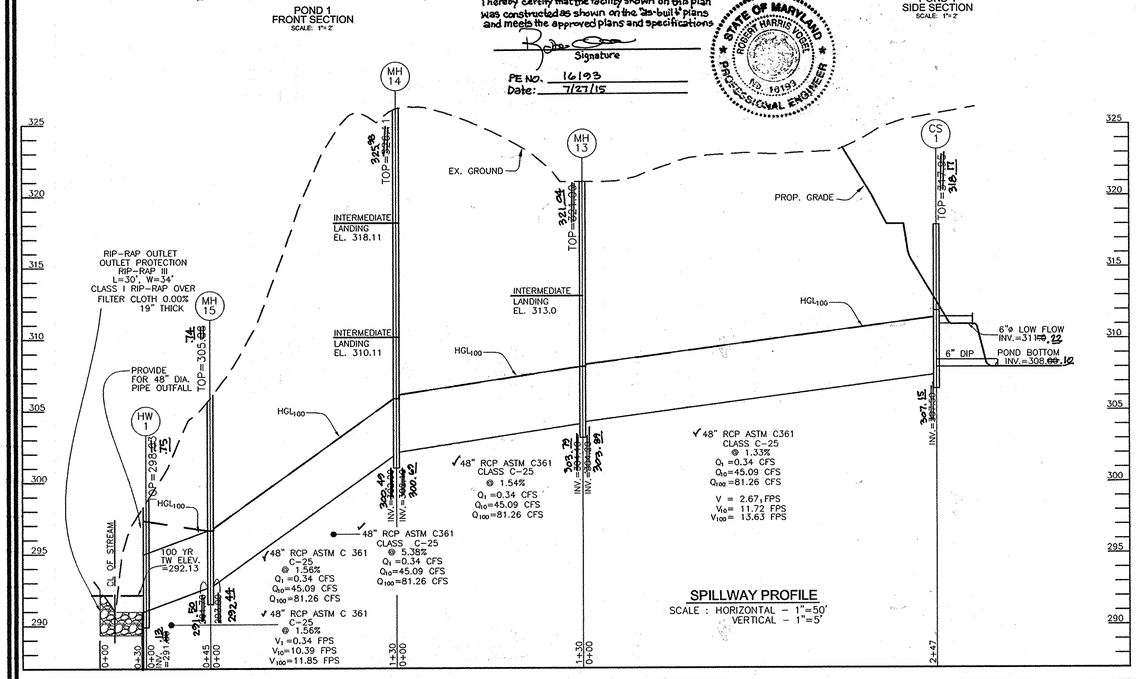
1. ALL WIRE USED IN GABION CONSTRUCTION SHALL BE GALVANIZED AND PLASTIC COATED.
2. FILTER CLOTH SHALL BE PLACED WHEREVER GABIONS COME INTO CONTACT WITH SOIL.
3. STONE FILL SHALL CONSIST OF HARD, DURABLE, CLEAN STONE 4"-8" IN DIAMETER.
4. CONSTRUCTION MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. RIP-RAP TO BE PLACED BELOW GABION WEIR TO BOTTOM OF FOREBAY.



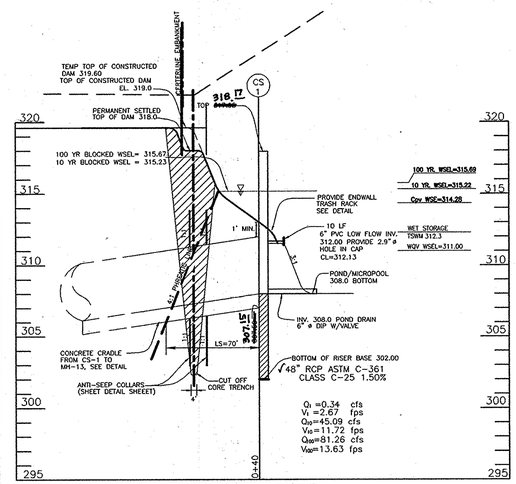
TEMP. SWM BASIN #4 - HORIZONTAL DRAW-DOWN DEVICE
NOT TO SCALE
REF.: 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PAGE C-10-29



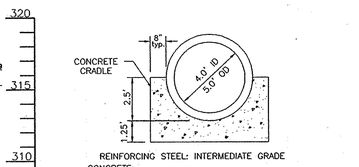
CONCRETE ANTI-SEEP COLLAR(2) DETAIL FOR POND 1
NOT TO SCALE



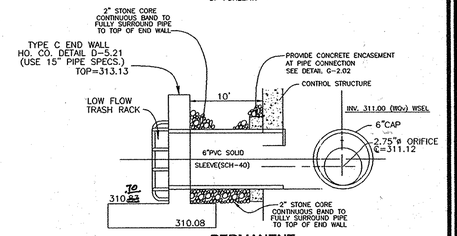
SPILLWAY PROFILE
SCALE : HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



PRINCIPAL SPILLWAY PROFILE
SCALE: 1"= 50' HORZ. 1"= 5' VERT.

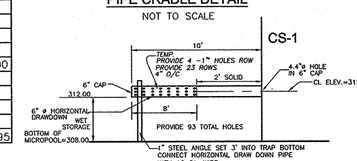


(REF. TR-46)
POND 1
PIPE CRADLE DETAIL
NOT TO SCALE

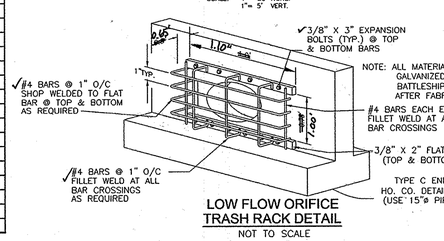


PERMANENT
ORIFICE DETAIL IN CONTROL STRUCTURE
POND #1
NOT TO SCALE

1. ANTI-SEEP COLLARS SHOULD BE PLACED WITHIN THE SATURATION ZONE.
2. ALL ANTI-SEEP COLLARS AND THEIR CONNECTIONS TO THE CONDUIT SHALL BE WATERTIGHT AND MADE OF COMPATIBLE WITH THE CONDUIT.
3. COLLARS DIMENSIONS SHALL EXTEND A MIN. OF 2' IN ALL DIRECTIONS AROUND THE PIPE.
4. ANTI-SEEP COLLARD SHALL BE PLACED A MIN. OF 2' FROM PIPE JOINTS EXCEPT WHERE FLANGED JOINTS ARE USED.



TEMP. SEDIMENT BASIN#1 - HORIZONTAL DRAW-DOWN DEVICE
NOT TO SCALE
REF.: 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PAGE C-10-29



LOW FLOW ORIFICE
TRASH RACK DETAIL
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THEN 4 TIMES THE AREA OF THE INTERNAL ORIFICE.
2. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
3. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLOATATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 1" x4" SQUARE OR 2" ROUND WOODEN POSTS SET 3' MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE.

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

OWNERS / DEVELOPER

AUTUMN RIVER DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

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

PE NO. 16193
Date: 7/27/15

STATE OF MARYLAND ROBERT HARRIS VOGEL NO. 16193 PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

ENGINEERS CERTIFICATE

"I HEREBY 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 ROBERT H. VOGEL — DATE 6/10/10

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER — DATE

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

HOWARD S.C.D. — DATE 6/15/10

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
STORMWATER MANAGEMENT DETAILS - POND

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL NO. 16193 PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193. EXPIRATION DATE: 09-27-2010

SHEET 17 OF 30

AS-BUILT 7/24/15

F-09-021

MARYLAND 378
STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

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

SITE PREPARATION

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

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH, AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIAL SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

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

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

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

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATED CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIAL SHALL BE PLACED SUCH THAT MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. 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 TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF THE STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL (FLOWABLE FILL)ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL-PIPE OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

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

MATERIALS – (ALUMINUM COATED STEEL PIPE) – THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-274 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM 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-211 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 LEASE 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 DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 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 1/2 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 SEAMS 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 TSTRUCTURE BACKFILLSECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE – BELL AND SPICOT 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 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 D-1785 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. BACKFILLING 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 MATERIALS, SECTION 311.

GEOTEXILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET 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 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 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 I 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 SCHEDULE FOR STORMWATER MANAGEMENT EXTENDED DETENTION FACILITY

STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE (BY HOA)

1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
3. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE (BY HOWARD COUNTY)

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERE WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

POND BOTTOM SOIL CONDITIONS

IF BROKEN ROCK FRAGMENTS ARE ENCOUNTERED AT FINISHED POND BOTTOM, UNDER CUT A MINIMUM OF 12" BELOW BASIN GRADE AND TO A HORIZONTAL DISTANCE OF AT LEAST 18" BEYOND EACH EDGE OF THE BROKEN ROCK AND BACKFILL WITH FINE-GRAINED ML OR CL SOILS COMPACTED TO A FIRM CONDITION. THIS PROCEDURE SHOULD BE PERFORMED UNDER THE SUPERVISION OF THE PROJECT GEOTECHNICAL ENGINEER.

IN ORDER TO LOWER THE INFILTRATION RATE INTO THE SANDS WITH GRAVEL, IT IS RECOMMMENDED THAT THE SANDS WITH GRAVEL BE UNDERCUT AND REPLACED WITH A MINIMUM OF 12 INCHES OF SOILS CLASSIFIED AS SM PER ASTM D-2487 OR SANDY LOAM PER USDA CLASSIFICATION. THE FILL SOIL SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF ITS MAXIMUM DRY DENSITY PER ASTM D-698.

OPERATION, MAINTENANCE AND INSPECTION

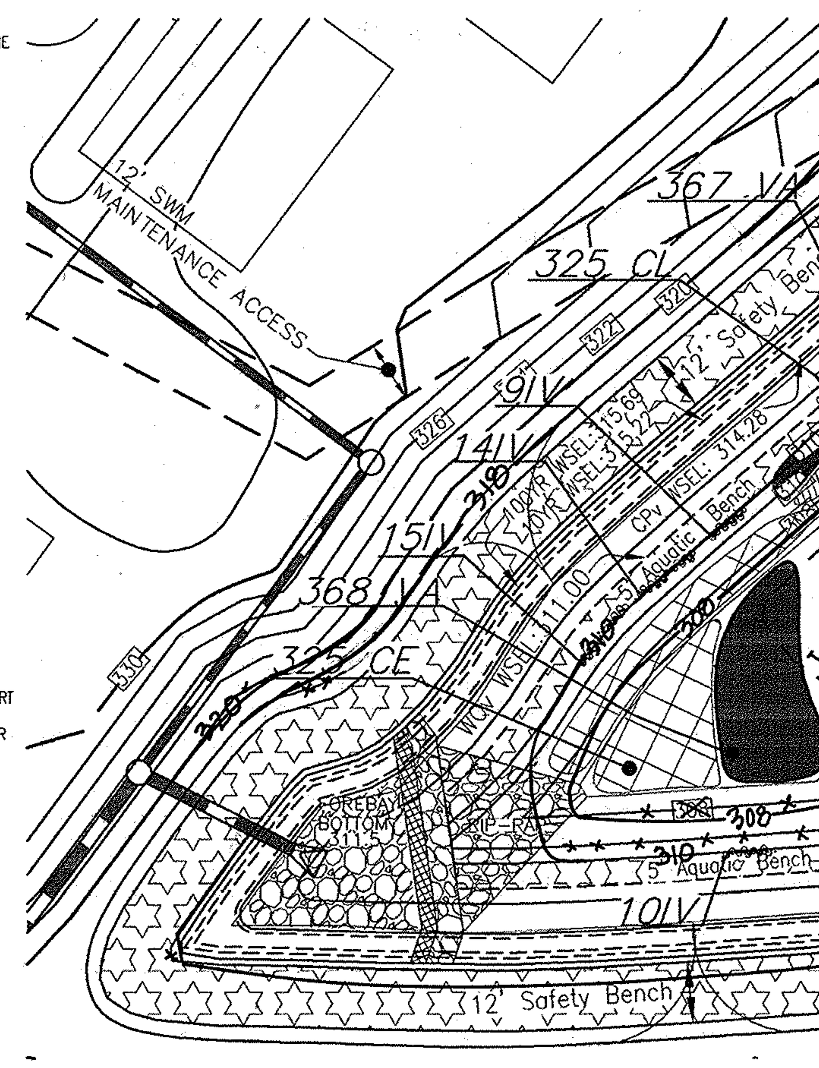
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, NRCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

STORMWATER POND HERBACEOUS LANDSCAPE SCHEDULE

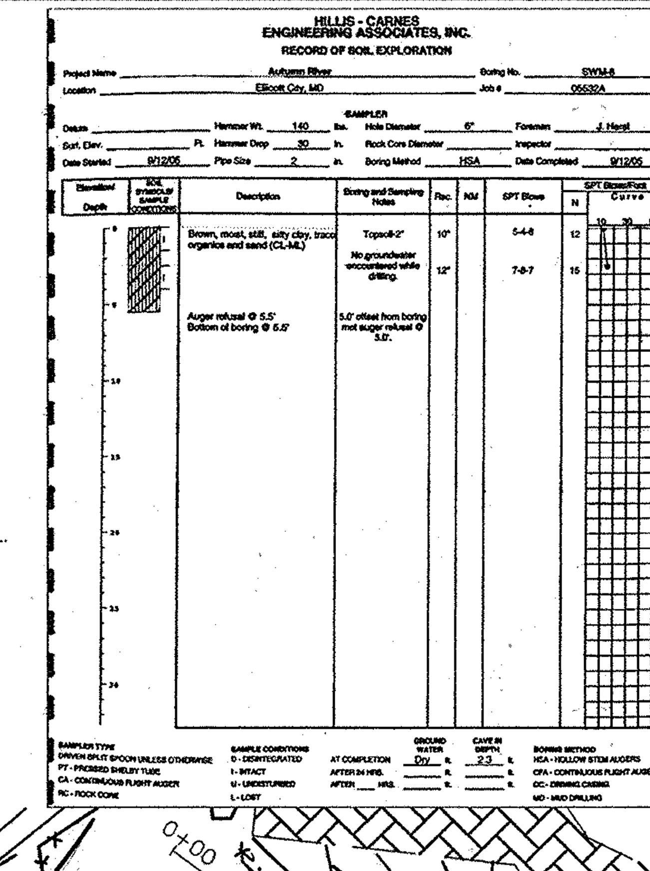
KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
VA	735	Vallisneria americana Wild Celery	plug	2' oc
IV	48	Iris pseudacoris Yellow Water Iris	plug	1.5' oc
CE	325	Iris versicolor Blue Flag (wear gloves)	plug	1.5' oc
CL	325	Sagittaria latifolia Duck Potato(do not plant tubers)	plug	4' oc

REMOVE BAFFLE BOARDS PRIOR TO INSTALLATION OF PLANT MATERIALS.
ADD THREE INCHES OF TOPSOIL TO PLANTING AREA. STABILIZE WITH 40 POUNDS PER ACRE OF A HYDROSEED MIX (WET MIX AND MEADOW MIX) FROM SYLVA NATIVE NURSERY OR EQUAL.

BE INSTALLED IN ACCORDANCE WITH LCAMW SPECIFICATIONS. CONTRACTOR TO AVOID STEPPING IN MICROPOOL DURING INSTALLATION.



