FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER
PHASE III

LOTS 72-86, 88-93, 95-102, 104-107, OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109

RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B' AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'

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:

AT&T	1-800-252-1133
BGE (CONSTRUCTION SERVICES)	410-637-8713
BGE (EMERGENCY)	410-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033

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 RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
5. EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. LOT 6 CURRENTLY HAS A WELL AND SEPTIC SYSTEM. THE WELL AND SEPTIC SYSTEM WILL BE PROPERLY ABANDONED AND THE DWELLING WILL BE CONNECTED TO PUBLIC WATER AND SEWER WITHIN 90 DAYS OF AVAILABILITY.
6. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS, OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK.
8. 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
9. ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS
10. THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY FISHER, COLLINS & CARTER, INC. DATED FEBRUARY 14, 2000, WHICH WAS VERIFIED AS CORRECT BY ROBERT H. VOGEL ENGINEERING, INC. IN MARCH 2010.
11. THE TOPOGRAPHY SHOWN HEREON IS BASED ON AN AERIAL TOPOGRAPHIC SURVEY PREPARED BY WINGS AERIAL MAPPING COMPANY, INC. PHOTOGRAPHED MARCH 1995.
12. WATER AND SEWER FOR THIS PROJECT WILL BY PUBLIC. WATER WILL BE PROVED THROUGH CONTRACT NO. 14-4520-D. SEWER WILL BE PROVIDED THROUGH CONTRACT# 14-4520-D. WATER SHED IS THE PATAPSCO RIVER.
13. STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY MICRO POOL EXTENDED DETENTION FACILITY LOCATED IN OPEN SPACE LOT 87. THE FACILITY IS HAZARD CLASS 'A' AND WILL BE PRIVATELY OWNED BY HOA AND SWM FACILITY TO BE JOINTLY MAINTAINED BY HOA AND HOWARD COUNTY PUBLIC WORKS.
14. STREAMS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PREPARED BY CHESAPEAKE ENVIRONMENTAL DATED MARCH, 1995, AS SHOWN ON S-98-016.
15. 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 OCT. 2007.
16. 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')
17. 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')
18. THE PRIVATE EASEMENTS SHOWN HEREON ARE TO BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
19. AUTUMN RIVER PHASE I: EXISTING FOREST EASEMENT COMBINED WITH FUTURE PHASE.
    AUTUMN RIVER PHASE II: 13.81 AC. RETENTION IN CREDITED EASEMENT
    3.31 AC. RETENTION IN NON-CREDITED EASEMENT
    AUTUMN RIVER PHASE III: 9.42 AC. RETENTION REQUIRED, PROVED BY A FOREST BANK, 'COLLEGE AVENUE PUMP STATION AUTUMN RIVER BULK PARCEL B'. SDP-10-081.
20. A TRAFFIC IMPACT ANALYSIS WAS PREPARED BY THE TRAFFIC GROUP AND APPROVED ON FEBRUARY 8, 1999 UNDER S-98-16.
21. ALL LANDSCAPING REQUIREMENTS AS SET FORTH IN SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL SHALL BE COMPLIED WITH.
22. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
23. SEDIMENT AND EROSION CONTROL IS PROVIDED FOR THIS SITE.
24. THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
25. THE ACCOMMODATION OF AND ACCESS TO THE GRAVE SITE (OPEN SPACE 94) WAS APPROVED BY THE PLANNING BOARD ON JANUARY 27, 1999.
26. A NOISE STUDY IS NOT REQUIRED FOR THIS SUBDIVISION.
27. OPEN SPACE LOT 108 OWNED AND MAINTAINED BY HOWARD COUNTY, MARYLAND DEPARTMENT OF RECREATION AND PARKS. OPEN SPACE LOT 109 TO BE OWNED AND MAINTAINED BY THE HOA.
28. EXISTING HOUSE AND SHED TO BE REMOVED FROM OPEN SPACE LOT 103 AND OPEN SPACE LOT 108. SEE PLAT #14513 & PLAT #15794.
29. THE PLANNING BOARD APPROVED THE AMENDED SKETCH PLAN (S-98-16). THE PLAN WAS SIGNED ON FEBRUARY 8, 1999 AND PB 325 WAS APPROVED ON JANUARY 14, 1999.
30. LOTS 75- 77, 82-83, 88-89, 100-101, 104-107 WILL UTILIZE A USE-IN-COMMON DRIVEWAY. HOWARD COUNTY STANDARD DETAIL NO. R-6.06 WILL BE UTILIZED FOR THE ENTRANCE AT THE INTERSECTION OF THE PUBLIC ROAD AND EACH USE-IN-COMMON DRIVEWAY. THE USE-IN-COMMON DRIVEWAY MAINTENANCE AGREEMENTS ARE TO BE RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND. THE MAINTENANCE AGREEMENT FOR THE USE-IN-COMMON LOTS BETWEEN LOTS 88 & 89 WAS RECORDED WITH F-09-021.
31. REFUSE COLLECTION, SNOW REMOVAL, AND MAINTENANCE FOR LOTS 75, 76, 77, 82, 83, 100, 101, 104, 105, 106, & 107 SHALL BE PROVIDED AT THE JUNCTION OF PRIVATE USE-IN-COMMON ACCESS EASEMENT AND THE RIGHT-OF-WAY OF PROPOSED ROAD.
32. COLLEGE AVENUE IS A SCENIC ROAD. 35' WIDE FOREST BUFFER WILL BE RETAINED WHERE IT CURRENTLY EXISTS AND A TYPE B LANDSCAPE BUFFER WILL BE ADDED IN AREAS WHERE A 35' FOREST DOES NOT CURRENTLY EXIST. SPECIES TYPICALLY OCCURRING IN THE EXISTING FORESTED AREA ALONG THE ROADWAY WILL BE USED FOR THE TYPE B LANDSCAPE BUFFER.
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. THIS SUBDIVISION COMPLIES WITH THE AMENDED 4TH EDITION OF THE SUBDIVISION AND ZONING REGULATIONS, BOTH AS AMENDED BY COUNCIL BILL 75-2003.
35. THE OPEN SPACE SHOWN HEREON IS HEREBY DEDICATED TO A PROPERTY OWNERS ASSOCIATION FOR THE RESIDENTS OF THIS SUBDIVISION AND RECORDING REFERENCES OF THE ARTICLES OF INCORPORATION AND RESTRICTIONS ARE SHOWN HEREON. OPEN SPACE LOT 108 TO BE OWNED AND MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS. OPEN SPACE LOTS 71, 87, 94, AND 103 ARE TO BE OWNED AND MAINTAINED BY THE HOA. EXISTING OPEN SPACE LOT 4 (PUMPING STATION) TO BE OWNED AND MAINTAINED BY DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY.
36. 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) INSERTED INTO 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.
37. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL WITH 29 SHADE TREES, 115 EVERGREEN TREES/ORNAMENTAL TREES, 68 SHRUBS AND 422LF OF FENCE PROVIDED WITH LANDSCAPE SURETY IN THE AMOUNT OF $32,410.00 WITH THE DEVELOPER'S AGREEMENT. (THE UNIT PRICES TO BE USED FOR ESTABLISHING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE ADOPTED COUNTY FEE SCHEDULE WHICH IS $150.00 PER SMALL TREE, $150.00 PER EVERGREEN/ORNAMENTAL TREE, $30.00 PER SHRUB, $10.00 PER LINEAR FEET OF FENCING).
38. TOTAL 35 UNITS ARE PROPOSED UNDER THIS PLAN. LOT 69 & LOT 70 HAVE BEEN CREATED BY RE-SUBDIVIDING OF NON-BUILDABLE BULK PARCEL A-2, WHICH WILL BE INDICATED ON PHASE II PLANS.
39. THE RELOCATION OF THE AT&T CONDUITS IS REQUIRED PRICE TO COMMENCEMENT OF THE CONSTRUCTION ACTIVITIES.
40. THE FIBER OPTIC DUCT LINE HAS BEEN FIELD LOCATED. THE EXISTING FIBER OPTIC LINE AND EASEMENT TO BE ABANDONED IN ACCORDANCE WITH RECORDED AGREEMENT.
41. A DESIGN MANUAL WAIVER HAS BEEN SUBMITTED AND APPROVED, DATED AUGUST 7, 2008, TO WAIVE SECTION 4.3 OF VOLUME II OF HOWARD COUNTY DESIGN MANUAL REQUIRING GRAVITY SEWER SERVICE TO THE BASEMENT OR LOWEST FLOOR OF THE LOTS CREATED THROUGH THE SUBDIVISION. DUE TO THE ENVIRONMENTAL CONSTRAINTS ON THE SITE, THE DEPTH OF THE SEWER WAS REQUIRED TO BE IN EXCESS OF 20 FEET TO ALLOW FIRST FLOOR GRAVITY SEWER SERVICE TO LOTS 73 THROUGH 77. BASEMENT GRAVITY SEWER SERVICE TO THE REFERENCED LOTS WOULD REQUIRE THAT THE SEWER SYSTEM BE LOWERED TO A DEPTH OF 30 FEET.
    A WAIVER REQUEST OF BASEMENT GRAVITY SEWER SERVICE TO LOTS 73 THROUGH 77 AND THE USE OF SEWER HOUSE CONNECTIONS ON A 1 PERCENT SLOPE WITH BASEMENT SEWER SERVICE TO BE PROVIDED BY PRIVATE ON-SITE PUMPS.
    THE APPROVAL OF PRIVATE ON-SITE PUMPING UNITS IS UNDER THE CHARGE OF THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS. PERMIT WILL BE REQUIRED FROM THE DEPARTMENT OF INSPECTION, LICENSES AND PERMITS BEFORE CONSTRUCTION.
    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 AND APPROVED UNDER SEPARATE REGULATIONS WHICH ONLY REQUIRED A 40' RIGHT-OF-WAY. UPDATING THE PLAN TO CURRENT STANDARDS WOULD HAVE A SIGNIFICANT EFFECT ON THE SUBDIVISION AS ALREADY APPROVED.
    B. THE REQUEST TO ALLOW THE 40' RIGHT-OF-WAY WIDTH IS APPROVED BUT THE MINIMUM PAVEMENT WIDTH MUST REMAIN.
42. THE PEDESTRIAN AND MAINTENANCE ACCESS FOR OPEN SPACE LOT 94 WILL ONLY OCCUR AT THE PUBLIC ROAD FRONTAGE.
43. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE STREAMS OR THEIR BUFFERS AND THE FOREST CONSERVATION EASEMENTS.
44. 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 $21,300.00 TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THE REQUIRED 71 PUBLIC STREET TREES.
45. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE AT EACH OF THE FLAG LOT DRIVEWAYS. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
46. THE DISTURBANCES OF THE STREAM BUFFER FOR THE SWM OUTFALL IS CATEGORIZED AS AN ESSENTIAL DISTURBANCE, AS REQUESTED BY THE HOWARD SOIL CONSERVATION DISTRICT DUE TO THE STOMMWATER OUTFALL MAY CAUSE EROSION IF ABOVE THE STREAM AND STREAM BUFFER.
47. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I AND II. IT WAS DETERMINED THAT THIS PROJECT MET THE CRITERIA OUTLINED IN THE MDE STORMWATER MANAGEMENT REGULATIONS GUIDANCE FOR IMPLEMENTATION FOR ACCEPTANCE OF THE 2000 DESIGN CRITERIA AND GRANTED A WAIVER. THIS PLAN RECEIVED PRELIMINARY APPROVAL (P-08-006) ON (9/4/09) AND FINAL APPROVAL (F-10-067) ON (12/9/2010). THIS PLAN IS ALSO SUBJECT TO THE EXPIRATION OF THIS WAIVER UNLESS ALL STORMWATER MANAGEMENT IS CONSTRUCTED BY (MAY 4, 2017).
48. THE ON LOT RAIN GARDENS (M-7) FOR LOTS 104, 105, 106, 107, 88 & 89 ARE SUBJECT TO PRIVATE DECLARATION OF COVENANTS. SEE SHEET 9 FOR QUANTITY AND ELEVATIONS.