POND #1
SCALE:1"=30'

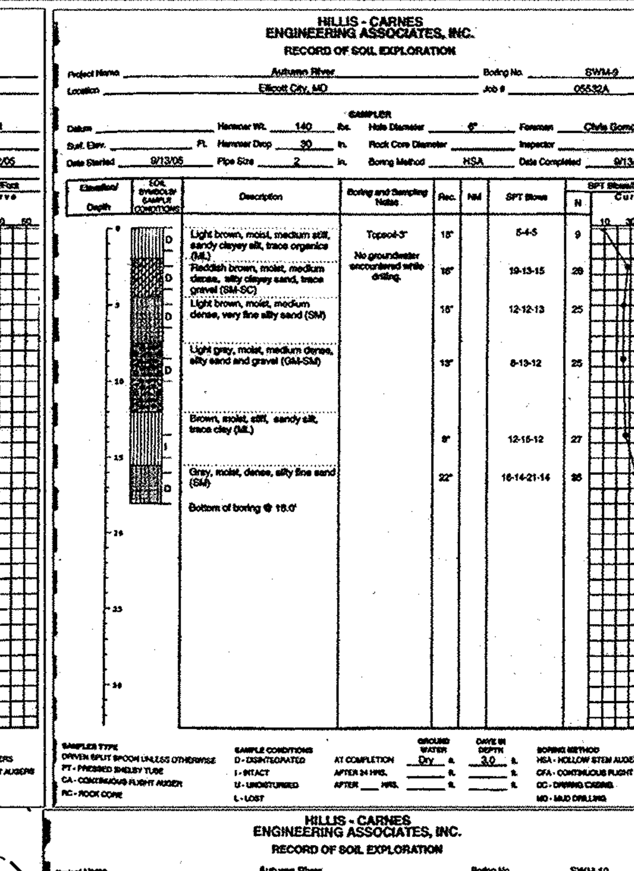


HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Autumn River. Location: Ellicott City, MD. Boring No.: SWM-8. Job #: 05532A. Hammer Wt.: 140 lbs. Hole Diameter: 6". Foreman: J. Hersl. Hammer Drop: 30 in. Pipe Size: 2 in. Boring Method: HSA. Date Started: 9/12/05. Date Completed: 9/12/05.

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, stiff, silty clay, trace organics and sand (CL-ML)	Topsoil-2"; No groundwater encountered while drilling.	10"	5-4-6	12
		12"	7-8-7	15
Auger refusal @ 5.5'. Bottom of boring @ 5.5'	5.0' offset from boring met auger refusal @ 3.0'.			

Ground water at completion: Dry. Cave-in depth: 2.3 ft.

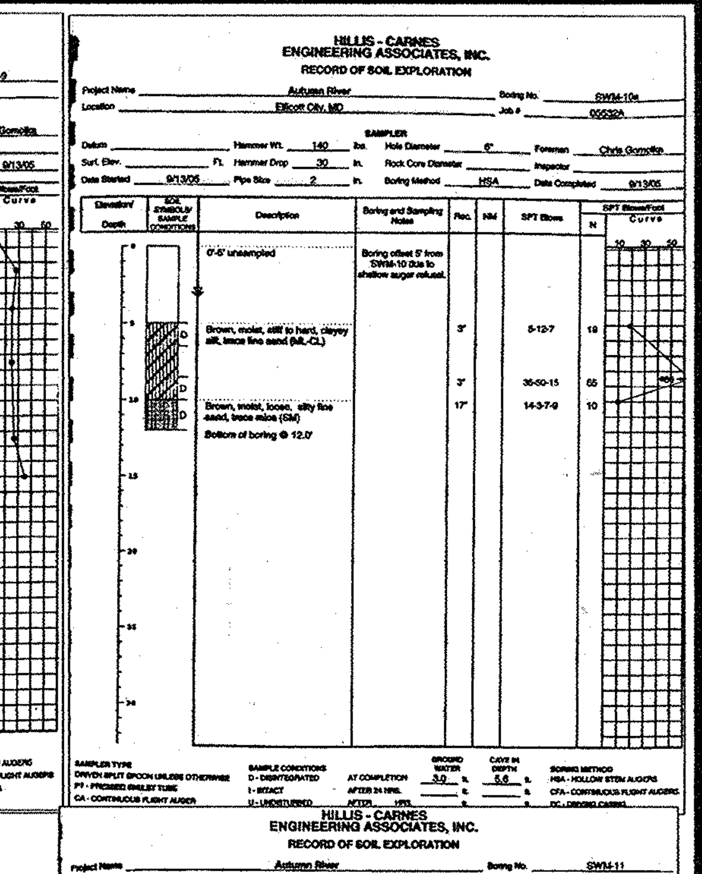


HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Autumn River. Location: Ellicott City, MD. Boring No.: SWM-9. Job #: 05532A. Hammer Wt.: 140 lbs. Hole Diameter: 6". Foreman: Chris Gomolka. Hammer Drop: 30 in. Pipe Size: 2 in. Boring Method: HSA. Date Started: 9/13/05. Date Completed: 9/13/05.

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Light brown, moist, medium stiff, sandy clayey silt, trace organics (ML)	Topsoil-3"; No groundwater encountered while drilling.	15"	5-4-5	9
Reddish brown, moist, medium dense, silty clayey sand, trace gravel (SM-SC)		16"	19-13-15	28
Light brown, moist, medium dense, very fine silty sand (SM)		15"	12-12-13	25
Light gray, moist, medium dense, silty sand and gravel (GM-SM)		13"	8-13-12	25
Brown, moist, stiff, sandy silt, trace clay (ML)		9"	12-15-12	27
Gray, moist, dense, silty fine sand (SM)		22"	16-14-21-14	35
Bottom of boring @ 16.0'				

Ground water at completion: Dry. Cave-in depth: 3.0 ft.

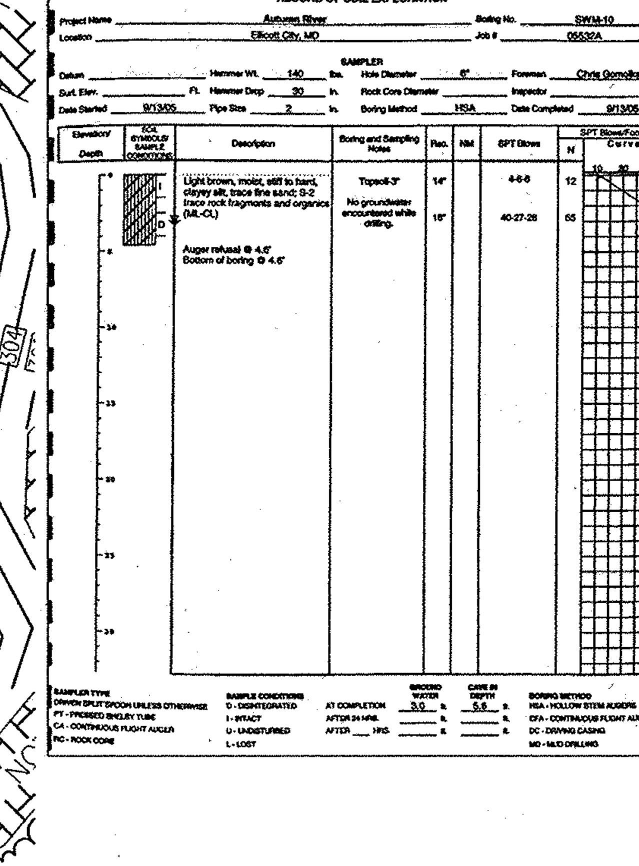


HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Autumn River. Location: Ellicott City, MD. Boring No.: SWM-10a. Job #: 05532A. Hammer Wt.: 140 lbs. Hole Diameter: 6". Foreman: Chris Gomolka. Hammer Drop: 30 in. Pipe Size: 2 in. Boring Method: HSA. Date Started: 9/13/05. Date Completed: 9/13/05.

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
0'-5' unsampled	Boring offset 5' from SWM-10 due to shallow auger refusal.			
Brown, moist, stiff to hard, clayey silt, trace fine sand (ML-CL)		3"	8-12-7	19
		3"	35-50-15	65
Brown, moist, loose, silty fine sand, trace mica (SM)		17"	14-3-7-9	10
Bottom of boring @ 12.0'				

Ground water at completion: 3.0 ft. Cave-in depth: 5.6 ft.

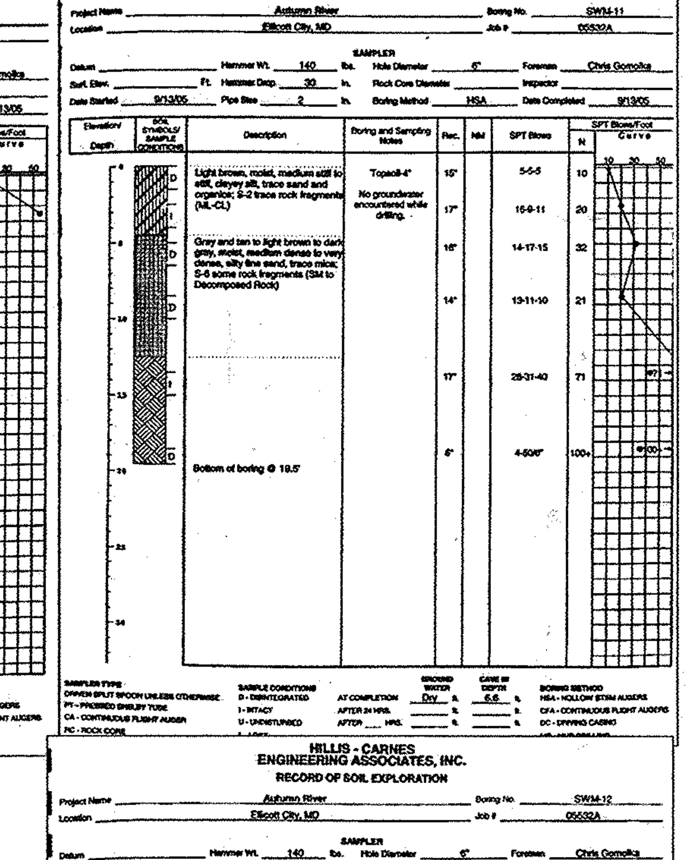


HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Autumn River. Location: Ellicott City, MD. Boring No.: SWM-10. Job #: 05532A. Hammer Wt.: 140 lbs. Hole Diameter: 6". Foreman: Chris Gomolka. Hammer Drop: 30 in. Pipe Size: 2 in. Boring Method: HSA. Date Started: 9/13/05. Date Completed: 9/13/05.

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Light brown, moist, stiff to hard, clayey silt, trace fine sand; S-2 trace rock fragments and organics (ML-CL)	Topsoil-3"; No groundwater encountered while drilling.	14"	4-6-6	12
		18"	40-27-28	55
Auger refusal @ 4.6'. Bottom of boring @ 4.6'				

Ground water at completion: 3.0 ft. Cave-in depth: 5.6 ft.

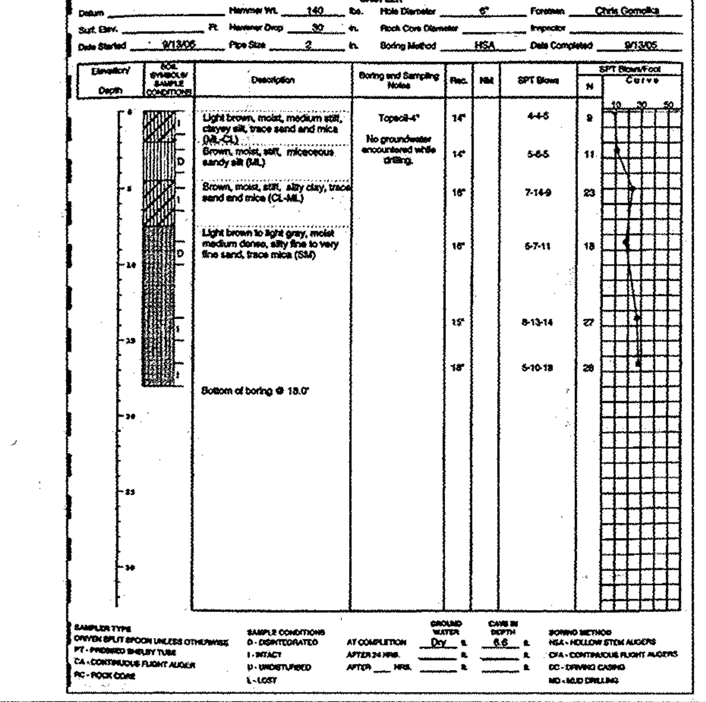


HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Autumn River. Location: Ellicott City, MD. Boring No.: SWM-11. Job #: 05532A. Hammer Wt.: 140 lbs. Hole Diameter: 6". Foreman: Chris Gomolka. Hammer Drop: 30 in. Pipe Size: 2 in. Boring Method: HSA. Date Started: 9/13/05. Date Completed: 9/13/05.

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Light brown, moist, medium stiff to stiff, clayey silt, trace sand and organics; S-2 trace rock fragments (ML-CL)	Topsoil-4"; No groundwater encountered while drilling.	15"	5-5-5	10
		17"	15-9-11	20
Gray and tan to light brown to dark gray, moist, medium dense to very dense, silty fine sand, trace mica; S-6 some rock fragments (SM to Decomposed Rock)		16"	14-17-15	32
		14"	13-11-10	21
		17"	28-31-40	71
		6"	4-50/0"	100+
Bottom of boring @ 19.5'				

Ground water at completion: Dry. Cave-in depth: 6.6 ft.



HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Autumn River. Location: Ellicott City, MD. Boring No.: SWM-12. Job #: 05532A. Hammer Wt.: 140 lbs. Hole Diameter: 6". Foreman: Chris Gomolka. Hammer Drop: 30 in. Pipe Size: 2 in. Boring Method: HSA. Date Started: 9/13/05. Date Completed: 9/13/05.

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Light brown, moist, medium stiff, clayey silt, trace sand and mica (ML-CL)	Topsoil-4"; No groundwater encountered while drilling.	14"	4-4-5	9
Brown, moist, stiff, micaceous sandy silt (ML)		14"	5-6-5	11
Brown, moist, stiff, silty clay, trace sand and mica (CL-ML)		16"	7-14-9	23
Light brown to light gray, moist, medium dense, silty fine to very fine sand, trace mica (SM)		16"	6-7-11	18
		15"	8-13-14	27
		18"	5-10-19	29
Bottom of boring @ 18.0'				

Ground water at completion: Dry. Cave-in depth: 6.6 ft.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

ENGINEERS CERTIFICATE

"I HEREBY 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 ROBERT H. VOGEL — DATE 5/7/10

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER ROSS TAYLOR — DATE 5/7/2010

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

HOWARD S.C.D. — DATE 6/5/10

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — 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

Signature

PE NO. 16193
Date: 7/27/15

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
STORMWATER MANAGEMENT DETAILS & NOTES

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2010

AS-BUILT 7/24/15

F-09-021

BASINS3
CONSTRUCTION SPECIFICATIONS

1. SITE PREPARATION: PERIMETER SEDIMENT CONTROL DEVICES MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING. AREA WHERE THE EMBANKMENT IS TO BE PLACED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL. THE POOL AREA SHALL NOT BE CLEARED UNTIL COMPLETION OF THE DAM EMBANKMENT UNLESS THE POOL AREA IS TO BE USED FOR BORROW. IN ORDER TO FACILITATE CLEAN-OUT AND RESTORATION, THE POOL AREA (MEASURED AT THE TOP OF THE PIPE SPILLWAY) SHALL BE CLEARED OF ALL BRUSH, TREES AND OTHER OBJECTIONABLE MATERIALS.