COORDINATE LIST

POINT	NORTH	EAST
138	579306.9242	1372978.5535
141	579059.6418	1372760.4670
185	579659.8874	1372749.8678
186	579598.1704	1372652.1150
191	580924.1027	1372164.0613
192	579503.5287	1372631.2200
193	579585.6651	1372618.6236
194	579556.3543	1372506.8250
228	578700.4642	1372522.7830

LEGEND

EXISTING CONTOUR	372
PROPOSED CONTOUR	82
EXISTING SPOT ELEVATION	382.56
PROPOSED SPOT ELEVATION	+82.53
DIRECTION OF FLOW	
EXISTING TREES TO REMAIN	
LIGHT POLES	M1B2, M1D3
SOIL TYPE	
CONCRETE	
FOREST CONSERVATION EASEMENT	

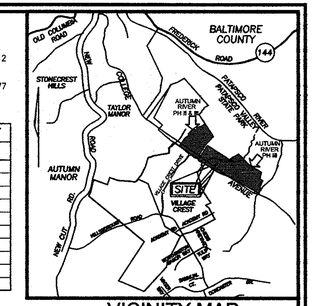
BENCHMARKS

HOWARD COUNTY BENCHMARK #2411 (CONC. MON.)
N. 577298.65, E. 1366075.16 ELEV. = 437.12

HOWARD COUNTY BENCHMARK #2413 (CONC. MON.)
N. 580648.90, E. 1364974.47 ELEV. = 463.77

MINIMUM LOT SIZE CHART

LOT NO.	GROSS AREA	PIPE STEM AREA	MINIMUM LOT SIZE
76	8,301 #	707 #	7,594 #
77	10,479 #	907 #	9,572 #
82	10,139 #	1,324 #	8,815 #
83	9,677 #	1,158 #	8,519 #
92	13,784 #	2,732 #	11,032 #
100	14,286 #	1,402 #	12,884 #
101	10,715 #	1,362 #	9,353 #
105	14,208 #	1,169 #	13,039#
106	14,619 #	1,888 #	12,731 #
107	19,466 #	2,560 #	16,906 #

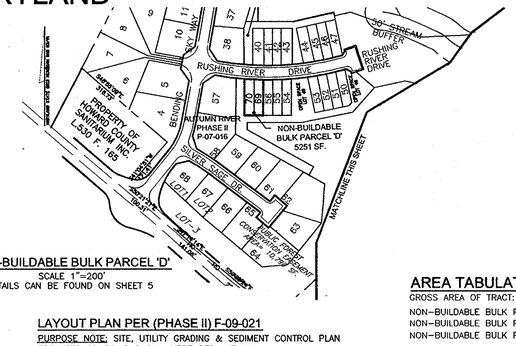


VICINITY MAP

SCALE 1"=2000'
ADC MAP: 4816, GIRDS: D9, E9, D10, E10, F10

PLAN VIEW

SCALE 1"=200'



NON-BUILDABLE BULK PARCEL 'D'

SCALE 1"=200'
DETAILS CAN BE FOUND ON SHEET 5

LAYOUT PLAN PER (PHASE II) F-09-021

PURPOSE NOTE: SITE, UTILITY GRADING & SEDIMENT CONTROL PLAN FOR LOTS 69-70 IS SHOWN HERE PER AUTUMN RIVER-PHASE II. THIS PLAN FOR AUTUMN RIVER-PHASE III IS ONLY SUBDIVIDING EXISTING NON-BUILDABLE BULK PARCEL 'D' TO CREATE LOTS 69 & 70 FOR THE ALLOCATION UNITS AVAILABLE. SEE AUTUMN RIVER PHASE II F-09-021 PLANS FOR MORE DETAILS. SEE AUTUMN RIVER PHASE II F-09-021 PLANS FOR MORE DETAILS. SEE SHEET 5 FOR GRADING PLAN.

SITE ANALYSIS: GENERAL SITE DATA

PRESENT ZONING: R-ED
LOCATION EAST SIDE OF COLLEGE AVENUE, APPROX. 1.5 MILES SOUTH OF HISTORIC ELLICOTT CITY
ELECTION DISTRICT: 2ND
TAX MAP: 25, PARCEL 172 & 279
DEED REFERENCE:
LIBER 3883 AT FOLIO 725 (PARCEL 172)
LIBER 3883 AT FOLIO 735 (PARCEL 279)
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, P-07-016, P-08-006, WP-09-063, F-09-021.
PROPOSED USE OF SITE: SINGLE FAMILY DETACHED, SINGLE FAMILY ATTACHED
PROPOSED WATER SYSTEM: PUBLIC
PROPOSED SEWER SYSTEM: PUBLIC

AREA TABULATION (PHASE III)

GROSS AREA OF TRACT: 31.01 AC. (PHASE III)

NON-BUILDABLE BULK PARCEL E (PHASE II)		10.71 AC.	
NON-BUILDABLE BULK PARCEL D (PHASE II)		0.13 AC.	
NON-BUILDABLE BULK PARCEL B (PHASE I)		20.29 AC.	
AREA OF FLOOD PLAIN (IN OPEN SPACE LOT 108)		0.76 AC.	
AREA OF ROAD RIGHT-OF-WAY		1.08 AC.	
AREA OF OPEN SPACE		21.95 AC.	
AREA OF BUILDABLE LOTS		7.98 AC.	
OPEN SPACE LOT-71	37,833 SF.	(0.87 AC.)	(OWNED & MAINTAINED BY HOA.)
OPEN SPACE LOT-87	52,146 SF.	(1.20 AC.)	(OWNED & MAINTAINED BY HOA.)
OPEN SPACE LOT-94	34,326 SF.	(0.79 AC.)	(OWNED & MAINTAINED BY HOA.)
OPEN SPACE LOT-103	13,202 SF.	(0.30 AC.)	(OWNED & MAINTAINED BY HOA.)
OPEN SPACE LOT-108	733,537 SF.	(16.84 AC.)	(DEDICATED TO RECREATION & PARKS)
OPEN SPACE LOT-109	85,106 SF.	(1.95 AC.)	(OWNED & MAINTAINED BY HOA.)

TOTAL OPEN SPACE PROVIDED (PHASE III): 21.95 AC.

OPEN SPACE TABULATION:PHASE III

AUTUMN RIVER PHASE I, II, III REQUIRED OPEN SPACE = 17.70 AC.
AUTUMN RIVER PHASE I (PLAT# 14513) = CREDITED OPEN SPACE PROVIDED=0.48 AC.
AUTUMN RIVER PHASE II=CREDITED OPEN SPACE PROVIDED= 24.94 AC
PHASE II, LOT 68 (TRANSFER TO PHASE III) :-0.38 AC.*
PHASE II, LOT 68 (TRANSFER FROM PHASE III) :+0.16 AC.
AUTUMN RIVER PHASE II=CREDITED OPEN SPACE PROVIDED= 24.716 AC
AUTUMN RIVER PHASE III = CREDITED OPEN SPACE REQUIRED = 0.00 AC.
AUTUMN RIVER PHASE III = CREDITED OPEN SPACE PROVIDED = 21.52 AC.
AUTUMN RIVER PHASE III = NON-CREDITED OPEN SPACE PROVIDED = 0.426 AC.
AUTUMN RIVER PUMP STATION OPEN SPACE LOT 4 = 0.48 AC. (PLAT #15794 & 15795)
TOTAL CREDITED OPEN SPACE FOR AUTUMN RIVER = 47.49 AC.
*PH-II OPEN SPACE UTILIZED FOR OPEN SPACE PH-III FOR POND GRADING. (LOT-70 PH-II SHAPE MODIFIED)
RECREATIONAL FACILITIES SUCH AS BASKETBALL OR TENNIS COURTS, FENCES, SWIMMING POOLS, PLAYGROUND EQUIPMENT OR TOT LOTS, ETC. THAT ARE PERMANENTLY ATTACHED TO THE GROUND ARE CONSIDERED TO BE STRUCTURES AND ARE NOT PERMITTED WITHIN THE PROPOSED RECREATIONAL AREA ON LOTS 71 & 103.
AUTUMN RIVER PHASE I, II, III = RECREATION OPEN SPACE REQUIRED: 22,900 SF
TOTAL SINGLE FAMILY DETACHED UNITS = 70 UNITS SF/UNITS = 19,500 SF
TOTAL SINGLE FAMILY ATTACHED UNITS = 17 x 2010 SF/UNITS = 3,400 SF
TOTAL RECREATION OPEN SPACE REQUIRED = 22,900 SF
AUTUMN RIVER PHASE I RECREATION OPEN SPACE PROVIDED = 0 SF.
AUTUMN RIVER PHASE II RECREATION OPEN SPACE PROVIDED = 11,000 SF.
AUTUMN RIVER PHASE III RECREATION OPEN SPACE REQUIRED = 11,900 SF.
AUTUMN RIVER PHASE III RECREATION OPEN SPACE PROVIDED = 18,324 SF.
TOTAL RECREATION OPEN SPACE FOR AUTUMN RIVER = 29,324 SF.

LOT TABULATION:

TOTAL NO. OF PROPOSED LOTS - 35
TOTAL 35 DWELLING UNITS FOR THIS SUBMISSION
NO. OF SINGLE FAMILY DETACHED: 33
NO. OF SINGLE FAMILY ATTACHED: 2 (5251 SF)
NO. OF OPEN SPACE LOTS: 6
NO. OF EXISTING OPEN SPACE (LOT 4): 1

PARKING TABULATION:PHASE III

TOTAL NUMBER OF UNITS ALLOWED AND PROPOSED
ATTACHED UNITS .....02 (LOTS 109 & 110)
REQUIRED AT 2.0 SPACES PER DU. 04
PARKING SPACES REQUIRED: 2 SPACES PER UNIT=04 SPACES
0.3 SPACES PER UNIT FOR GUEST/OVERFLOW PARKING= 01 SPACE
TOTAL PARKING SPACES REQUIRED: = 05 SPACES
PARKING SPACES PROVIDED: UNIT= 2 GARAGE/1 DRIVEWAY= 03 SPACES
2 SPACES IN GARAGE= 04 SPACES (FOR 02 UNITS)
1 SPACE ON DRIVEWAY = 02 SPACES (FOR 02 UNITS)
PARKING ON SITE= 05 SPACES
TOTAL PARKING SPACES PROVIDED: = 06 SPACES
IN ACCORDANCE WITH SECTIONS 133.C.1.a AND 133.D.2.a OF THE ZONING REGULATIONS, GARAGES IN ATTACHED DWELLING UNITS MUST BE USED FOR PARKING ONLY.

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAIN

1) NO EXCESS FILL, CONSTRUCTION MATERIAL OR DEBRIS SHALL BE STOCKPILED OR STORED IN THE WETLANDS OR BUFFER.
2) PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLAND.
3) DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE.
4) PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO THE NONTIDAL WETLANDS OR BUFFER.
5) REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS IN EXCESS OF NONTIDAL WETLANDS LOST UNDER THE ORIGINAL STRUCTURE OR FILL.
6) RECTIFY ANY NONTIDAL WETLANDS TEMPORARILY IMPACTED BY ANY
7) ALL STABILIZATION IN THE WETLAND AND BUFFER SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LOLIUN MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOLA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE DIVISION. KENTUCKY 33 FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER AREAS SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8) AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS OF NONTIDAL WETLANDS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9) TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM. USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10) STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11) CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

NO.	REVISION	DATE

MILESTONES CHART

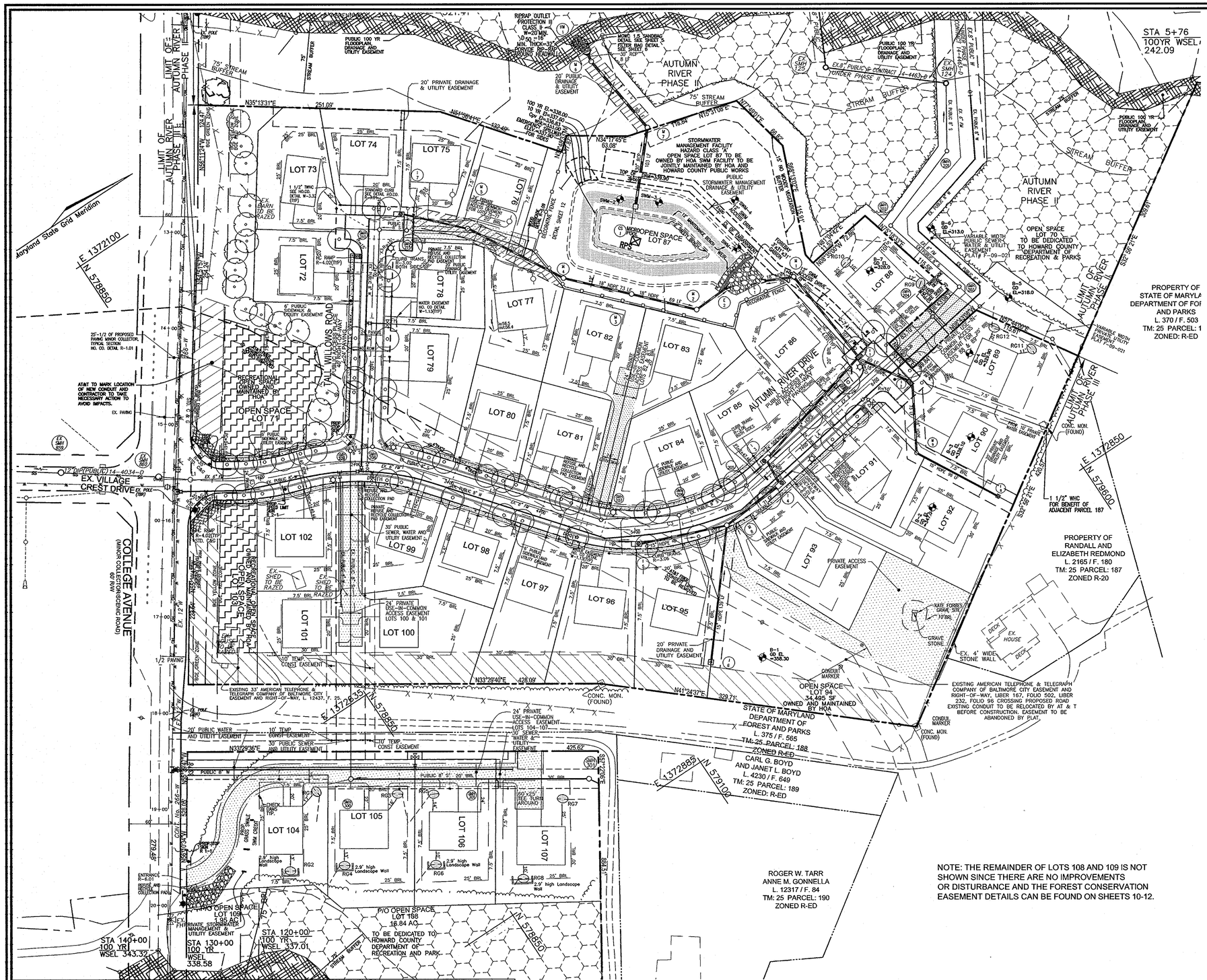
THE PROJECT IS LOCATED IN THE WORTHINGTON ELEMENTARY SCHOOL DISTRICT, THE NORTH EAST SCHOOL REGION AND THE ELLICOTT MILLS MIDDLE SCHOOL DISTRICT AND HAS PASSED THE OPEN/CLOSED SCHOOLS TEST GIVEN ALL AREAS ARE OPEN. THE NEW ALLOCATION YEARS AND THE MILESTONE DATES FOR SUBMISSION OF THE PRELIMINARY PLANS BASED ON THE PHASING, IF THE MILESTONE DATES ARE NOT MET S-98-016 WILL BE VOIDED.

PHASE	NO. TENTATIVE ALLOCATIONS	ALLOCATION YEAR	PRELIMINARY PLAN SUBMISSION MILESTONES
PHASE II	58	2009	BETWEEN JULY 1, 2006 AND JAN. 1, 2007
PHASE III	37	2010	BETWEEN JULY 1, 2007 AND NOV. 1, 2007

NOTE: REFERENCE S-98-016 LETTER DATED OCTOBER 12, 2005.

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)	-	-	-



LEGEND:

- 24' PRIVATE USE-IN COMMON ACCESS EASEMENT
- AQUATIC BENCH
- PROP. ROAD WIDENING 4' PAVING ALONG FRONTAGE OF THE PROPERTY
- PROPOSED 33' AMERICAN TELEPHONE & TELEGRAPH COMPANY OF BALTIMORE CITY EASEMENT AND RIGHT-OF-WAY, LIBER 167, FOLIO 502 & LIBER 232, FOLIO 96.
- FOREST CONSERVATION AREA (RETENTION)
- RECREATION OPEN SPACE
- 6' PUBLIC SIDEWALK & UTILITY EASEMENT
- PROPOSED CURB AND GUTTER
- EXISTING TREELINE (FIELD LOCATED)
- PROPOSED STREET TREE
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- 150-WATT POST TOP
- 100-WATT POST TOP
- PROP. STREET LIGHT
- PROP. STREET SIGNS
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- PUBLIC 100 YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
AUTUMN RIVER DRIVE	1656/40	41	41
TALL WILLOWS ROAD	512/40	13	13
COLLEGE AVE-RD IMPROV.	407/30	14	17

LIGHT LOCATIONS

	STATION	OFFSET	FIXTURE/POLE TYPE
COLLEGE AVENUE	15+92.39	29.55' LEFT	150 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
COLLEGE AVENUE	19+98	25.47' LEFT	100 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE
AUTUMN RIVER DRIVE	1+74.90	16.80' RIGHT	
AUTUMN RIVER DRIVE	2+35.67	16.34' LEFT	
AUTUMN RIVER DRIVE	4+75.31	23.23' LEFT	
AUTUMN RIVER DRIVE	6+97	17' RIGHT	
AUTUMN RIVER DRIVE	7+98.15	20' LEFT	
TALL WILLOW ROAD	2+23	17.52' RIGHT	

SIGNAGE LOCATION CHART

AUTUMN RIVER DRIVE	R1-1	("STOP")	SIGN AT STA 0+46.83, 17' LEFT
AUTUMN RIVER DRIVE	R2-1	("SPEED LIMIT 25")	SIGN AT STA 1+22.91, 15' RIGHT
COLLEGE AVENUE "PRIVATE DRIVE"		19+82	27' LEFT — STREET NAME SIGN
COLLEGE AVENUE "PRIVATE DRIVE"		19+47	31' LEFT — STOP SIGN
TALL WILLOWS ROAD	R1-1	("STOP")	SIGN AT STA 0+26, 18' LEFT

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	76.48	250.00	17°31'38"	38.54	N26°25'33"E	76.18
C2	129.11	220.00	33°37'26"	66.47	S33°01'55"W	127.26
C3	107.14	200.00	30°41'33"	54.89	N36°02'06"E	105.86

LINE TABLE

LINE	LENGTH	BEARING
L1	61.02	S35°11'21"W
L2	170.01	S51°22'52"W
L3	54.21	S20°41'20"W
L4	232.50	S08°43'08"E
L5	256.09	N54°37'13"W

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

NO.	REVISION	DATE

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

LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'
HOWARD COUNTY, MARYLAND
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, P-07-016, P-08-006, WP-09-063, F-09-021,
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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-16-2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/23/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/24/11

"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."