2. CUT-OFF TRENCH: A CUT-OFF TRENCH SHALL BE EXCAVATED ALONG THE CENTERLINE OF EARTH FILL EMBANKMENTS. THE MINIMUM DEPTH SHALL BE FOUR FEET. THE CUT-OFF TRENCH SHALL EXTEND UP BOTH ABUTMENTS TO THE RISER CREST ELEVATION. THE MINIMUM BOTTOM WIDTH SHALL BE TWO FEET, BUT WIDE ENOUGH TO PERMIT OPERATION OF EXCAVATION AND COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR THE EMBANKMENT. THE TRENCH SHALL BE DEWATERED DURING THE BACKFILLING-COMPACTION OPERATIONS. FOR DEWATERING SEE SECTION D.

3. EMBANKMENT: THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED AREAS SHOWN ON THE PLANS. IT SHALL BE CLEAN MATERIAL SOIL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL. RELATIVELY PERVIOUS MATERIALS SUCH AS SAND OR GRAVEL (UNIFIED SOIL CLASSES GW, GP, SW & SP) OR ORGANIC MATERIALS (UNIFIED SOIL CLASSES OL AND OH) SHALL NOT BE PLACED IN THE EMBANKMENT. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED FROM THE BALL, IT IS TOO WET FOR PROPER COMPACTION. FILL MATERIAL SHALL BE PLACED IN SIX-INCH BY EIGHT-INCH THICK CONTINUOUS LIFTS OF THE ENTIRE LENGTH OF THE FILL. COMPACTION SHALL BE OBTAINED BY ROUTING AND HAULING THE CONSTRUCTION EQUIPMENT OVER THE FILL SO THAT THE ENTIRE SURFACE OF EACH LAYER OF THE FILL IS TRAVERSED BY AT LEAST ONE WHEEL OR TREAD TRACK OF THE EQUIPMENT OR BY THE USE OF A COMPACTOR. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION 10 PERCENT HIGHER THAN THE DESIGN TO ALLOW FOR SETTLEMENT.

4. PRINCIPAL SPILLWAY: STEEL RISERS SHALL BE SECURELY ATTACHED TO THE BARREL OR BARREL STUB BY WELDING THE FULL CIRCUMFERENCE MAKING A WATERTIGHT STRUCTURAL CONNECTION. CONCRETE RISERS SHALL BE POURED WITH THE PRINCIPAL SPILLWAY IN PLACE OR PRECAST WITH VOIDS AROUND THE PRINCIPAL SPILLWAY FILLED WITH CONCRETE OR SHRINK PROOF GROUT FOR WATERTIGHT CONNECTION. THE BARREL STUB MUST BE ATTACHED TO THE RISER AND THE RISER BASE SHALL BE WATERTIGHT. ALL CONNECTIONS BETWEEN BARREL SECTIONS MUST BE ACHIEVED BY APPROVED WATERTIGHT BAND ASSEMBLIES. THE BARREL AND RISER SHALL BE PLACED ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL AS THE EMBANKMENT IS CONSTRUCTED. BREACHING THE EMBANKMENT TO INSTALL THE BARREL IS UNACCEPTABLE. PERVIOUS MATERIALS SUCH AS SAND, GRAVEL OR CRUSHED STONE SHALL NOT BE USED AS BACKFILL AROUND THE PIPE OR ANTI-SEEP COLLARS. THE FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE PLACED IN FOUR INCH LIFTS AND HAND COMPACTED UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. A DEPTH OF 1.5 TIMES THE PIPE DIAMETER (MIN.) SHALL BE BACKFILL OVER THE PRINCIPAL SPILLWAY AND HAND COMPACTED BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.

5. EMERGENCY SPILLWAY: THE EMERGENCY SPILLWAY SHALL BE INSTALLED IN UNDISTURBED GROUND. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADES, DESIGN WIDTH, ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE EMERGENCY SPILLWAY AND MUST BE CONSTRUCTED WITHIN A TOLERANCE OF + 0.2 FEET.

6. VEGETATIVE TREATMENT: STABILIZE THE EMBANKMENT IN ACCORDANCE WITH THE APPROPRIATE VEGETATIVE STANDARD AND SPECIFICATION IMMEDIATELY FOLLOWING CONSTRUCTION. IN NO CASE SHALL THE EMBANKMENT REMAIN UNSTABILIZED FOR MORE THAN SEVEN (7) DAYS. ONCE CONSTRUCTED, THE TOP AND OUTSIDE FACE OF THE EMBANKMENT SHALL BE STABILIZED WITH SEED AND MULCH. THE REMAINDER OF THE INTERIOR SLOPES SHOULD BE STABILIZED (ONE TIME) WITH SEED AND MULCH UPON BASIN COMPLETION AND MONITORING AND MAINTAINED EROSION FREE DURING THE LIFE OF THE BASIN.

7. SAFETY: LOCAL REQUIREMENTS CONCERNING FENCING AND SIGNS SHALL BE MET, WARNING THE PUBLIC OF HAZARDS OF SOFT SEDIMENT AND FLOODWATER.

8. MAINTENANCE: REPAIR ALL DAMAGE CAUSED BY SOIL EROSION AND CONSTRUCTION EQUIPMENT AT OR BEFORE THE END OF EACH WORKING DAY. SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE SPECIFIED DISTANCE BELOW THE TOP OF THE RISER AS SHOWN ON THE RISER. THIS SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IS WILL NOT ERODE FROM THE SITE. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT, ADJACENT TO A STREAM OR FLOODPLAIN. DISPOSAL AREAS MUST BE STABILIZED.

9. FINAL DISPOSAL: WHEN TEMPORARY STRUCTURES HAVE SERVED THEIR INTENDED PURPOSE AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, THE EMBANKMENT AND RESULTING SEDIMENT DEPOSITS ARE TO BE LEVELED OR OTHERWISE DISPOSED OF IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN. THE PROPOSED USE OF A SEDIMENT BASIN SITE WILL OFTEN DICTATE FINAL DISPOSITITON OF THE BASIN AND ANY SEDIMENT CONTAINED THEREIN. IF THE SITE IS SCHEDULED FOR FUTURE CONSTRUCTION, THEN THE BASIN MATERIAL TRAPPED SEDIMENTS MUST BE REMOVED AND SAFELY DISPOSED OF THE AND BASIN SHALL BE BACKFILLED WITH STRUCTURAL FILL. WHEN THE BASIN AREA IS TO REMAIN OPEN SPACE, THE POND MAY BE PUMPED DRY (USING METHODS IN SECTION D - DEWATERING), GRADING, AND BACK FILLED.

10. CONVERSION TO STORMWATER MANAGEMENT STRUCTURE: AFTER PERMANENT STABILIZATION OF ALL DISTURBED CONTRIBUTORY DRAINAGE AREAS, TEMPORARY SEDIMENT BASINS IF INITIALLY BUILY AND CERTIFIED TO MEET PERMANENT STANDARDS, MAY BE CONVERTED TO PERMANENT STORMWATER MANAGEMENT STRUCTURES. TO CONVERT THE BASIN FROM TEMPORARY TO PERMANENT USE, THE OUTLET STRUCTURE MUST BE MODIFIED IN ACCORDANCE WITH APPROVED STORMWATER MANAGEMENT DESIGN PLANS. ADDITIONAL GRADING MAY ALSO BE NECESSARY TO PROVIDE THE REQUIRED STORAGE VOLUME IN THE BASIN. CONVERSION CAN ONLY TAKE PLACE AFTER ALL DISTURBED AREA HAVE BEEN PERMANENTLY STABILIZED TO SATISFACTION OF THE INSPECTION AUTHORITY AND STORM DRAINS HAVE BEEN FLUSHED.

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

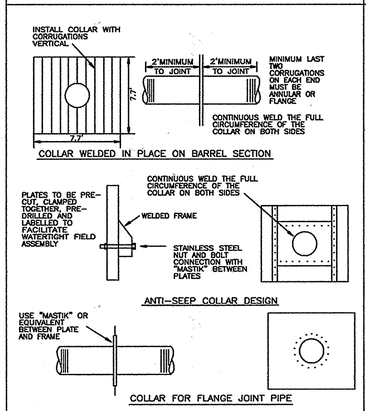
THE AREAS OF THE PROPOSED SWM PONDS SHOULD BE STRIPPED OF TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE EMBANKMENT OR STRUCTURE AREA IN ACCORDANCE WITH SOIL CONSERVATION GUIDELINES. AFTER STRIPPING OPERATIONS HAVE BEEN COMPLETED, THE EXPOSED SUBGRADE MATERIALS SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK OR SIMILAR EQUIPMENT IN THE PRESENCE OF A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. FOR AREAS THAT ARE NOT ACCESSIBLE TO A DUMP TRUCK, THE EXPOSED MATERIALS SHOULD BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE UTILIZING A DYNAMIC CONE PENETROMETER. ANY EXCESSIVELY SOFT OR LOOSE MATERIALS IDENTIFIED BY PROOFROLLING OR PENETROMETER TESTING SHOULD BE EXCAVATED TO SUITABLE FIRM SOIL, AND THEN GRADES RE-ESTABLISHED BY BACKFILING WITH SUITABLE SOIL.

A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHOULD BE PRESENT TO MONITOR PLACEMENT AND COMPACTION OF FILL FOR THE EMBANKMENT AND CUT-OFF TRENCH. IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SPECIFICATION 378 SOILS CONSIDERED SUITABLE FOR THE CENTER OF EMBANKMENT AND CUT-OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH OR CL.

IT IS OUR PROFESSIONAL OPINION THAT IN ADDITION TO THE SOIL MATERIALS DESCRIBED ABOVE A FINE GRAINED SOIL, INCLUDING SILT (ML) WITH A PLASTICITY INDEX OF 10 OR MORE CAN BE UTILIZED FOR THE CENTER OF THE EMBANKMENT & CORE TRENCH. EXPLORATION WITH TEST PITS AND LABORATORY TESTING CAN BE CONDUCTED PRIOR TO CONSTRUCTION TO IDENTIFY AND QUANTIFY POTENTIAL BORROW AREAS FOR CORE TRENCH MATERIAL. ALL FILL MATERIALS MUST BE PLACED AND COMPACTED IN ACCORDANCE WITH MD SCS 378 SPECIFICATIONS.

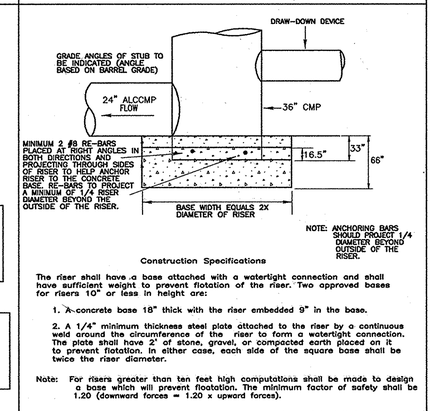
BASIN#4

DETAIL 14 - TYPICAL ANTI-SEEP COLLARS



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE C - 18 - 24 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 15 - RISER BASE DETAIL



Construction Specifications

The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for risers 10" or less in height are:

1. A concrete base 18" thick with the riser embedded 9" in the base.

2. A 1/4" minimum thickness steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2' of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shall be twice the riser diameter.

Note: For risers greater than ten feet high computations shall be made to design a base which will prevent flootation. The minimum factor of safety shall be 1.20 (downward forces = 1.20 x upward forces).

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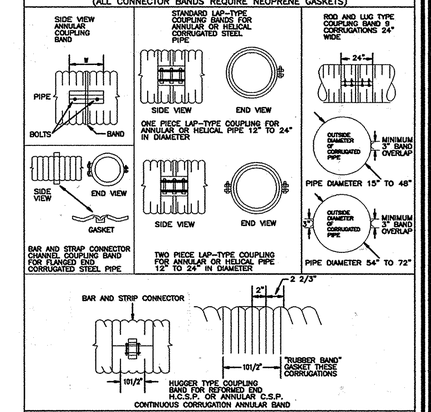
DETAIL 16 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE (continued)

Riser Diam., in.	Trash Rack Cylinder Diam. in.	Thick., gage	H, in.	Minimum Size Support Bar	Minimum Top Thickness	Stiffener
12	18	16	6	#6 Rebar	16 ga.	--
15	21	16	7	"	"	--
18	27	16	8	"	"	--
21	30	16	11	"	"	--
24	36	16	13	"	14 ga.	--
27	42	16	15	"	14 ga.	--
36	54	14	17	#8 Rebar	12 ga.	--
42	60	14	19	"	"	--
48	72	12	21	1-1/4" pipe or 1-1/4 x 1-1/4 x1/4 angle	10 ga.	--
54	78	12	25	"	"	--
60	90	12	29	1-1/2" pipe or 1-1/2 x 1-1/2 x1/4 angle	8 ga.	--
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga., w/stiffener	2x2x1/4 angle
72	102	10	36	"	"	2-1/2x2-1/2x1/4 angle
78	114	10	39	2-1/2" pipe or 2x2x1/4 angle	"	"
84	120	10	42	2-1/2" pipe or 2-1/2x2-1/2x1/4 angle	"	2-1/2 x2-1/2x 5/16 angle

Note: The above trash rack and anti-vortex device information is only for corrugated metal pipe. Concrete risers must meet the requirements of MD 378.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE C - 10 - 26A | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

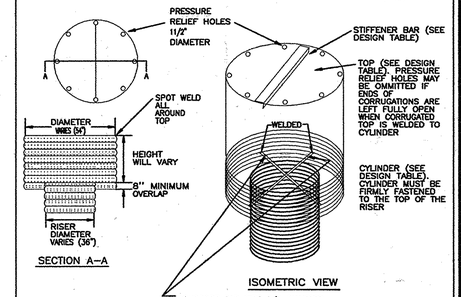
DETAIL 17 - TYPES OF COUPLERS FOR CORRUGATED STEEL PIPE
(ALL CONNECTOR BANDS REQUIRE NEOPRENE GASKETS)



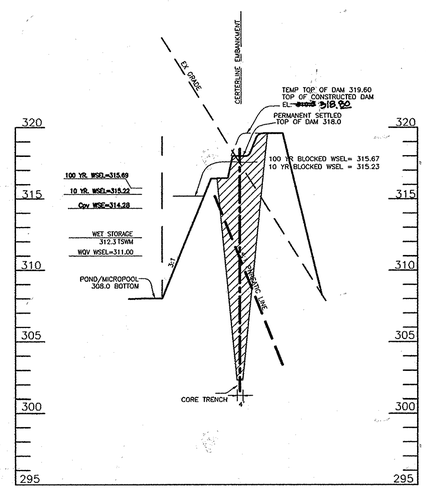
NOTE: UNDER NO CIRCUMSTANCES WILL THE DIMPLE UNIVERSAL CONNECTOR BAND BE ACCEPTABLE FOR USE IN ANY SEDIMENT CONTROL OR STORMWATER MANAGEMENT STRUCTURE

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE C - 18 - 27 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 16 - CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

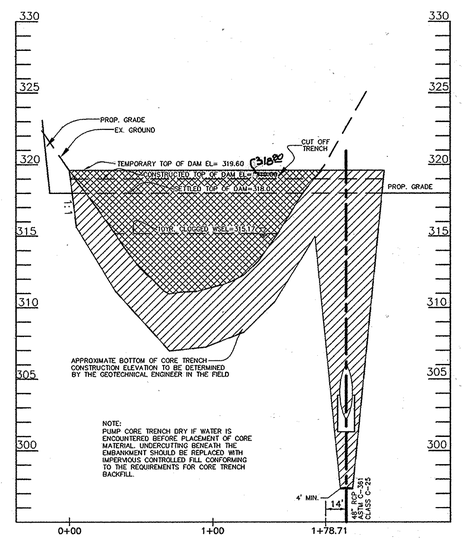


U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE C - 10 - 28 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



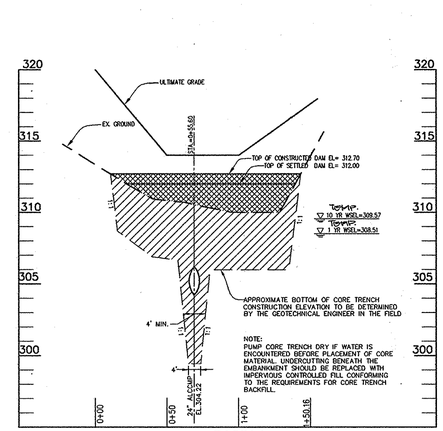
POND 1
EMBANKMENT STAION 1+70 PROFILE

SCALE: 1"= 50' HORZ.
1"= 5' VERT.



POND 1
PROFILE ALONG CENTERLINE EMBANKMENT

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



BASIN 4
PROFILE ALONG CENTERLINE EMBANKMENT

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

AS-BUILT CERTIFICATION

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER

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

PE NO. 16193
Date: 7/27/15

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 10-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7-17-10

ENGINEERS CERTIFICATE

"I HEREBY 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 ROBERT H. VOGEL — DATE 5/10/10

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER — DATE

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

HOWARD S.C.D. — DATE 6/15/10

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
STORMWATER MANAGEMENT DETAILS - BASINS

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER — 5/10/10

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

ROBERT H. VOGEL No. 16193

AS-BUILT 7/24/15

F-09-021

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name	Autumn River	Boring No.	B-1
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/07/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/07/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Light brown to reddish brown, medium dense, stiff, silty clay, trace sand (CL-ML); 5-3 trace rock fragments (CL-ML)	Topsoil-2" / No groundwater encountered while drilling.	12"		4-6-7	13	
		Bottom of boring @ 6.0'	3.0' offset from boring mat auger refusal @ 5.0'.	12"		7-15-13	28	

SAMPLER TYPE: SPOON SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

AT COMPLETION: GROUND WATER Dry; CASE IN DEPTH 2.0 ft.

AFTER 24 HRS.: GROUND WATER Dry; CASE IN DEPTH 2.0 ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION RESISTANCE (N) IS THE SUM OF THE BLOWS FOR THE SECOND AND THIRD 6" INCREMENTS. SAMPLER 1" WITH 140# HAMMER FALLING 30" COUNT MADE AT 4" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name	Autumn River	Boring No.	B-2
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	J. Hand
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/07/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/07/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Grey, moist, medium dense to very dense, silty sand and gravel, trace organics (GM-SM)	Topsoil-2" / No groundwater encountered while drilling.	12"		7-7-9	16	
		Greenish grey, moist, medium dense, silty fine sand (SM)		12"		17-21-35	56	
				14"		14-13-15	28	
				15"		9-11-13	24	
		Bottom of Boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-3
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	J. Hand
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/07/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, silty clay, trace sand, rock fragments and organics (CL-ML)	Topsoil-2" / No groundwater encountered while drilling.	12"		4-7-12	28	
		Auger refusal @ 3.5' Bottom of boring @ 3.5'		3"		50/3"	100+	

Project Name	Autumn River	Boring No.	B-4
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Light brown, moist, soft, fine sandy silt and clay, trace organics and roots (ML-OL)	Topsoil-4" / No groundwater encountered while drilling.	11"		4-4-9	13	
		Greenish grey to light brown, moist, medium dense to dense, silty fine sand to fine sandy silt, trace clay; 2-1 trace gravel and organics (SM-ML)		14"		7-8-13	21	
				12"		9-13-22	35	
		Greenish brown, moist, very dense, silty sand and gravel, trace organics (GM-SM)		12"		12-29-26	55	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-5
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Greenish brown, moist, medium dense to dense, silty sand, trace rock fragments, organics and roots (SC)	Topsoil-4" / No groundwater encountered while drilling.	14"		4-5-6	12	
		Light brown and grey, moist, medium dense, micaceous silty fine sand, trace clay (SM)		14"		18-18-20	36	
		White and grey, moist, hard, sandy silt (ML)		12"		27-13-16	30	
		Bottom of boring @ 10.0'		18"		13-23-34	57	

Project Name	Autumn River	Boring No.	B-7
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Tan, moist, stiff, sandy clay (CL)	Topsoil-4" / No groundwater encountered while drilling.	14"		5-6-6	12	
		Tan to light grey, moist, stiff to hard, fine sandy silt, trace mica and clay (ML)		14"		11-11-15	27	
				12"		10-7-7	14	
		Bottom of boring @ 8.2'		3"		15-50/2"	100+	100+

Project Name	Autumn River	Boring No.	B-8
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/12/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/12/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Reddish brown, moist, loose to medium dense, silty sand, trace to no organics, mica and rock fragments (SM-SC)	Topsoil-3" / No groundwater encountered while drilling.	12"		2-4-8	12	
		Light tan, moist, dense, micaceous silty coarse sand (SM)		14"		24-17-17	34	
				12"		21-19-19	37	
		Light brown, moist, stiff, micaceous sandy silt (ML)		12"		27-10-10	20	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-9
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/12/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/12/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Reddish brown, moist, stiff, sandy silt and clay, trace organics and roots (ML)	Topsoil-4" / No groundwater encountered while drilling.	12"		5-6-6	12	
		Light brown, moist, medium dense, micaceous silty sand, trace clay (SM)		14"		8-10-14	24	
				10"		30-39-12	51	
		Light brown, moist, dense, silty fine sand, trace clay (SM)		10"		40-49-12	61	
		Bottom of boring @ 10.0'		18"		43-17-16	33	

Project Name	Autumn River	Boring No.	B-10
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Reddish brown to light brown, moist, medium stiff to stiff, micaceous sandy silt (ML)	Topsoil-8" / No groundwater encountered while drilling.	12"		3-3-5	8	
				12"		7-6-7	13	
				12"		8-7-11	18	
		Light brown, moist, medium dense, silty sand (SM)		10"		4-10-13	23	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-11
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Reddish brown, moist, stiff, micaceous sandy silt, trace to no rock fragments (ML)	Topsoil-8" / No groundwater encountered while drilling.	12"		2-3-3	6	
		Reddish brown, moist, stiff, micaceous sandy silt, trace to no rock fragments (ML)		14"		3-9-12	21	
				12"		5-8-9	17	
				10"		4-5-6	11	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-12
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	J. Hand
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Reddish brown, moist, medium stiff, silty clay, trace sand (CL-ML)	Topsoil-3" / No groundwater encountered while drilling.	12"		4-4-5	9	
		Reddish brown, moist, medium stiff, micaceous sandy silt (ML)		12"		3-3-5	8	
		Reddish brown, moist, medium dense, silty sand, trace mica and rock fragments (SM)		12"		5-5-10	15	
		Light brown, moist, medium stiff, silt, trace sand (ML)		10"		2-4-4	8	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-14
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	J. Hand
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/12/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/12/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, sandy silt and clay, trace organics and roots (ML)	Topsoil-2" / No groundwater encountered while drilling.	16"		3-4-7	11	
		Light brown, moist, medium dense, micaceous silty medium to coarse sand, trace to no clay (SM)		17"		4-5-10	15	
				18"		5-9-17	26	
				18"		15-19-22	40	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-15
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Y. Cherrill
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/12/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/12/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, sandy clay, trace organics and gravel (CL)	Topsoil-2" / No groundwater encountered while drilling.	18"		8-14-23	37	
		Auger refusal @ 5.0' Bottom of boring @ 5.0'	5.0' offset from boring mat auger refusal @ 5.0'.	13"		17-30-22	52	

Project Name	Autumn River	Boring No.	B-16
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Y. Cherrill
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/12/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/12/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, sandy silt, trace organics and gravel (ML)	Topsoil-2" / No groundwater encountered while drilling.	14"		10-11-14	25	
		Brown, moist, dense, silty sand to sandy silt, trace mica and clay (SM-ML)		11"		19-12-20	45	
		Bottom of boring @ 5.0'	5.0' offset from boring mat auger refusal @ 5.0'.					

Project Name	Autumn River	Boring No.	B-17
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Y. Cherrill
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/12/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/12/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Light brown, moist, stiff to hard, sandy silt, trace clay (ML)	Topsoil-2" / No groundwater encountered while drilling.	12"		2-7-9	16	
		Auger refusal @ 3.5' Bottom of boring @ 3.5'	3.5' offset from boring mat auger refusal @ 3.5'.	3"		50/0"	100+	100+

Project Name	Autumn River	Boring No.	B-18
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown to tan, moist, medium dense to dense, silty sand, trace organics and rock fragments (SM)	Topsoil-4" / No groundwater encountered while drilling.	12"		5-6-6	12	
		Light brown, moist, dense, silty sand to sandy silt, trace rock fragments (SM-ML)		12"		38-28-17	45	
				12"		19-13-17	30	
		Grey, moist, dense, silty fine sand (SM)		17"		33-14-19	33	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-19
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Reddish brown, moist, stiff, sandy silt and clay, trace rock fragments (CL-ML)	Topsoil-4" / No groundwater encountered while drilling.	12"		5-5-6	12	
		Light brown to light tan, moist, very dense, micaceous silty medium to coarse sand, trace clay (SM)		14"		40-49-12	61	
				10"		30-39-12	51	
		Light brown, moist, dense, silty fine sand, trace clay (SM)		18"		43-17-16	33	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	B-20
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Light brown to reddish brown, medium stiff, silty clay, trace sand (CL-ML); 5-3 trace rock fragments (CL-ML)	Topsoil-2" / No groundwater encountered while drilling.	12"		4-3-4	7	
				12"		7-5-6	14	
				12"		4-7-9	16	
				14"		3-6-9	15	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	Delta-1
Location	Howard County, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	C. Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	09/07/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	09/07/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown to grayish brown, moist, medium stiff to stiff, micaceous sandy silt, with clay, organics and gravel (ML)	Topsoil-6" / No groundwater encountered while drilling	13"		4-5-5	10	
		Greyish brown, moist, stiff, micaceous sandy silt to silty sand, trace gravel (ML-SM)		12"		5-6-7	13	
				12"		4-5-6	11	
				10"		8-10-7	17	
		Bottom of hole @ 12.0'		10"		16-10-12	22	

Project Name	Autumn River	Boring No.	DW3-1
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, clayey silt, trace sand and organics (ML-CL)	Topsoil-2" / No groundwater encountered while drilling.	12"		4-5-9	14	

Project Name	Autumn River	Boring No.	DW3-2
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, sandy silt to silty sand, trace to no organics and clay (ML-SM)	Topsoil-2" / No groundwater encountered while drilling.	14"		3-5-8	13	
				18"		5-6-7	13	
				18"		5-8-11	19	

Project Name	Autumn River	Boring No.	DW3-3
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	Chris Gomolka
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/12/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/12/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Light brown, moist, medium stiff, silty clay, trace organics and roots (CL-ML)	Topsoil-3" / No groundwater encountered while drilling.	14"		5-4-4	8	
		Light brown, moist, medium dense to dense, silty fine to very fine sand, trace mica and organics (SM)		12"		13-9-5	14	
				12"		17-20-14	40	
		Bottom of boring @ 10.0'		18"		20-16-18	34	

Project Name	Autumn River	Boring No.	DW3-4
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	J. Hand
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/05/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/05/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Dark grey, moist, medium stiff, silty clay, trace organics and wood (CL-ML)	Topsoil-3" / No groundwater encountered while drilling.	12"		5-4-5	10	
		Brown, moist, medium dense, silt, sand to sandy silt, trace rock fragments, mica and clay (SM-ML)		18"		4-8-10	18	
				12"		8-11-15	26	
		Greyish brown to grey, moist, medium dense to dense, silty fine to coarse sand, trace mica; 5-5 trace gravel (SM)		12"		7-11-12	23	
		Bottom of boring @ 12.0'		10"		9-23-17	40	

Project Name	Autumn River	Boring No.	DW3-5
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	J. Hand
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/13/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/13/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, silty clay, trace sand, organics and mica (CL-ML)	Topsoil-2" / No groundwater encountered while drilling.	12"		10-10-13	25	
		Brown, moist, stiff, sandy clay (CL)		12"		11-13-17	30	
		Brown, moist, stiff, sandy silt, trace clay and mica (ML)		10"		5-7-9	16	
		Light brown, moist, medium dense, silty fine sand, trace mica (SM)		11"		5-11-17	28	
		Bottom of boring @ 10.0'						

Project Name	Autumn River	Boring No.	DW3-6
Location	Ellicott City, MD	Job #	06530A

Datum		Hammer Wt. 140 lbs.	Hole Diameter 6"	Foreman	J. Hand
Surf. Elev.		Hammer Drop 30 in.	Rock Core Diameter	Inspector	
Date Started	9/06/05	Pipe Size 2 in.	Boring Method HSA	Date Completed	9/06/05

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE LOCATIONS	Description	Boring and Sampling Notes	Rec.	Hat	SPT Blows	N	SPT Blows/Foot CURVE
		Brown, moist, stiff, silty clay, trace sand, organics and mica (CL-ML)	Topsoil-2" / No groundwater encountered while drilling.	12"		5-6-9	17	
		Brown, moist, stiff, sandy clay (CL)		12"		7-10-10	20	
		Brown, moist, stiff, sandy silt, trace clay and mica (ML)		10"		4-7-7	14	
		Light brown, moist, medium dense, silty fine sand, trace mica (SM)		11"		7-10-10	20	
		Bottom of boring @ 10.0'						

NO AS-BUILT INFORMATION THIS SHEET.

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II

STORMWATER MANAGEMENT- BORING LOGS
& GEOTECH RECOMMENDATION
LOTS: 5-29, 31-36, 39-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68 & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 5/17/2010
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010.