ROBERT H. VOGEL, P.E. #16193 — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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

STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER — 3/9/11

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

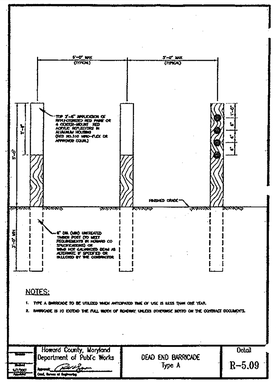
DESIGN BY:	JCO
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	FEBRUARY 2011
SCALE:	1" = 50'
W.O. NO.:	04-145

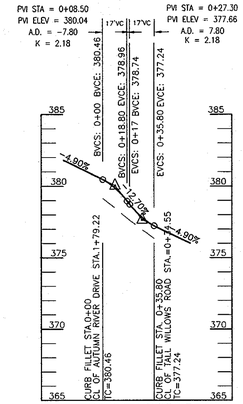
PROFESSIONAL CERTIFICATE

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: 09-27-2012

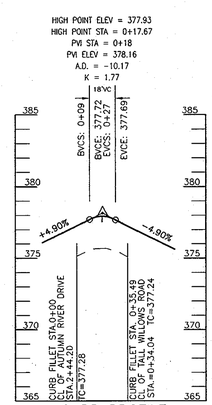
SHEET 2 OF 13

F-10-067

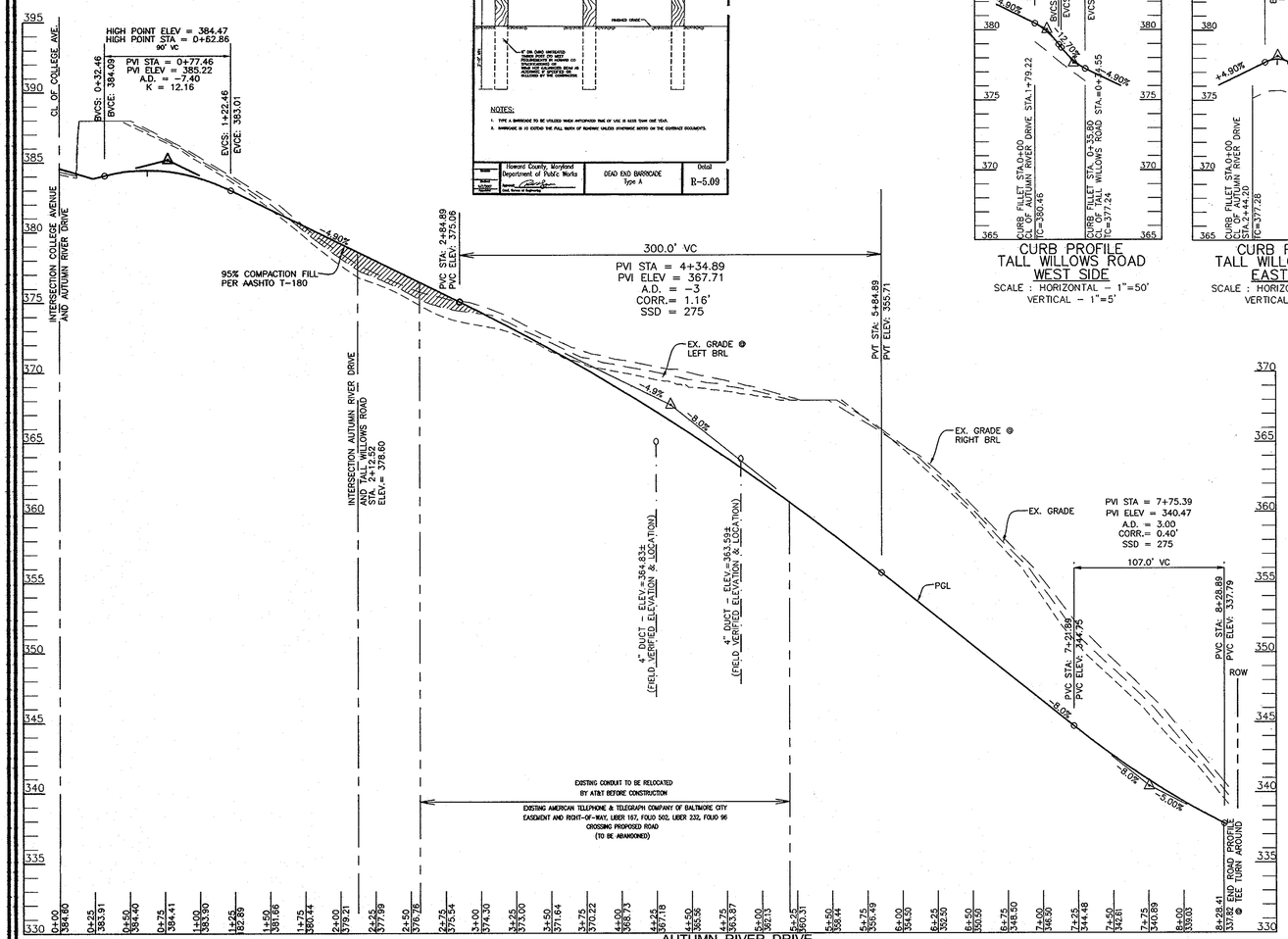




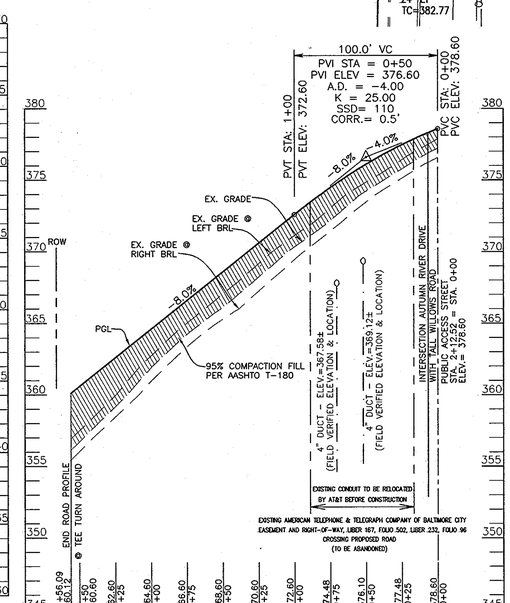
CURB PROFILE
TALL WILLOWS ROAD
WEST SIDE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



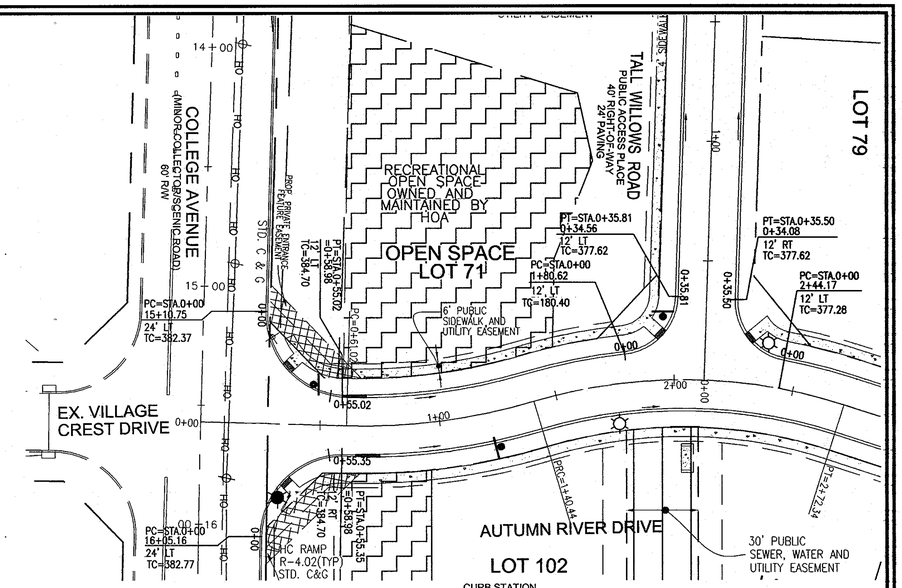
CURB PROFILE
TALL WILLOWS ROAD
EAST SIDE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



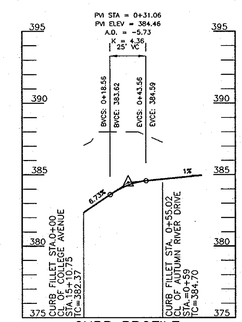
AUTUMN RIVER DRIVE
PUBLIC ACCESS STREET – DESIGNED FOR 35 MPH
POSTED DESIGN SPEED = 25 MPH
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



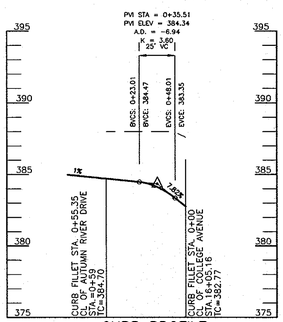
TALL WILLOW ROAD
PUBLIC ACCESS PLACE
POSTED DESIGN SPEED = 15 MPH
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



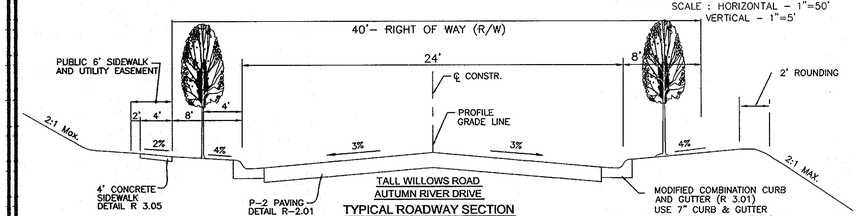
CURB STATION
SCALE: 1"=30'



CURB PROFILE
AUTUMN RIVER DRIVE
NORTH SIDE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

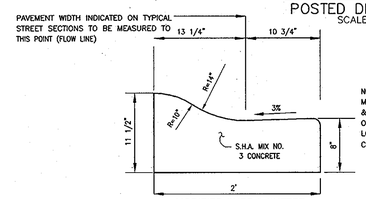


CURB PROFILE
AUTUMN RIVER DRIVE
SOUTH SIDE
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'



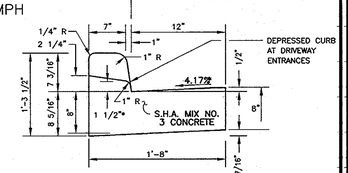
TYPICAL ROADWAY SECTION
CLASSIFICATION: PUBLIC ACCESS PLACE
DESIGN SPEED : 25 MPH
SECTION NOT TO SCALE

NOTE: SEE SHEET 13 FOR COLLEGE AVENUE SECTION.

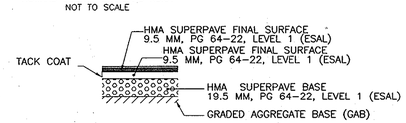


NOTE:
MODIFIED COMBINATION CURB & GUTTER TO BE USED ONLY ON CUL-DE-SAC STREETS, LOCAL ROADS OR MINOR COLLECTOR ROADS.