F-09-021

LANDSCAPE & FOREST CONSERVATION PLAN

SCALE: 1"=50'

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED SHADE TREES
- PROPOSED EVERGREENS
- PROPOSED SHRUBS
- LANDSCAPE PERIMETER
- PROPOSED STREET TREE
- FOREST CONSERVATON AREA (RETENTION)
- PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
- WETLANDS
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- 150-WATT POST TOP
- 100-WATT POST TOP
- PROP. STREET LIGHT
- PROP. STREET SIGNS
- TREE PROTECTION FENCE
- 40' WIDE BGE WIRE ZONE
- NO WOODY BUFFER
- FOREST CONSERVATION SIGNS

DNR QUALIFIED PROFESSIONAL
J. CHRIS OGLE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-20-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/08/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/12

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE

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

DEVELOPER'S/OWNER'S NAME:
RONALD SPAHN

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

REVISED FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
LANDSCAPE AND FOREST CONSERVATION PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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ENGINEERS • SURVEYORS • PLANNERS
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ELLICOTT CITY, MD 21043
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FAX: 410.461.5961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

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EXPIRATION DATE: 09-27-2010

SHEET 21 OF 30

F-09-021

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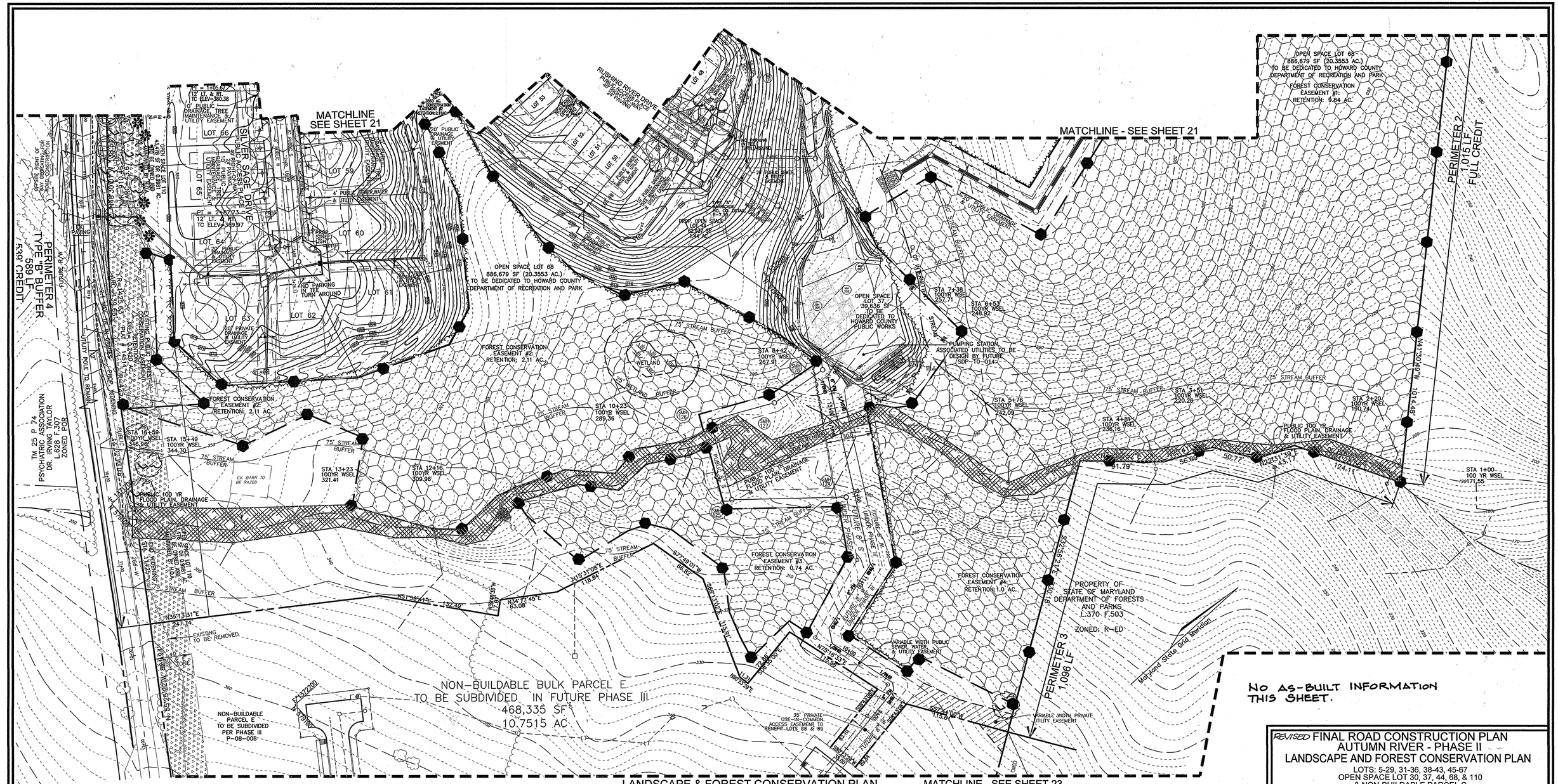

LANDSCAPE & FOREST CONSERVATION PLAN

SCALE: 1"=50'

DNR QUALIFIED PROFESSIONAL
J. CHRIS OGLE

LEGEND:

388	EXISTING CONTOUR	W	EXISTING WATER LINE	2	LANDSCAPE PERIMETER
406	PROPOSED CONTOUR	x x	EXISTING FENCE		PROPOSED STREET TREE
	EXISTING CURB AND GUTTER		PROPERTY LINE		FOREST CONSERVATION AREA (RETENTION)
	PROPOSED CURB AND GUTTER		RIGHT-OF-WAY LINE		PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
	EXISTING UTILITY POLE		PROPOSED STORM DRAIN		WETLANDS
	EXISTING LIGHT POLE		PROPOSED STORM DRAIN INLET		WETLANDS BUFFER
M	EXISTING MAILBOX		PROPOSED SIDEWALK		STREAM CENTERLINE
	EXISTING SIGN		PROPOSED SHADE TREES		STREAM BUFFER
S	EXISTING SANITARY MANHOLE		PROPOSED EVERGREENS		
S	EXISTING SANITARY LINE		PROPOSED SHRUBS		
CO	EXISTING CLEANOUT				
FH	EXISTING FIRE HYDRANT				

150-WATT POST TOP
100-WATT POST TOP
PROP. STREET LIGHT
PROP. STREET SIGNS
TREE PROTECTION FENCE
40' WIDE BGE WIRE ZONE
NO WOODY BUFFER
FOREST CONSERVATION SIGNS

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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-20-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/08/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/12

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DEVELOPER'S/OWNER'S NAME:
AUTUMN RIVER DEVELOPMENT CORPORATION
RONALD SPAHN

REVISED FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
LANDSCAPE AND FOREST CONSERVATION PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 22 OF 30

F-09-021

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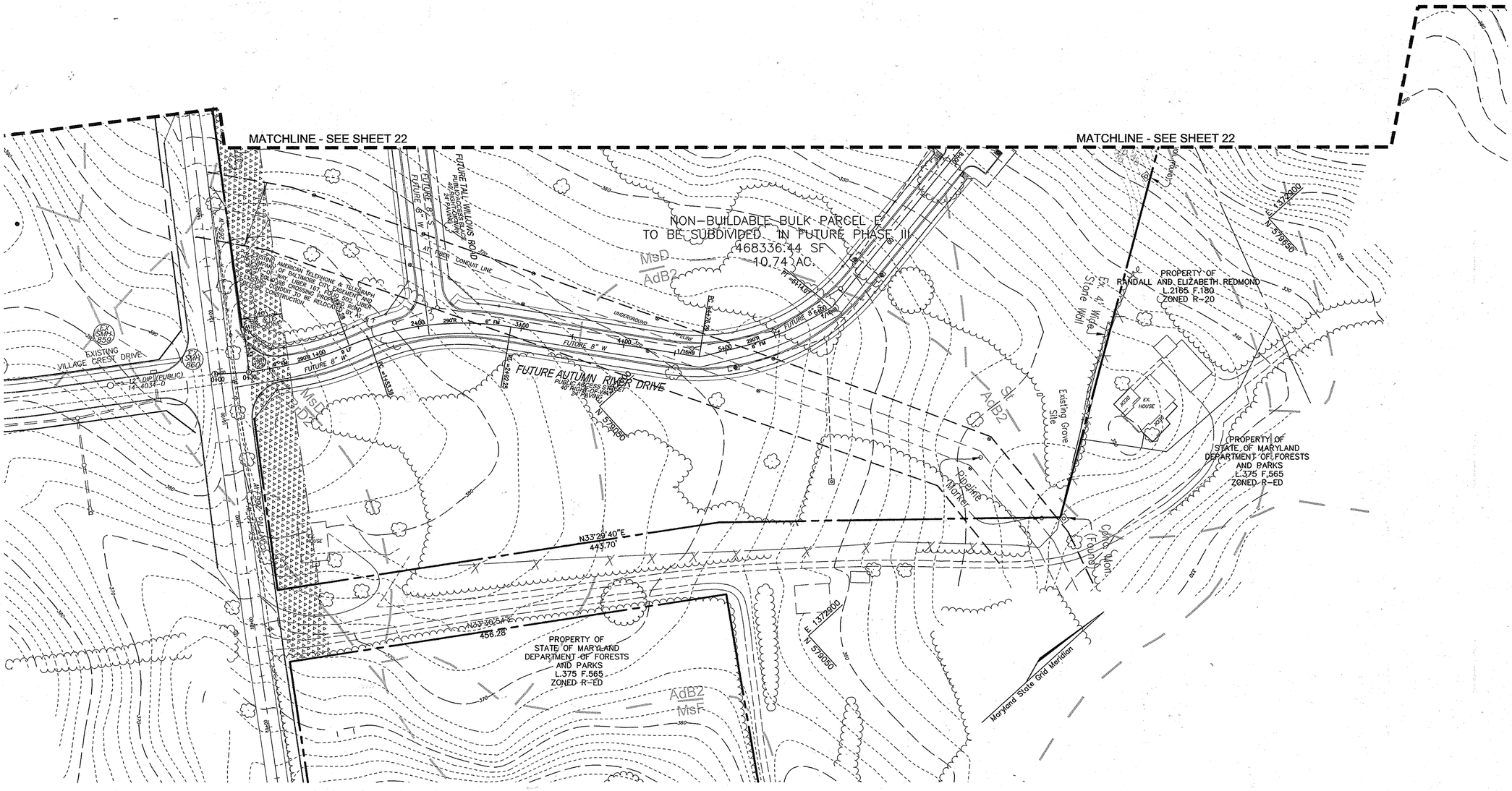

NO AS-BUILT INFORMATION THIS SHEET.

LANDSCAPE & FOREST CONSERVATION PLAN

SCALE: 1"=50'

LEGEND:

188	EXISTING CONTOUR
408	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
M	EXISTING MAILBOX
	EXISTING SIGN
S	EXISTING SANITARY MANHOLE
S	EXISTING SANITARY LINE
CO	EXISTING CLEANOUT
FH	EXISTING FIRE HYDRANT
W	EXISTING WATER LINE
x x	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
M1B2 M1D3	SOILS BOUNDARY
2	LANDSCAPE PERIMETER
	WETLANDS BUFFER
	STREAM CENTERLINE
	STREAM BUFFER
	150-WATT POST TOP
	100-WATT POST TOP
	PROP. STREET LIGHT
	PROP. STREET SIGNS
	TREE PROTECTION FENCE
	40' WIDE BGE WIRE ZONE
	PUBLIC 100-YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
	WETLANDS

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ATTN: MR. DONALD R. REUWER
(443) 367-0422

DNR QUALIFIED PROFESSIONAL
J. CHRIS OGLE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

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DEVELOPER'S/OWNER'S NAME: ROSS TAYLOR

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
LANDSCAPE & FOREST CONSERVATION PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68 & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, P.E. No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

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EXPIRATION DATE: 09-27-2010

F-09-021

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SCHEDULE C
RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

NUMBER OF DWELLING UNITS (SFA)	10
NUMBER OF TREES REQUIRED (1:1 DU SFA)	10
NUMBER OF TREES PROVIDED	
SHADE TREES	10
OTHER TREES (2:1 SUBSTITUTION)	–

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES	45
NUMBER OF ISLANDS/TREES REQUIRED	05
NUMBER OF ISLANDS/TREES PROVIDED	
SHADE TREES – (1 TREE FOR EVERY 10 PARKING SPACES)	05
OTHER TREES (2:1 SUBSTITUTION)	–
XXXX LANDSCAPE ISLAND 200SF X 5 = 1000 SF REQ.	PROVIDED 2530 SF

SCHEDULE A: PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES 1 A	2 A	3 A	4 B	5 A	TOTAL
PERIMETER/FRONTAGE DESIGNATION LANDSCAPE TYPE						
LINEAR FEET OF ROADWAY, PERIMETER/FRONTAGE	1456'	1015'	676'	741'	488'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	YES* 1343'	YES* FULL CREDIT	YES* 646' CREDIT	YES* 202'	0	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	– –	– –	– –	– –	– –	
NUMBER OF PLANTS REQUIRED (LF REMAINING)	113'	–	30'	539'	488'	
SHADE TREES	1:60 2	1:60 0	1:60 /	1:50 11	1:60 8	22
EVERGREEN TREES	–	–	–	1:40 13	–	13
SHRUBS	–	–	–	–	–	
NUMBER OF PLANTS PROVIDED						
SHADE TREES	2	0	/	11	8	22
EVERGREEN TREES	–	–	–	13	–	13
OTHER TREES (2:1 SUBSTITUTION)	–	–	–	–	–	
SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	–	–	–	–	–	

TRASH PAD LANDSCAPING

SYM.	QTY.	DESCRIPTION	SIZE	REM.
	6	DWARF JAPANESE YEW	2 1/2' – 3' HT	B & B
TRAFFIC CIRCLE LANDSCAPING				
	26	JUNIPERUS HORIZONTALIS 'PLUMOSA' ANDORRA JUNIPER	2 1/2' – 3' HT	3-GAL.
	20	HEMEROCALLIS (DWARF REBLOOMING CULTIVARS) DAYLILIES	18 INCHES ON CENTER	
	20	LEUCANTHEMUM MAXIMUM "SNOWLADY" SHASTA DAISY	18 INCHES ON CENTER	
	20	RUDBECKIA FULGIDA VAR FULGIDA BLACK-EYED SUSAN	18 INCHES ON CENTER	
	20	SALVIA NEMOROSA 'EAST FRIESLAND' PERENNIAL SALVIA	18 INCHES ON CENTER	

PLANT LIST

	QUAN.	BOTANICAL NAME	SIZE	REM.
	05	~~TILIA CORDATA 'GREENSPIRE' /GREENSPIRE LITTLELEAF LINDEN (SHADE TREE)~~	~~2 1/2"-3" Cal.~~	~~B & B~~
	07	ZELKOVA SERRATA 'VILLAGE GREEN' GREEN JAPANESE ZELKOVA	2 1/2"-3" Cal.	B & B
	22	JPANESE RED MAPLE ACER PALMATUM ATROPURPUREUM (SHADE TREES-GROWTH HEIGHT=20') FOR BGE WIREZONE	4'-6' Ht.	B & B
	10	AMUR MAPLE ACER GINNALA	4'-6' Ht.	B & B
	8	PINUS STROBUS EASTERN WHITE PINE (EVERGREEN TREEES)	6'-8' Ht.	B & B
	13	ARBORVITAE TECHNY THUJA OCCIDENTALIS, 'TECHNY' (EVERGREEN TREE) MATURE HEIGHT -20') FOR BGE WIREZONE	6'-8' Ht.	B & B

LANDSCAPE NOTES

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

B G & E NOTES:

1. THE LANDSCAPING ON WIREZONE (40' FROM BGE POLES) IS IN ACCORDANCE WITH BGE LIST OF TREES AND PLANTS.
2. BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
3. THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OR A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT. IF BGE

DEVELOPER'S AGREEMENT

STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF$34,800.00 TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THE REQUIRED 116 PUBLIC STREET TREES.

FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING PROVIDED PER THE LANDSCAPE MANUAL TO BE POSTED WITH THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF$17,430 FOR THE REQUIRED 47 SHADE TREES AND THE REQUIRED 21 EVERGREEN TREES & 6 SHRUBS

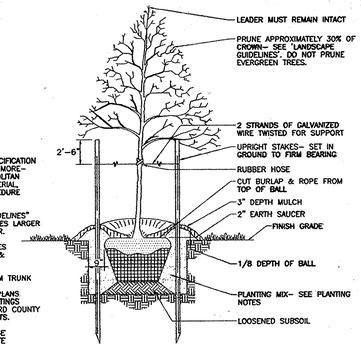
DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE

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

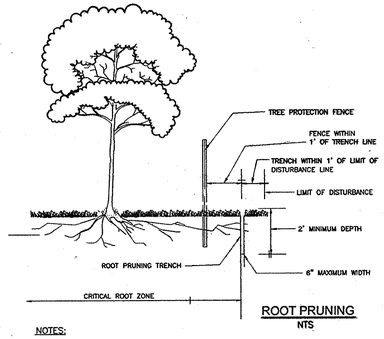
DEVELOPER'S/OWNER'S NAME ROSS TAYLOR
AUTUMN DEVELOPMENT CORPORATION

NOTES

1. SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS" FOR ALL MATERIAL, PRODUCT, AND PROCEDURE SPECIFICATIONS.
2. SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
3. PLACE UPRIGHT STAKES PARALLEL TO WALKS & BUILDINGS.
4. KEEP MULCH 1" FROM TRUNK
5. SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
6. TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.



TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER
NOT TO SCALE



ROOT PRUNING
NTS

NOTES:

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

FOREST RETENTION AREAS AND NOTES

1. FORESTED STREAM AND WETLAND BUFFERS ARE RETAINED IN OPEN SPACE LOTS.
2. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
3. FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
4. THERE ARE NO ISOLATED FOREST STANDS ON THIS SITE.
5. CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES, RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
6. FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE, DPZ AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY THE RETENTION OF EXISTING FOREST IN THE AMOUNT OF 16.15 ACRES.
7. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. 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.

FOREST PROTECTION NOTES

PRE-CONSTRUCTION ACTIVITES

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

CONSTRUCTION PHASE

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

POST-CONSTRUCTION ACTIVITIES

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

COST ESTIMATE: (For bonding purposes, only)

(RETENTION – (13.81 AC.) 601,563.6 SF x .20 = $120,313.00

SURETY NOTE
FINANCIAL SURETY IN THE AMOUNT OF $120,313.00 WILL BE POSTED WITH THE FC MAINTENANCE AGREEMENT.

SEQUENCE OF CONTRUCTION-FOREST CONSERVATION

1. PRECONSTRUCTION MEETING /SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
2. STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
3. INSTALL TREE PROTECTION FENCING: FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
4. PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN – TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
5. TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

HOWARD COUNTY
FOREST CONSERVATION WORKSHEET

ZONED R-ED
NET TRACT AREA:

A. TOTAL TRACT AREA	48.63 AC
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.86 AC
C. NET TRACT AREA	47.77 AC

LAND USE CATEGORY
INPUT THE NUMBER "1" UNDER THE APPROPIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY. ZONED R-ED.

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	1	0	0

E. AFFOREST THRESHOLD	15% X D = 7.17 AC
F. CONSERVATION THRESHOLD	20% X D = 9.55 AC
EXISTING FOREST COVER:	
G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	30.81 AC
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	23.64 AC.
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	21.26 AC.
BREAK EVEN POINT:	
J. BREAK EVEN POINT	13.81 AC
K. CLEARING PERMITTED WITHOUT MITIGATION	17.00 AC
PROPOSED FOREST CLEARING:	
L. TOTAL AREA OF FOREST TO BE CLEARED	14.76 AC
M. TOTAL AREA OF FOREST TO BE RETAINED	15.89 AC
PLANTING REQUIREMENTS:	
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	0.00 AC
P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	0.00 AC
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	0.00 AC
R. TOTAL REFORESTATION REQUIRED (N+P-Q)	0.00 AC
S. TOTAL AFFORESTATION REQUIRED	0.00 AC
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	0.00 AC

TOTAL RETENTION AREA :13.93 AC.

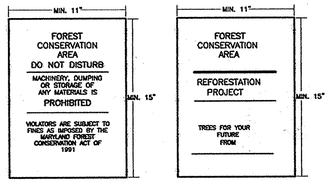
FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULLFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

THE PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE WITH THE RETENTION OF 13.93 ACRES OF CREATED EASEMENTS AND 2.08 ACRES OF NON-CREDITED EASEMENT WHICH EXCEEDS THE BREAK-EVEN POINT OBLIGATION OF 13.81 ACRES FOR THIS SITE.

BOND FOR 13.81 AC. (6,015,634.00 X .20 = $ 120,313.00)
TOTAL FINANCIAL SURETY OBLIGATION IS 120,313.00

FOREST CONSERVATION EASEMENT TABLE
TOTAL RETENTION: 13.93 AC.

FOREST CONSERVATION EASEMENT 1 RETENTION AREA : 9.84 AC.
FOREST CONSERVATION EASEMENT 2 RETENTION AREA : 2.11 AC.
FOREST CONSERVATION EASEMENT 3 RETENTION AREA : 0.74 AC.
FOREST CONSERVATION EASEMENT 4 RETENTION AREA : 1.00 AC.
EXISTING FOREST CONSERVATION EASEMENT RETENTION AREA : 10,790 SF. (0.24 AC.) PLAT # 14514
TOTAL RETENTION AREA: 13.93 AC.



NOTE:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED AT A MAXIMUM SPACING OF 50-100 FEET. CONDITIONS ON-SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

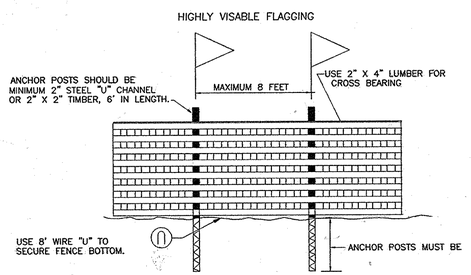
SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING-TYPE 'B' BUFFER

CATEGORY	SWMF 1
LINEAR FEET OF PERIMETER	888'
CREDIT FOR EXISTING VEGETATION (YES, NO, AND LINEAR FEET)	YES* 553'
CREDIT FOR OTHER LANDSCAPING (YES, NO, AND %)	– –
NUMBER OF TREES REQUIRED	335'
SHADE TREES 1:50	07
EVERGREEN TREES 1:40	08
NUMBER OF TREES PROVIDED	
SHADE TREES	07
EVERGREEN TREES	08
SHRUBS	–

*EXISTING WOODS TO REMAIN

DNR QUALIFIED PROFESSIONAL
J. CHRIS OGLE

NO	REVISION	DATE
2	MODIFICATION TO PROPOSED RUSHING RIVER DRIVE BASED ON RECONFIGURATION OF LOTS ALONG ROADWAY	2/7/12



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. ROOF DAMAGE SHOULD BE AVOIDED.

BLAZE ORANGE PLASTIC MESH
TYPICAL TREE PROTECTION FENCE DETAIL

LANDSCAPE NOTES TRAFFIC CIRCLE:

1. CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES AND SHALL WORK WITH THE COUNTY ON THE BEST TIME OF DAY FOR THE WORK TO TAKE PLACE.
2. LANDSCAPE SHALL BE PLANTED BETWEEN APRIL AND MAY OR SEPTEMBER AND OCTOBER.
3. THE OUTER FOUR FEET OF THE ISLAND SHALL BE DUG OUT TO THE DEPTH OF THREE INCHES BELOW CURB AND SOIL REMOVED.
4. THE DUG OUT AREA SHALL BE COMPACTED USING A SMALL VIBRATOR.
5. LANDSCAPE FABRIC SHALL COVER THE COMPACTED AREA AND GO UP THE INNER SOIL EDGE. JOINTS IN FABRIC SHALL OVERLAP BY A FOOT.
6. "BARN RED STONE" (3-4 INCHES IN DIAMETER) SHALL BE ADDED TO THE COMPACTED AREA AND BROUGHT UP TO JUST ABOVE THE TOP OF THE CURB AND INNER CIRCLE OF SOIL.
7. 3 INCHES THICK OF LEAFGRO OVER TOTAL PLANTING AREA SHALL BE TILLED INTO TOP 6 INCHES.
8. CREATE A SLIGHT CROWN IN THE CENTER OF THE ISLAND.
11. SHREDDED HARDWOOD MULCH SHALL BE ADDED TO THE DEPTH OF 2-3 INCHES WITH IT NOT TOUCHING THE BASE OF PLANTS.
12. PLANTS SHALL MEET MARYLAND NURSERYMEN SPECIFICATIONS.
13. HOWARD COUNTY SHALL APPROVE LANDSCAPE DESIGN AND PLANT SELECTION, BEFORE PURCHASE OF PLANTS.
14. DEBRIS SHALL BE REMOVED FROM THE SITE.
15. PLANTS SHALL BE WATERED WITHIN 24 HOURS OF PLANTING AND NOT ALLOWED TO DRY-OUT AND DIE.

NO AS-BUILT INFORMATION THIS SHEET.

OWNERS
AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER
AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7/19/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 7.13.10

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II

LANDSCAPE & FOREST CONSERVATION NOTES & DETAILS
LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68 & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
ROBERT H. VOGEL PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 24 OF 30

F-09-021

BASIN NO.1

TRAP TYPE:	BASIN
EX. DRAINAGE AREA:	6.46 AC.
PROP. DRAINAGE AREA:	14.48 AC.
WET STORAGE REQUIRED:	26,064 Cf
WET STORAGE PROVIDED:	26,064 CF
DRY STORAGE REQUIRED:	26,064 Cf
DRY STORAGE PROVIDED:	68,389 CF
TOTAL STORAGE REQUIRED:	52,108 Cf
TOTAL STORAGE PROVIDED:	94,453 Cf
BOTTOM ELEV:	308.0 Cf
WEIR ELEVATION:	316.50 Cf
WET STORAGE ELEVATION:	308.0 – 312.30
DRY STORAGE ELEVATION:	312.30 – 314.30
TOTAL STORAGE DEPTH:	9.42
TOP OF EMBANKMENT	319.42 (TEMPORARY)
CLEANOUT ELEVATION:	310.80
SIDE SLOPES:	3:1
EMERGENCY SPILLWAY:	N/A

Q1 EX. = 0.99 CFS
Q10 EX. =13.80 CFS
Q1 SED = 0.92 CFS–1YR WSEL 316.09
ULTIMATE Q1 = 0.32 CFS
Q10 SED =58.37 CFS
10 YR WSEL 317.42

SEDIMENT TRAP DATA
TRAP NO. 5

TRAP TYPE:	STONE OUTLET SEDIMENT TAP – ST II
DRAINAGE AREA:	1.55 AC.
WET STORAGE REQUIRED:	2790 CF
WET STORAGE PROVIDED:	2790 CF
DRY STORAGE REQUIRED:	2797 CF
DRY STORAGE PROVIDED:	2797 CF
BOTTOM DIMENSIONS:	45'X25'
BOTTOM ELEVATION:	296.0
WEIR CREST ELEVATION:	299.40
WEIR WIDTH:	6.2'
WET STORAGE ELEVATION:	298.0
DRY STORAGE ELEVATION:	299.4
TOP OF EMBANKMENT:	300.40
CLEANOUT ELEVATION:	297.00
SIDE SLOPES:	2:1

PRE-CONSTRUCTION TEMPORARY SWM DRAINAGE AREA MAP
SCALE: 1"=100'

TRAP NO. 2
TEMPORARY
SEDIMENT TRAP II

TRAP TYPE:	STONE OUTLET SEDIMENT TRAP ST IV
DRAINAGE AREA:	1.90 AC.
WET STORAGE REQUIRED:	3420 CF
WET STORAGE PROVIDED:	3420 CF
DRY STORAGE REQUIRED:	3420 CF
DRY STORAGE PROVIDED:	3564 CF
BOTTOM DIMENSIONS:	55' X 25'
BOTTOM ELEV:	324.0
WEIR ELEVATION	327.5
WEIR WIDTH	7.6'
WET STORAGE ELEVATION	326.0
DRY STORAGE ELEVATION:	327.50
TOP OF EMBANKMENT	328.50
CLEANOUT ELEVATION:	325.0
SIDE SLOPES:	2:1

SEDIMENT TRAP DATA
TRAP NO. 3

TRAP TYPE:	STONE OUTLET SEDIMENT TRAP ST IV
DRAINAGE AREA:	1.69 AC.
WET STORAGE REQUIRED:	3042 CF
WET STORAGE PROVIDED:	3042 CF
DRY STORAGE REQUIRED:	3132 CF
DRY STORAGE PROVIDED:	3294 CF
BOTTOM DIMENSIONS:	25'x50'
BOTTOM ELEV:	342.00
WEIR CREST ELEVATION	345.50
WEIR WIDTH:	6.8'
WET STORAGE ELEVATION	344.0
DRY STORAGE ELEVATION:	345.5
TOP OF EMBANKMENT	346.5
CLEANOUT ELEVATION:	343.0
SIDE SLOPES:	2:1

BASIN NO. 4

TRAP TYPE:	BASIN
EX. DRAINAGE AREA:	1.95 AC.
PROP. DRAINAGE AREA:	3.17 AC.
WET STORAGE REQUIRED:	5706 CF
WET STORAGE PROVIDED:	5706 CF
DRY STORAGE REQUIRED:	5706 CF
DRY STORAGE PROVIDED:	10846 CF
TOTAL STORAGE REQUIRED:	11412 CF
TOTAL STORAGE PROVIDED:	16552 CF
CREST ELEV:	309.00
BOTTOM ELEV:	304.00
RISER WEIR	306.27
WET STORAGE ELEVATION	304.00–306.27
DRY STORAGE ELEVATION:	306.27–307.40
TOTAL STORAGE DEPTH:	5.57
TOP OF EMBANKMENT	312.00
CLEANOUT ELEVATION:	305.00
SIDE SLOPES:	3:1
EMERGENCY SPILLWAY:	N/A

Q1 EX.=0.66 CFS
Q10 EX.=4.96 CFS
1 YR WSEL 308.51
Q1 SED.=0.60 CFS
Q10 SED.=13.68CFS
10 YR WSEL 309.57

ENGINEERS CERTIFICATE

"I HEREBY 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 ROBERT H. VOGEL — DATE 5/7/10

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER ROSS TAYLOR — DATE 5/7/2010

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

USDA–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.

HOWARD S.C.D. — DATE 6/15/10

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

NO AS-BUILT INFORMATION THIS SHEET.