MODIFIED CURB & GUTTER
HOWARD COUNTY STANDARD R3.01
NOT TO SCALE



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



BITUMINOUS PAVEMENT (P-2)
R-2.01

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE III
FINAL ROAD CONSTRUCTION PROFILES AND DETAILS

LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
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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
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JCO
DRAWN BY:	KG
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DATE:	FEBRUARY 2011
SCALE:	AS SHOWN
W.O. NO.:	04-145

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SHEET 3 OF 13

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F-10-067

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- PROPOSED SIDEWALK
- MODERATE SLOPES (15% - 24.99%)
- STEEP SLOPE (>25%)
- PUBLIC 100 YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- CIP — CURB INLET PROTECTION
- AGIP — AT GRADE INLET PROTECTION
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- 150-WATT POST TOP / 100-WATT POST TOP — PROP. STREET LIGHT
- PROP. STREET SIGNS
- EXISTING FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION AREA (RETENTION)
- RECREATION OPEN SPACE
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- 24' PRIVATE USE-IN COMMON ACCESS EASEMENT
- PROP. ROAD WIDENING 4' PAVING ALONG FRONTAGE OF THE PROPERTY
- AQUATIC BENCH
- MlB2 / MlD3 — SOILS BOUNDARY
- NO WOODY BUFFER
- WETLANDS
- ECM — EROSION CONTROL MATTING
- EARTHDIKE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- HIGH VISIBILITY FENCE — HIGH VISIBILITY FENCE
- RPS — REMOVABLE PUMP STATION

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.
5. CONSTRUCTION FROM STORMDRAIN MH-7 TO HW 1 SUBJECT TO MDE PERMIT#---- . WHICH PROHIBIT CONSTRUCTION IN THE STREAM FROM MARCH 1ST. TO JUNE 15TH .
6. PROVIDE HIGH VISIBLE FENCING ALONG INTERNAL DIKES, WITH MOUNTABLE BERM AT ANY OPENING NEEDED FOR CONSTRUCTION TRAFFIC.

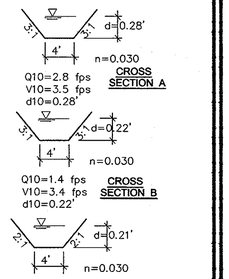
SOILS LEGEND

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	MONTALTO LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
MsD	MONTALTO 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

BASIN

EX. DRAINAGE AREA:	1.4 AC.
PROP. DRAINAGE AREA:	8.00 AC.
WET STORAGE REQUIRED:	14,400 CF
WET STORAGE PROVIDED:	14,400 CF
DRY STORAGE REQUIRED:	14,400 CF
DRY STORAGE PROVIDED:	14,400 CF
TOTAL STORAGE REQUIRED:	28,800 CF
TOTAL STORAGE PROVIDED:	28,800 CF
BOTTOM ELEVATION:	329.00
WEIR ELEVATION:	338.60
WET STORAGE ELEVATION:	329.00-334.74
DRY STORAGE ELEVATION:	334.74-338.60
TOTAL STORAGE DEPTH:	9.60'
TOP OF EMBANKMENT:	340.30
CLEANOUT ELEVATION:	331.87
SIDE SLOPES:	3:1
EMERGENCY SPILLWAY:	N/A

PROVIDE 2" TOPSOIL, SEED, EROSION CONTROL MATTING



SWM GRASS CHANNEL
NOT TO SCALE

NOTE: THE REMAINDER OF LOTS 108 AND 109 ARE NOT SHOWN SINCE THERE ARE NO IMPROVEMENTS OR DISTURBANCE AND THE FOREST CONSERVATION EASEMENT DETAILS CAN BE FOUND ON SHEETS 10-12.

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE III
GRADING, SEDIMENT AND EROSION CONTROL PLAN

LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
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ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
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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

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

DESIGN BY:	JCO
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	FEBRUARY 2011
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: 09-27-2012

SHEET 4 OF 13

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-16-2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/23/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/24/11

BY THE DEVELOPER:
"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 2/4/11

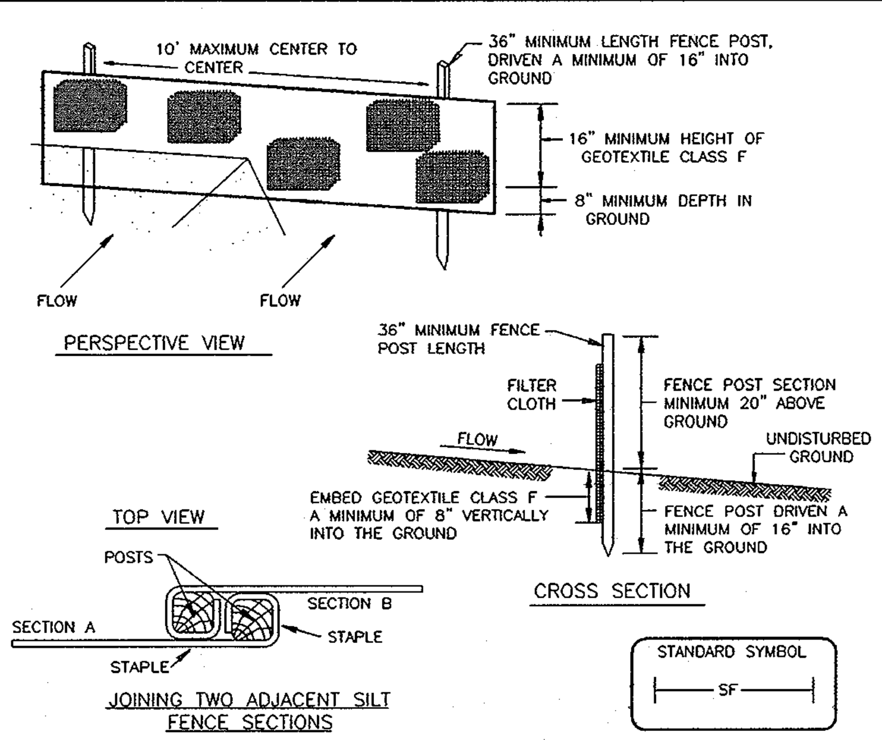
BY THE ENGINEER:
"I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I 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 2/7/11

THIS DEVELOPMENT PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD S.C.D. — DATE 3/9/11

"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."
ROBERT H. VOGEL, P.E. #16193 — DATE
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

F-10-067

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 ²/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.

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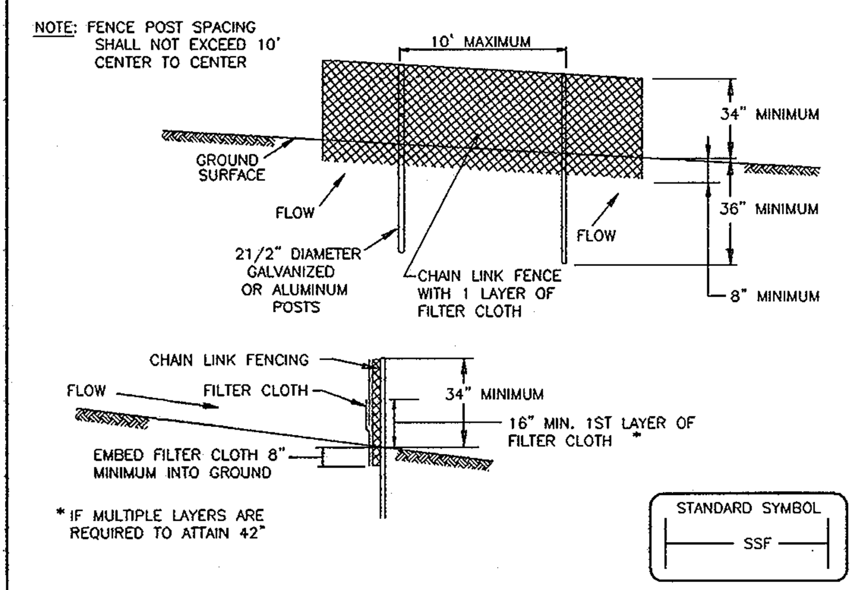
DETAIL 33 - SUPER SILT FENCE



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

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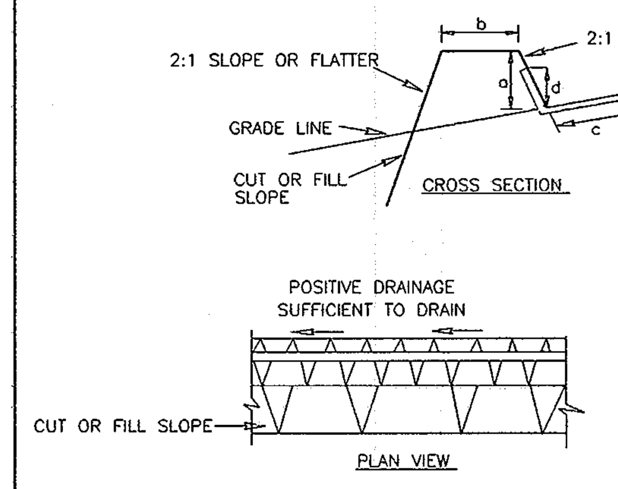
DETAIL 1 - EARTH DIKE



	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.

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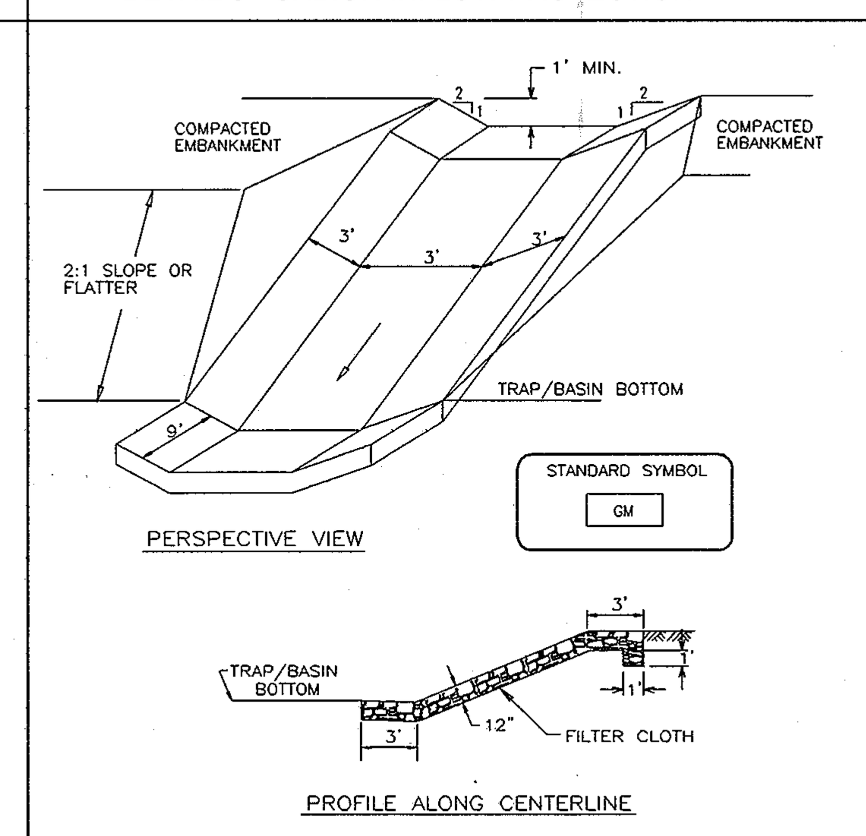
DETAIL 6 - GABION INFLOW PROTECTION