OWNERS
AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042–7819
21043 – 5506
(410) 465–3500

DEVELOPER
AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042–7819
ATTN: MR. DONALD R. REUWER
(443) 367–0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II
PRE-CONSTRUCTION DRAINGE AREA MAP

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.5961

STATE OF MARYLAND — HARRIS VOGEL — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

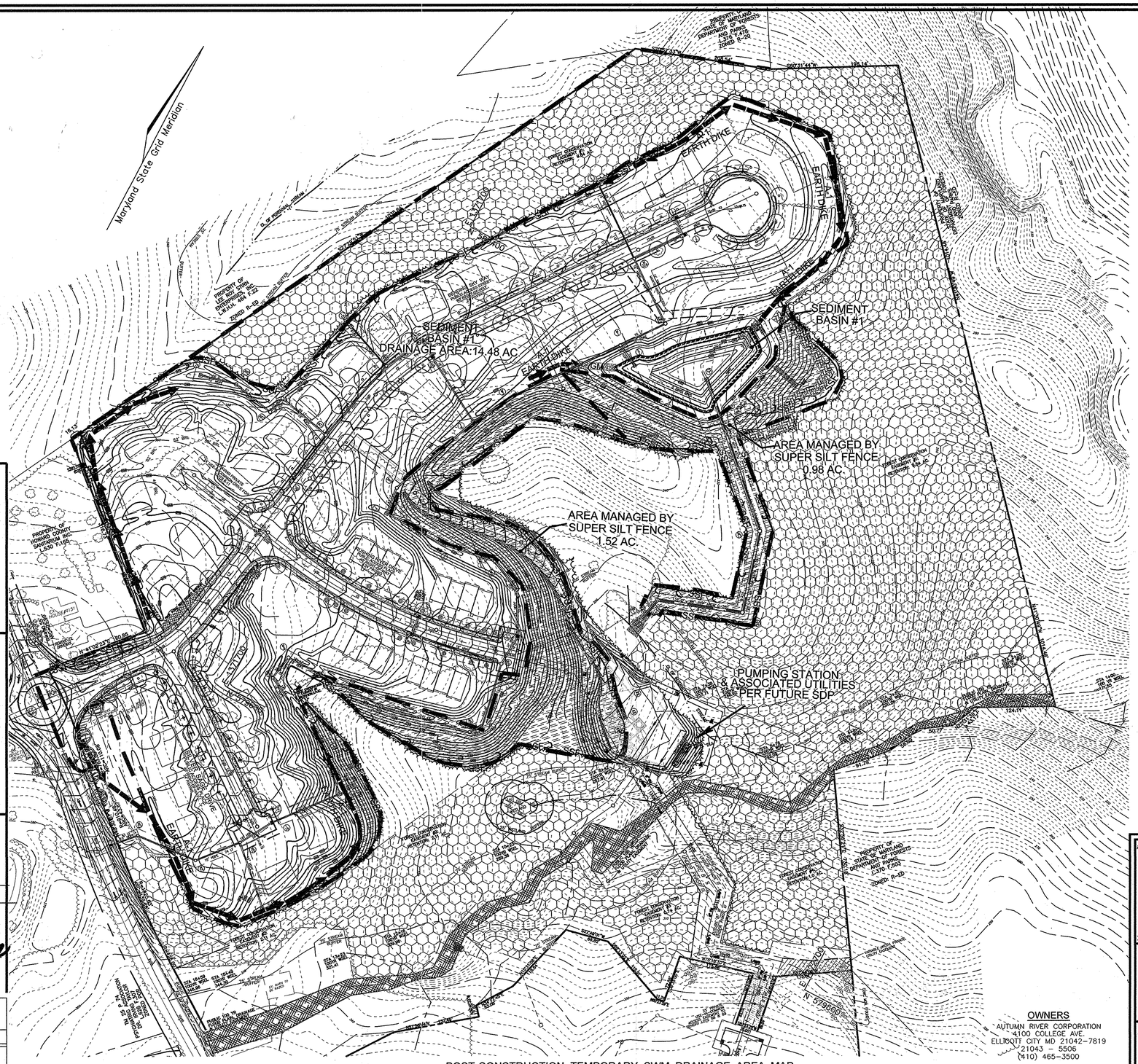
DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04–145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 25 OF 30

F-09-021

K:\Projects\04-145\ENGR\dwg\FINAL\FINAL ROAD\25PRE_CON_MAP.dwg, 5/5/2010 12:36:04 PM



POST-CONSTRUCTION TEMPORARY SWM DRAINAGE AREA MAP

SCALE: 1"=80'

LEGEND

- DRAINAGE DIVIDE
- EARTH DIKE
- SSF — SUPER SILT FENCE
- DRAINAGE AREA MANAGED BY SUPER SILT FENCE

NO AS-BUILT INFORMATION THIS SHEET.

ENGINEERS CERTIFICATE

"I HEREBY 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 5/7/12
ROBERT H. VOGEL

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER — DATE 4/3/12
RONALD SPAHN

THESE PLANS HAVE BEEN REVIEWED BY 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

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

HOWARD S.C.D. — DATE 6/12/12

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-28-12

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/03/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/30/12

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

REVISED FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II

POST-CONSTRUCTION DRAINGE AREA MAP

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E, & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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

STATE OF MARYLAND — ROBERT H. VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

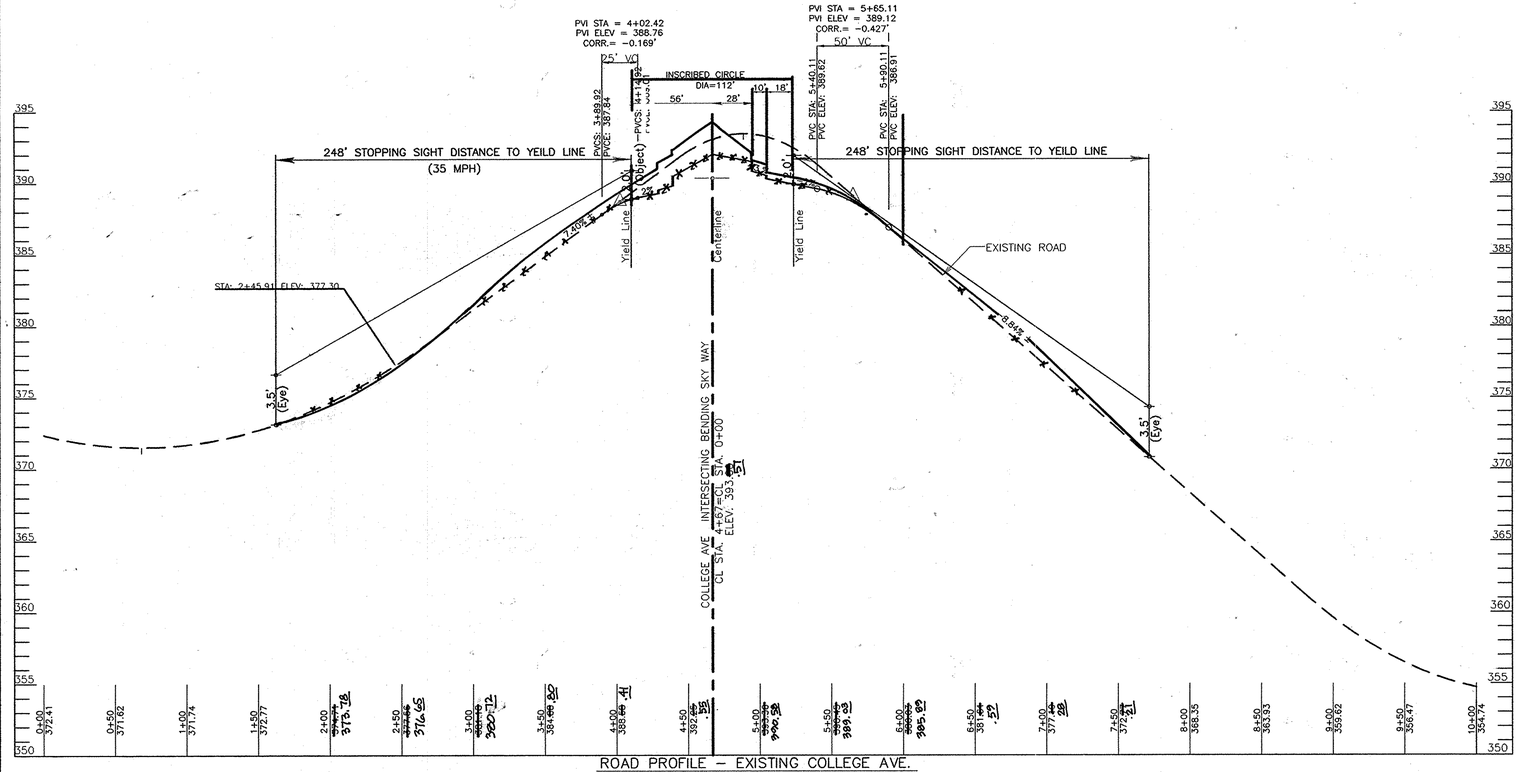
DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 26 OF 30

F-09-021

K:\Projects\04-145\ENG\Rdwg\FINAL\FINAL ROAD\REDLINE_11\2011\SHEET_26_NEW.dwg 4/20/2012 2:56:31 PM, kruewer\HPDesignJet\T770\HPGL2.pc3

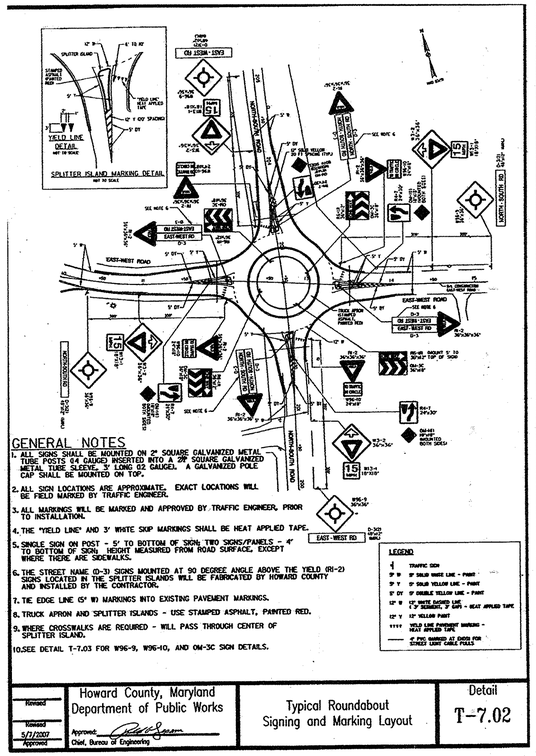


ROAD PROFILE – EXISTING COLLEGE AVE.

MINOR COLLECTOR

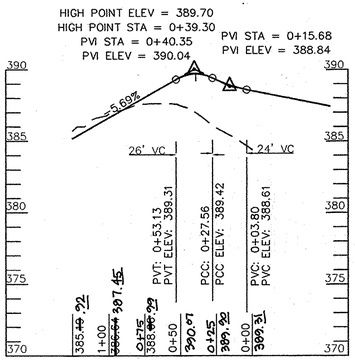
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

W2-6 SIGN



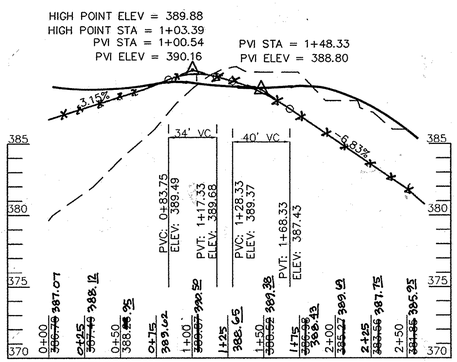
NOTE: THE W96-9 (ROUNDABOUT AHEAD) WARNING SIGN SHOWN IN DETAIL T-7.02 HAS BEEN REPLACE WITH THE W2-6 (ROUNDABOUT AHEAD) WARNING SIGN.

NOTE: CONTACT HOWARD COUNTY TRAFFIC DIVISION PRIOR TO INSTALLATION OF SIGNS AND STRIPING. HOWARD COUNTY TRAFFIC WILL FIELD LOCATE ALL SIGNAGE AND SIGNS FOR ROUNDABOUT TRAFFIC DIVISION: 410-313-5752



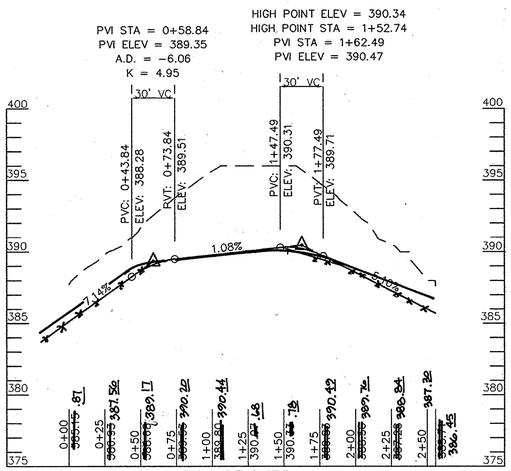
TOP OF CURB
FILLET PROFILE-(F-10)

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



TOP OF CURB
FILLET PROFILE-(F-11)

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



TOP OF CURB
FILLET PROFILE-(F-12)

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

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

PE NO. 16193
7/26/15

STATE OF MARYLAND
ROBERT HARRIS VOGEL
No. 16193
PROFESSIONAL ENGINEER

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/12/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II

TRAFFIC CIRCLE DETAILS

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND
ROBERT HARRIS VOGEL
No. 16193
PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

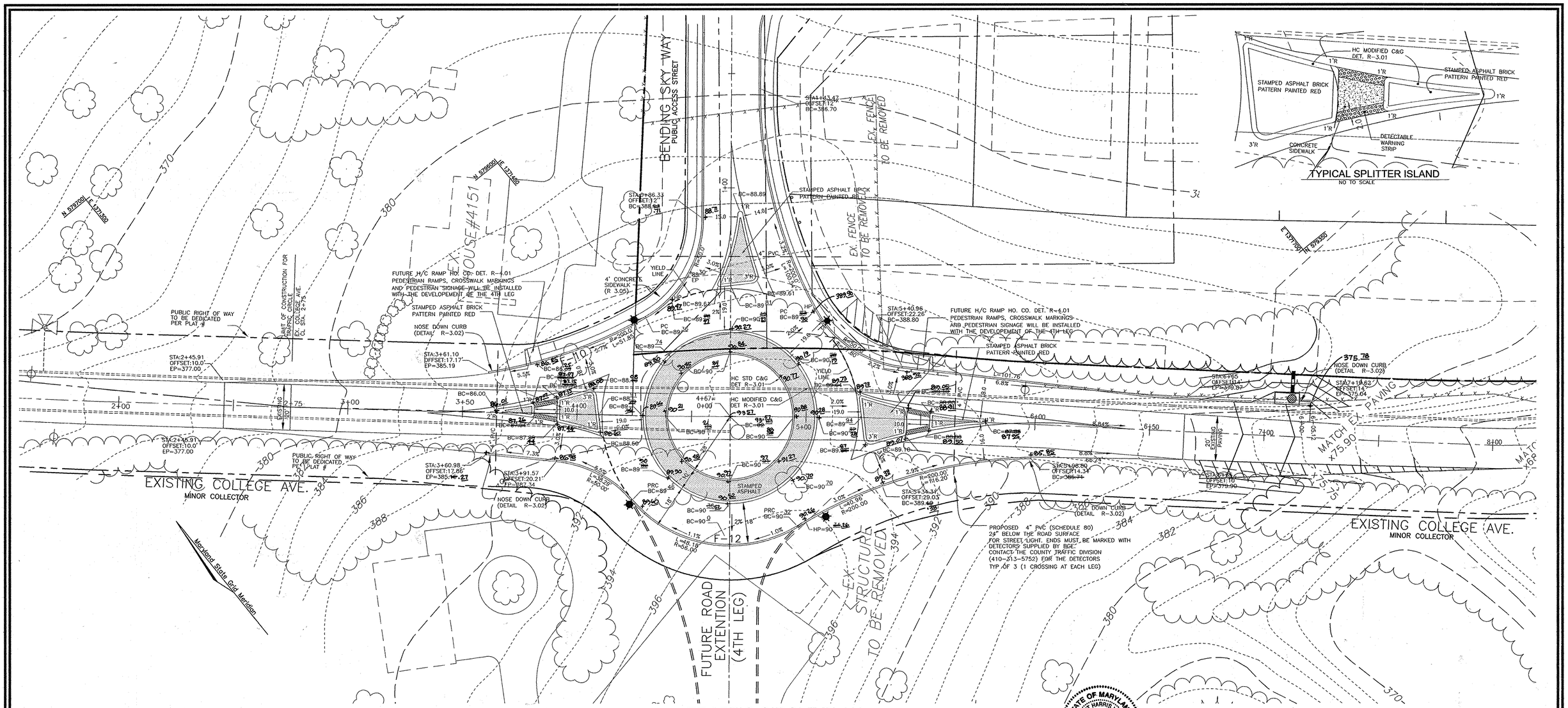
DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 27 OF 30

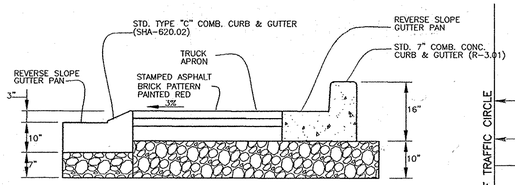
AS-BUILT 7/24/15

F-09-021



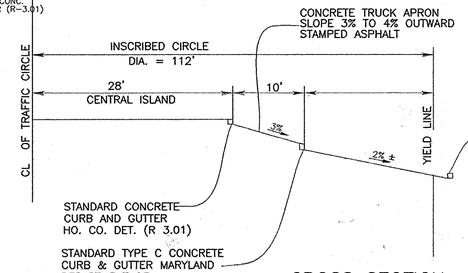
TRAFFIC CIRCLE PLAN

SCALE: 1"=20'



TRUCK APRON.