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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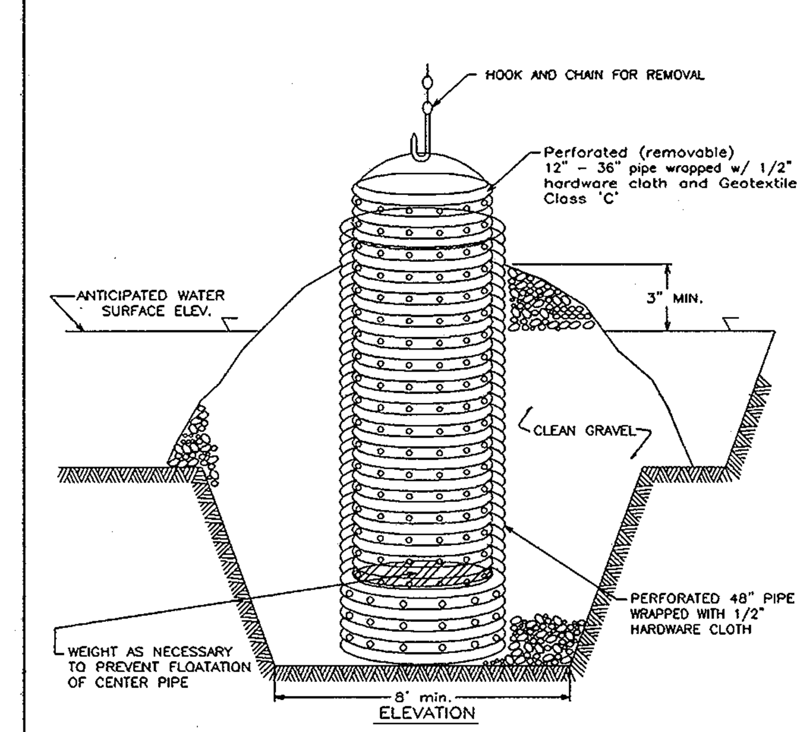
DETAIL 20A - REMOVABLE PUMPING STATION



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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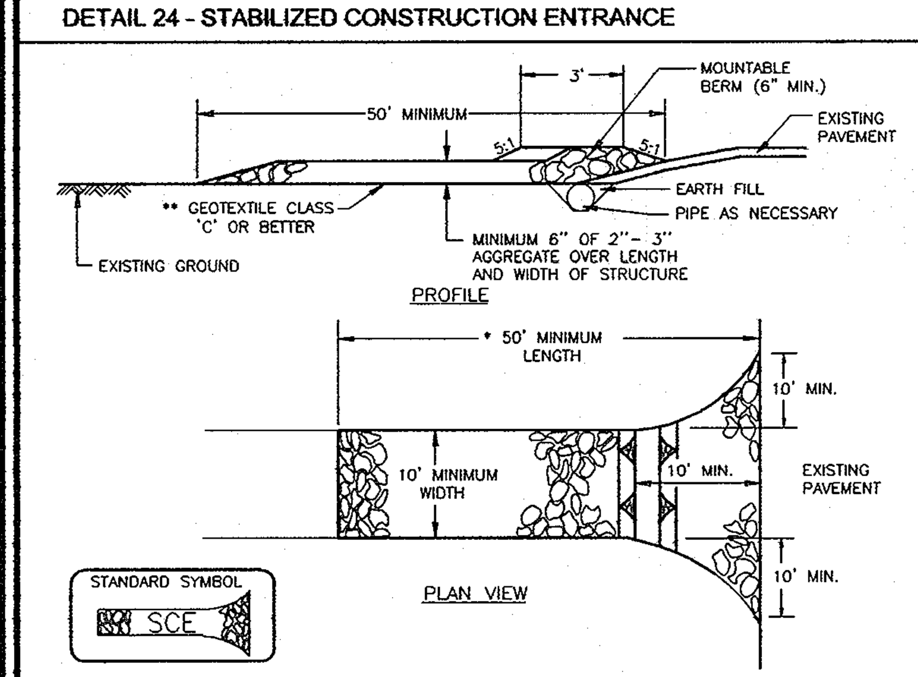
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



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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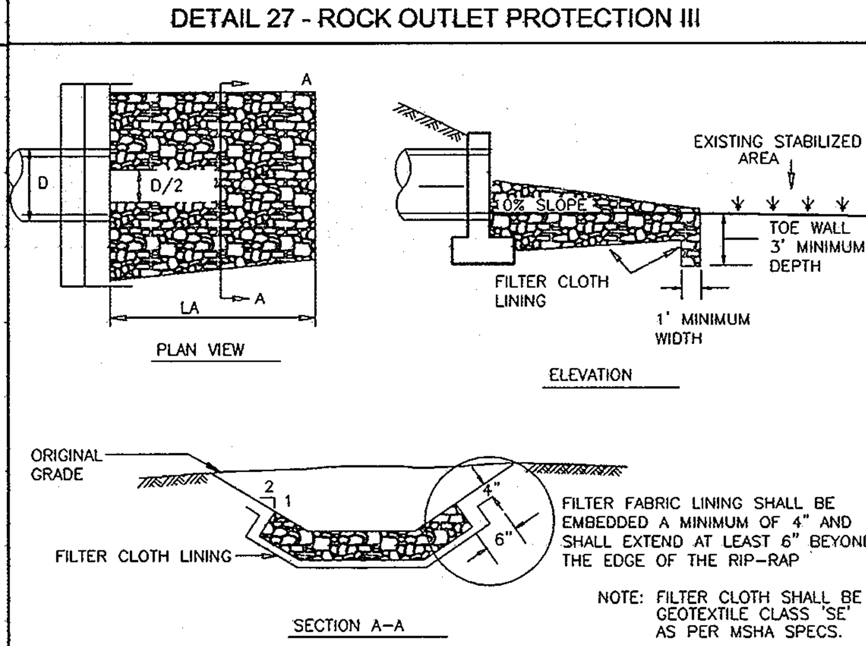
DETAIL 27 - ROCK OUTLET PROTECTION III



CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PEREPARED TO THE REQUIRED LINES AND GRADES. ANY FILLL 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 LIIMITS 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 DISPLACMENT 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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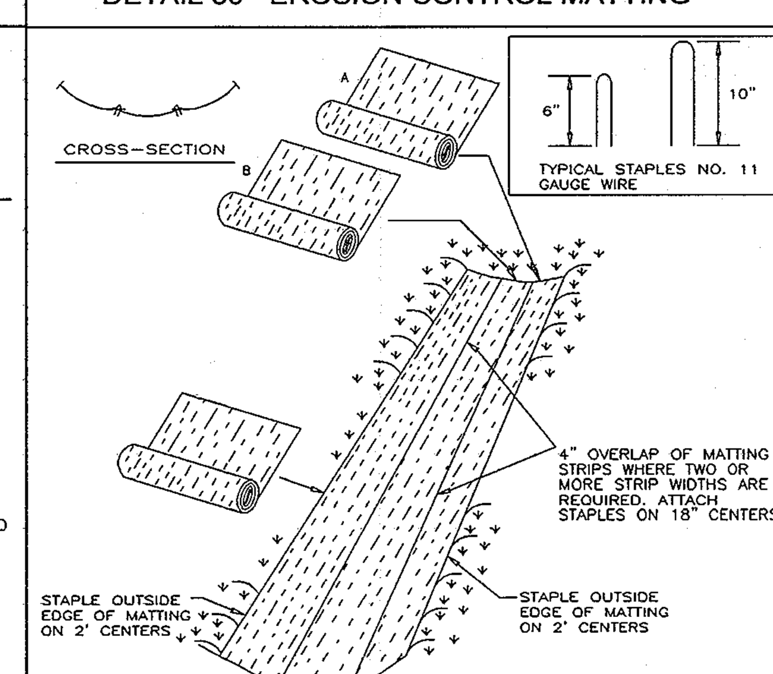
DETAIL 30 - EROSION CONTROL MATTING



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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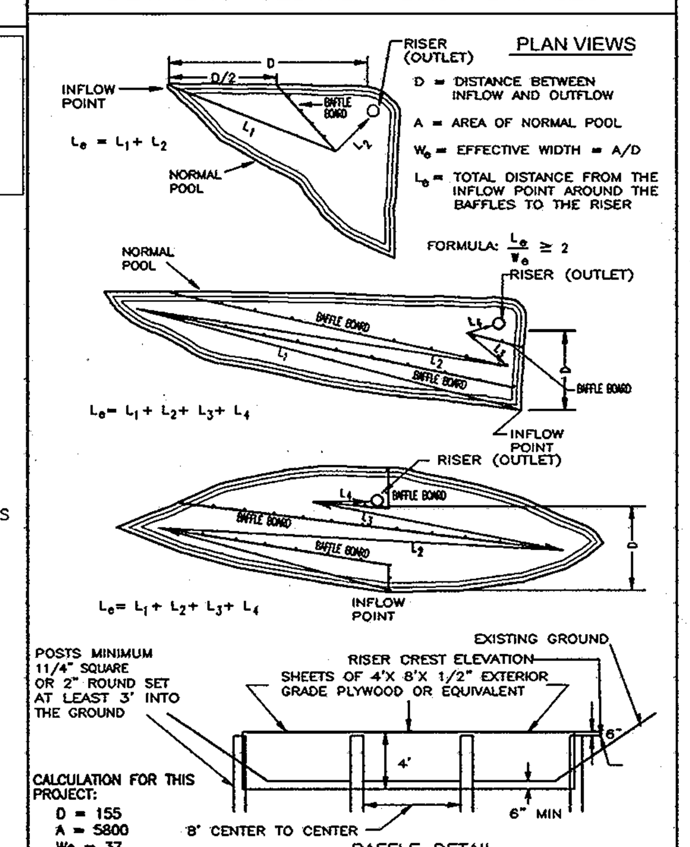
DETAIL 18 - SEDIMENT BASIN BAFFLES