NO TO SCALE

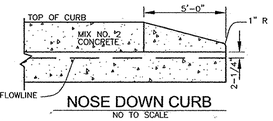


CROSS SECTION TRAFFIC CIRCLE AT INTERSECTION OF COLLEGE AVENUE & BENDING SKY WAY

SECTION NOT TO SCALE

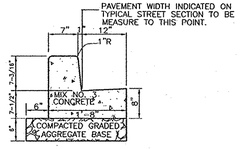
GENERAL NOTES

1. CONTACT HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO INSTALLATION OF SIGNS AND STRIPING. HOWARD COUNTY TRAFFIC DIVISION WILL FIELD LOCATE ALL SINGING AND MARKINGS FOR ROUNDABOUT.
2. HOWARD COUNTY TRAFFIC DIVISION TO INSPECT AND APPROVE CURB FORMS PRIOR TO POURING CONCRETE.
3. PEDESTRIAN CROSSING STRIPING WILL BE PROVIDED IN CONJUNCTION WITH THE FUTURE 4TH LEG CONSTRUCTION.
4. SEE SHEET 27 FOR SIGNING AND MARKINGS FOR ROUNDABOUT.



NOSE DOWN CURB

NO TO SCALE



STANDARD 7" COMB. CURB AND GUTTER

NO TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/19/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7-13-10

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 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

Signature

PE NO. 16193
Date: 7/27/15

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 - 5506
(410) 465-3500

DEVELOPER

AUTUMN DEVELOPMENT CORPORATION
C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II

TRAFFIC SIGNS & DETAILS

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER 8/7/15
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

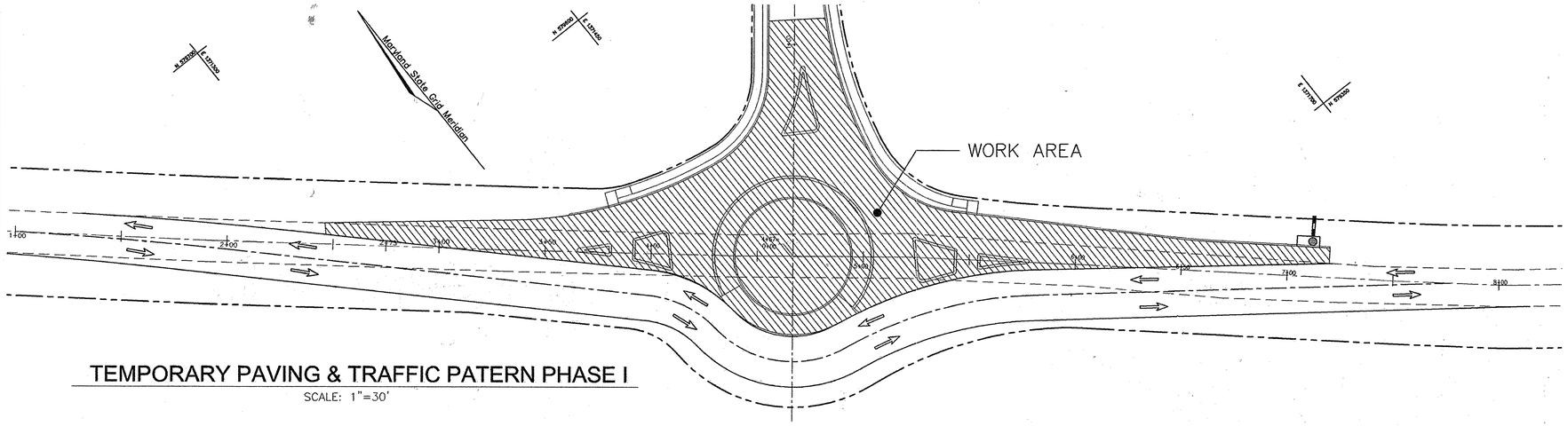
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 28 OF 30

AS-BUILT 7/24/15

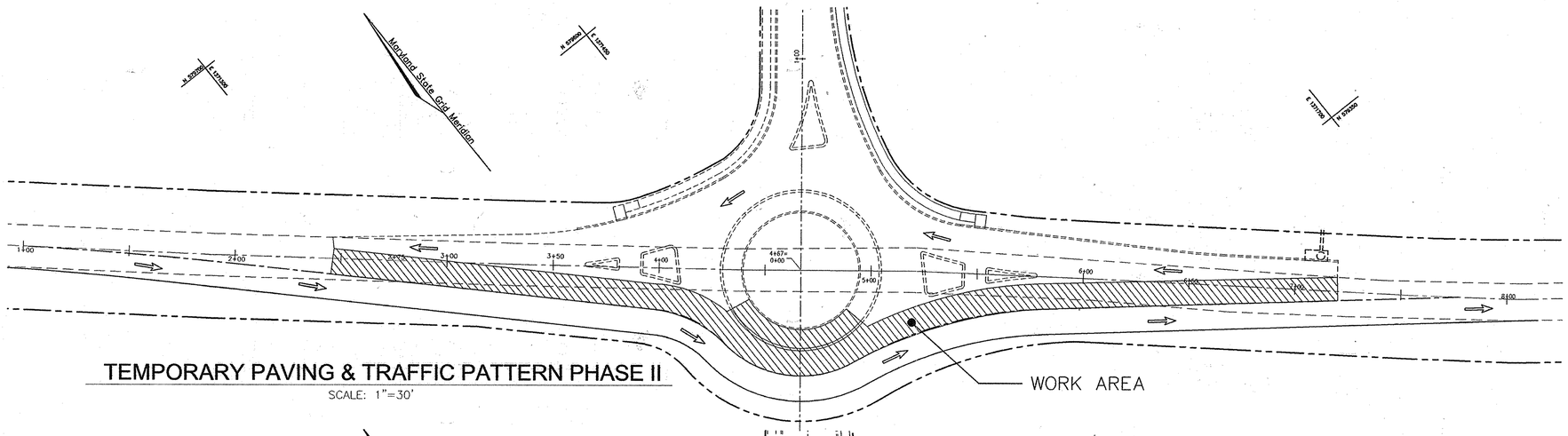
F-09-021

K:\Projects\04-145\ENGR\dwg\FINAL\FINAL ROAD\28TRAFFIC SIGNS.dwg, 5/5/2010 1:11:46 PM



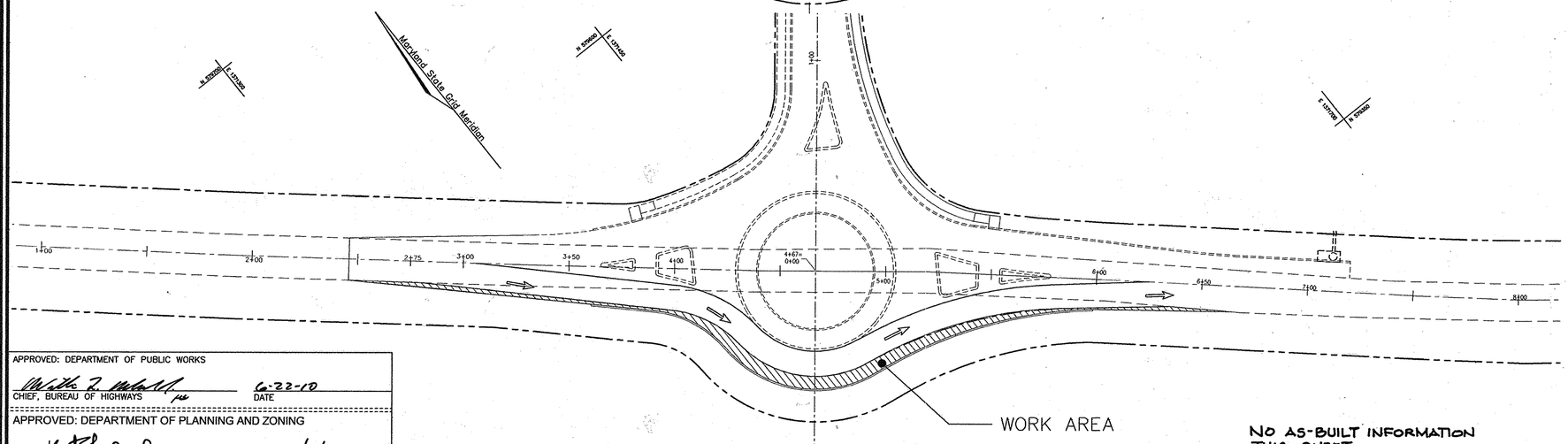
TEMPORARY PAVING & TRAFFIC PATERN PHASE I

SCALE: 1"=30'



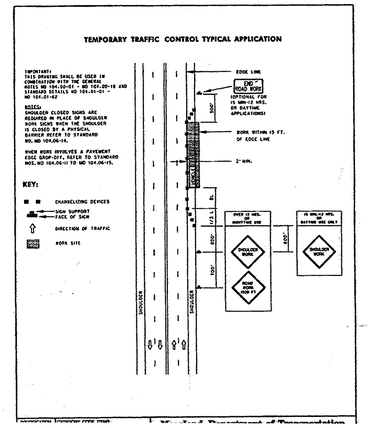
TEMPORARY PAVING & TRAFFIC PATTERN PHASE II

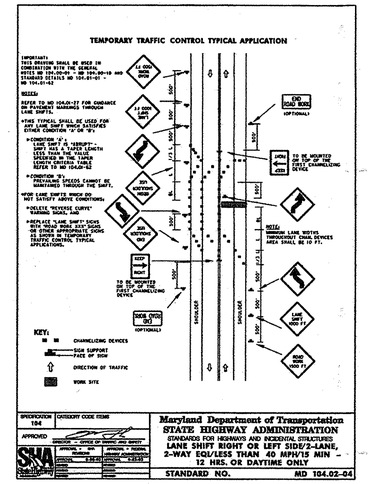
SCALE: 1"=30'



TEMPORARY PAVING & TRAFFIC PATTERN PHASE III

SCALE: 1"=30'





APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/15/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

NO AS-BUILT INFORMATION THIS SHEET.

OWNERS

AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

DEVELOPER

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C/O LAND DESIGN & DEVELOPMENT, INC.
5300 DORSEY HALL DR STE 102
ELLICOTT CITY MD 21042-7819
ATTN: MR. DONALD R. REUWER
(443) 367-0422

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II

TRAFFIC SIGNS & DETAILS

LOTS: 5-29, 31-36, 38-43, 45-67
OPEN SPACE LOT 30, 37, 44, 68, & 110
& NON-BUILDABLE PARCEL C
& NON-BUILDABLE BULK PARCEL D, E & F
RESUBDIVISION OF EXISTING LOT 1, 2, 3
& BULK PARCEL A

TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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TEL: 410.461.7666
FAX: 410.461.8961

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE

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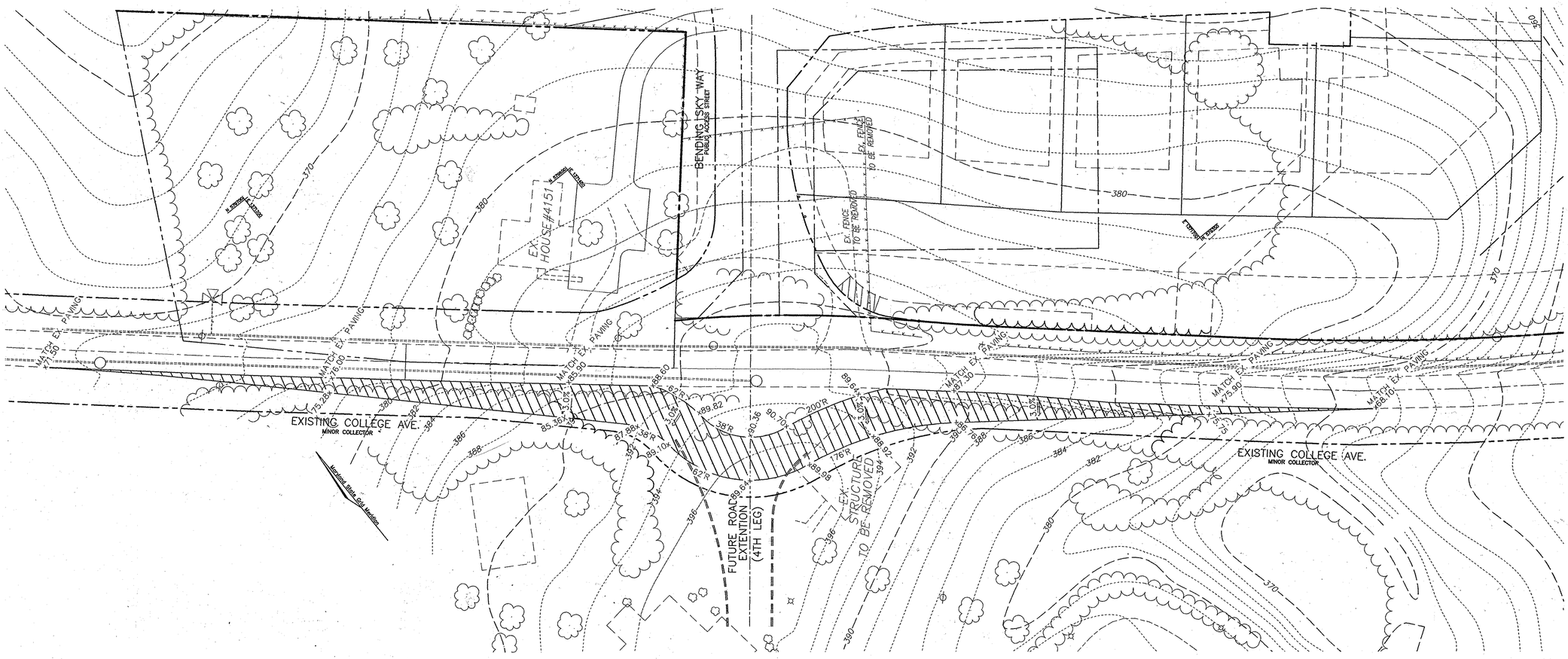
EXPIRATION DATE: 09-27-2010

F-09-021



TEMPORARY PAVING PLAN

SCALE: 1"=30'

LEGEND

EXISTING CONTOUR ——440——

EXISTING TREES TO REMAIN

TEMPORARY PAVING

NO AS-BUILT INFORMATION THIS SHEET.

OWNERS

AUTUMN RIVER CORPORATION
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21043 - 5506
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DEVELOPER

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ATTN: MR. DONALD R. REUWER
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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-22-10

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/18/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.13.10

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE II

TEMPORARY PAVING PLAN

LOTS: 5-29, 31-36, 38-43, 45-67
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 6/11/10
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RJ/RHV
DRAWN BY:	RJ
CHECKED BY:	RHV
DATE:	MAY 2010
SCALE:	AS SHOWN
W.O. NO.:	04-145

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193
EXPIRATION DATE: 09-27-2010

SHEET 30 OF 30

F-09-021

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