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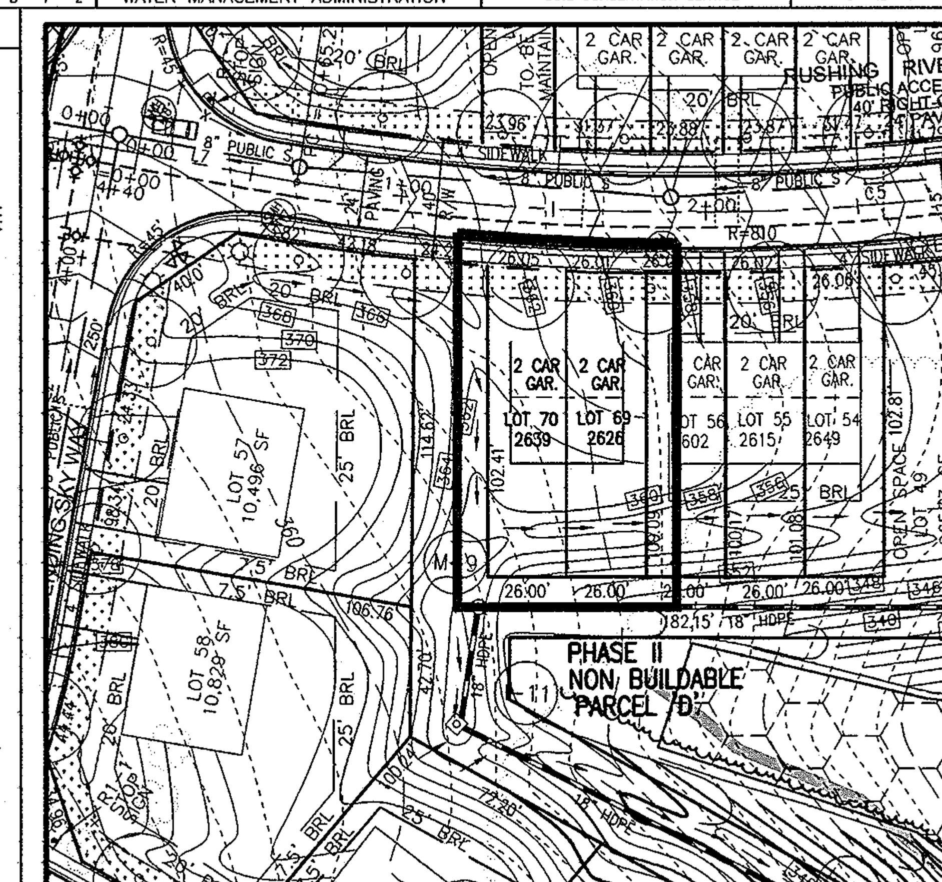
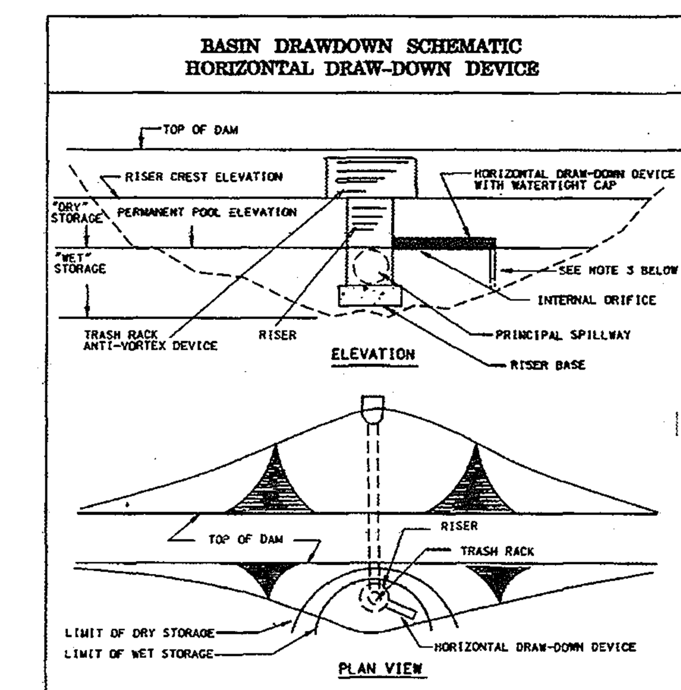


LOT 69 & 70 GRADING PLAN

SCALE: 1"=50'



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 draw-down device shall be wrapped with ½" 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' by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

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1994

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

Temporary measure for dewatering in channel construction sites

DESCRIPTION
The work should consist of installing sandbag or stone flow diversion for the purpose of erosion control when construction activities occur within the stream channel.

INSTALLATION GUIDELINES
All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from the upstream to the downstream during periods of low flow. If necessary, silt fence or straw around the perimeter of the work area. Sand bag/stone diversions can be used independently or as component of other stream diversion techniques. Installation of this measures should proceed as follows (refer to Detail 1.5):

1. The diversion structure should be installed from upstream to downstream.
2. The height of the sandbag/stone diversion should be a function of the duration of the project in the stream height, measured from the channel bed, plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For projects of longer duration, the top of the sandbag or stone diversion should correspond to bankfull height. For diversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a similar fashion.
3. All evacuated material should be deposited and stabilized in a approved area outside 100-year floodplain unless otherwise authorized by the WMA.
4. Sediment-laden water from the construction area should be pumped to a dewatering basin.
5. Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.
6. Sandbag or stone diversions should not obstruct more than 45% of the stream width. Additionally, bank stabilization measures should be placed in the constructed section if accelerated erosion and bank scour are observed during the construction time or if the project time is expected to last more than 2 weeks.
7. Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.
8. Sediment control devices, including perimeter erosion controls, are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.

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

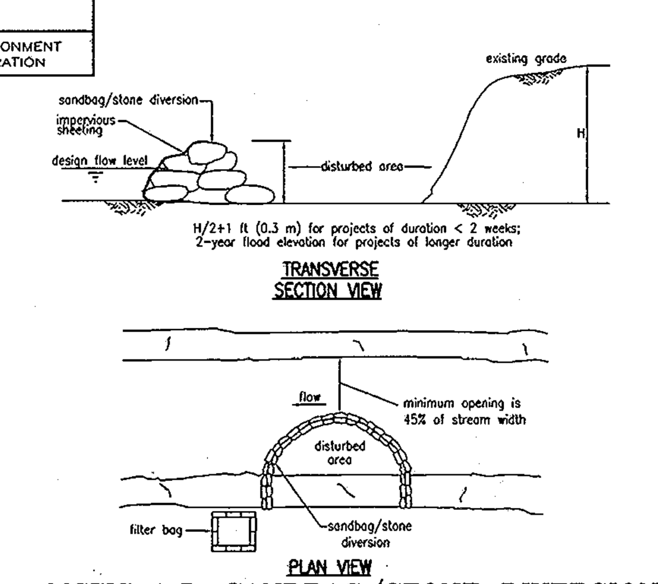
1. MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
2. VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
3. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD 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.



MGWC 1.5: SANDBAG/STONE DIVERSION
NTS

APPROVED: DEPARTMENT OF PUBLIC WORKS

3-16-2011
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3/23/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

3/24/11
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

BY THE DEVELOPER:
"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 — 2/4/11 DATE

BY THE ENGINEER:
"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 — 2/7/11 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — 3/9/11 DATE

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

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE III
SEDIMENT, EROSION CONTROL NOTES AND DETAILS
LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'
HOWARD COUNTY, MARYLAND
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, P-07-016, P-08-006, WP-09-063, F-09-021.
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:	JCO
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	FEBRUARY 2011
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: 09-27-2012

F-10-067

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.

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

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +\-2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

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

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

Structure Backfill

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

Structure backfill may be 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 a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill (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 – All 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 least 24 mils in thickness.

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket; Pre- Punched to the flange bolt circle sandwich between sdjacent flanges; a 12 inch wide standard lap type band with 12 inch wide by 3/8 inch thickclosedcell circularneoprene 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 the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream.Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill."

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

Stabilization
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT EXTENDED DETENTION FACILITY

STORMWATER MANAGEMENT FACILITY: JOINTLY MAINTAINED

ROUTINE MAINTENANCE: BY H.O.A.

1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IT 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, INTERFERES 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.

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, SCS "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.

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. IMBRICATE SF/SSF IN 25' SEGMENTS AS REQUIRED 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.

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.

DEWATERING STRATEGY

Dewatering refers to the act of removing and discharging water from excavated areas on construction sites or from sediment traps or basins on construction sites. Standards and specifications for dewatering practices follow:

These standards apply to removal and discharge of water from any excavated area or sediment trap or basin at any construction site. Given the unique conditions at any particular construction site, any or all of the practices may apply. Regardless of the applicability of the practices listed herein, operators are required to use acceptable procedures for maintenance and dewatering. In all cases, every effort shall be made to eliminate sediment pollution associated with dewatering.

Designers shall specify the preferred procedures for dewatering on plans. In particular, designers should identify procedures for dewatering sediment traps and basins prior to elimination of the last sediment control facility on the site or prior to conversion of sediment control facilities to stormwater management facilities. Recommended procedures shall be consistent with these standards. Atypical site conditions may require innovative dewatering designs. Dewatering measures not referenced in this standard may be used with the consent of the approval authority.

A. Dewatering of Excavated Areas

Designers shall specify on plans, and in sequences of construction included on plans, practices for dewatering of excavated areas. Plan reviewers shall check to see that procedures for dewatering are included on plans.

B. In all cases, water removed from excavated areas shall be discharged such that it shall pass through a sediment control device prior to entering receiving waters. Sediment control devices include sediment traps and basins, in addition to the practices in this section.

Approved Practices for Dewatering of Excavated Areas

1. Pumping of water to an existing sediment basin or trap in which the entire volume of water from the area to be dewatered can be contained without discharge to receiving waters.
2. Pumping of water to an existing sediment basin or trap such that the entire volume of water from the area to be dewatered can be managed without exceeding the design outflow from the sediment control structure.
3. Removable Pumping Station ? Standards and specifications for Removable Pumping Station are on Detail 20A.
4. Use of a Sump Pit: Standards and specifications for a sump pit are on Detail 20B.
5. Sediment Tank: Standards and specifications for a sump pit are on Detail 21.

Dewatering of Sediment Traps and Basins
Designers shall specify on plans, and in sequences of construction included on plans, the practices for dewatering of traps and basins. Plan reviewers shall check to see that procedures for dewatering to be used are included on plans. In all cases, water removed from traps and basins shall be discharged so that it passes through a sediment control device prior to entering receiving waters.

Approved Practices for Dewatering of Traps and Basins
1. Removable pumping station.
2. Use of a Sump Pit.
3. Use of a floating suction hose to pump the cleaner water from the top of the pond. As the cleaner water is pumped the suction hose will lower and eventually encounter sediment laden water. When this happens the pumping operation will cease. Provisions shall be made to filter water

SEQUENCE OF CONSTRUCTION

*CONSTRUCTION FROM STORMDRAIN MH-7 TO HW 1 SUBJECT TO MDE PERMIT#201061636. WHICH PROHIBIT CONSTRUCTION IN THE STREAM FROM MARCH 1ST TO JUNE 15TH.

1. OBTAIN GRADING PERMIT. CONTRACTOR TO PRESENT "MDE CONSTRUCTION ACTIVITY PERMIT" TO INSPECTOR. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
2. AT&T CONDUIT RELOCATION TO BE COMPLETED PRIOR TO COMMENCEMENT OF WORK. AT&T TO MARK LOCATION OF NEW CONDUIT AND CONTRACTOR TO TAKE NECESSARY ACTION TO AVOID IMPACTS.
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE. — 5 DAYS
4. INSTALL TREE PROTECTION FENCE AS SHOWN ON PLAN AND ADDITIONAL AROUND BURIAL SITE. — 5 DAYS
5. INSTALL PERIMETER SUPER SILT FENCE AND CLEANWATER DIKES AND CLEAR AND GRUB SITE. — 15 DAYS
6. WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR CONSTRUCT SEDIMENT BASIN*AND BEGIN MASS GRADING OF SITE. INSTALL EARTH DIKES AND DIRECT TO BASIN. — 30 DAYS
7. WITH SITE MASS GRADED INSTALL STORM DRAIN WATER, SEWER AND STORM DRAIN SYSTEM. — 60 DAYS
6. GRADE ROADS TO SUB-BASE AND APPLY DUST CONTROL SPECIFICATIONS. — 15 DAYS
8. WITH ROAD GRADED TO SUB-BASE BEGIN CURB AND GUTTER CONSTRUCTION AND ROAD PAVING. INSTALL SIDEWALKS. — 30 DAYS
9. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, AND FINAL ROAD PAVING COMPLETE, STABILIZE ANY REMAINING DISTURBED AREAS, AND FLUSH STORM DRAIN SYSTEM. — 20 DAYS
10. INSTALL PERMITER LANDCSAPING AS WELL AS STREET TREES AND POND PLANTINGS. — 10 DAYS
11. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASINS TO FINAL STORMWATER MANAGEMENT FACILITIES AND REMOVE SEDIMENT CONTROL MEASURES. — 10 DAYS
12. 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. — 5 DAYS
13. PROVIDE COPY OF THE AS-BUILT APPROVAL LETTER FROM THE HOWARD SCD, TO THE COUNTY INSPECTOR. — 10 DAYS

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPT. OF INSPECTION, LICENSE AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATION AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: (A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3:1, (B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS :

TOTAL AREA TRACT AREA	48.2284 AC
AREA DISTURBED	17.20 AC.
AREA TO BE ROOFED OR PAVED	1.56 AC.
AREA TO BE VEGETATIVELY STABILIZED	15.64 AC.
TOTAL CUT	**15,600 CY
TOTAL FILL	**15,600 CY
OFFSITE WASTE/BORROW AREA LOCATION	*

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
12. PROTECTION SHALL BE PROVIDED AROUND THE BURIAL SITE ON LOT 94.

* TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT

** EARTHWORK QUANTITIES FOR PURPOSE OF COMPETING COUNTY FEES ONLY. NOT TO BE USED FOR ESTABLISHING CONSTRUCTION COSTS.

21.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETABLE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR A SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAT 1 AND 1/2" IN DIAMETER.

II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

III. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

II. FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:

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

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:

I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:

A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
D. NO SOD OR SEED SHALL BE PLACED ON SOIL SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

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

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMMENDMENTS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION-SECTION I-VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

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

II. GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4" – 8" HIGHER IN ELEVATION.

III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" – 8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

IV. TOPSOIL SHALL NOT BE PLACE WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

PERMANENT SEEDING NOTES

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

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

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

1) PREFERRED-APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/100 SQ.FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT THE TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ.FT.)
2) ACCEPTABLE-APPLY 2 TONS PER ACRE DOLOMATIC LIMESTONE (92 LBS/1000 SQ.FT.) AND APPLY 1000 LBS. PER ACRE 10-10-10- FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

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

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

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

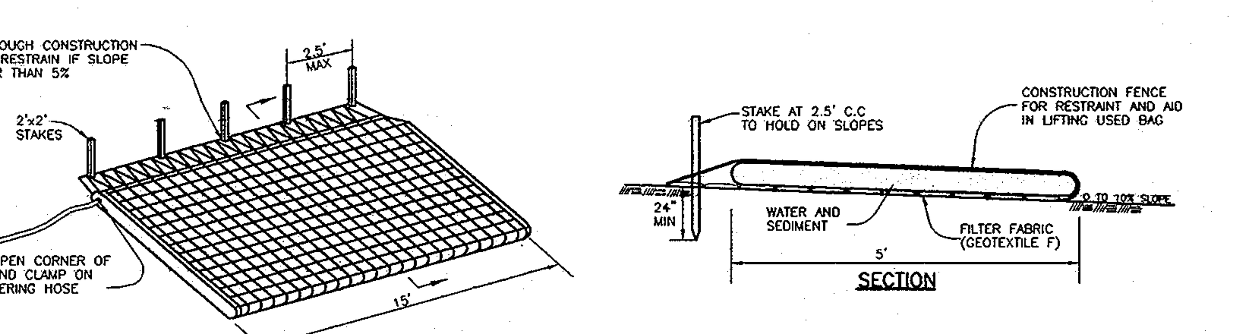
SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

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

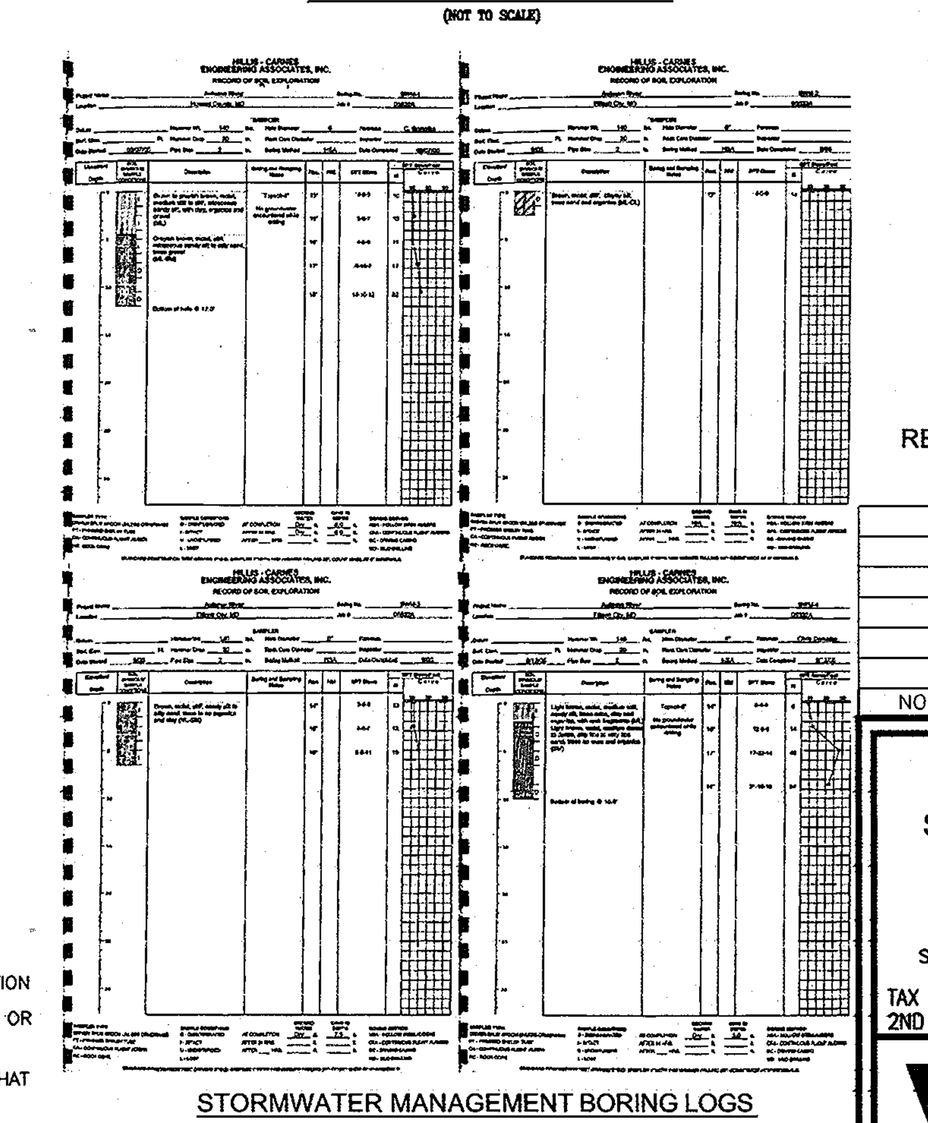
SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS./1000 SQ.FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (.07 LBS./1000 SQ.FT.). FOR THE PERIOD NOVEMBER 1 THRU FEBRUARY 28,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

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

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



FILTER BAG DETAIL
(NOT TO SCALE)



STORMWATER MANAGEMENT BORING LOGS

EMBANKMENT AND CUT-OFF TRENCH

The areas of the SWM facilities should be tripped 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 material 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 proofroling or penetrometer testing should be excavated to suitably firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the Geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut off trench. In accordance with NRCS-MD Code No. 378 Pond Standards/Specifications, soils considered suitable for the center of the embankment and cut off trench shall conform to Unified Soil Classification GC, SC, CL, or CH and have at least 30% passing the #200 sieve.

It is our professional opinion that in addition to the soil materials described above, a fine-grained soil, including silt (ML-MH) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. All fill materials must be placed and compacted in accordance with NRCS-MD Code no. 378 specifications.

REF: HILLIS-CARNES STORMWATER MANAGEMENT INFILTRATION STUDY FOR AUTUMN RIVER DATED SEPTEMBER 28, 2008.

NO.	REVISION	DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 3-16-2011
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 3/23/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 3/24/11
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

BY THE DEVELOPER:
"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] 2/4/11
SIGNATURE OF DEVELOPER — DATE

BY THE ENGINEER:
"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] 3/7/11
SIGNATURE OF ENGINEER — DATE
ROBERT H. VOGEL

THIS DEVELOPMENT PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[signature] 3/9/11
HOWARD S.C.D. — DATE

"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."

ROBERT H. VOGEL, P.E. #16193 — DATE
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

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 III
SEDIMENT, EROSION CONTROL NOTES AND DETAILS
LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'
HOWARD COUNTY, MARYLAND
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, P-07-016, P-08-006, WP-09-063, F-09-021.
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

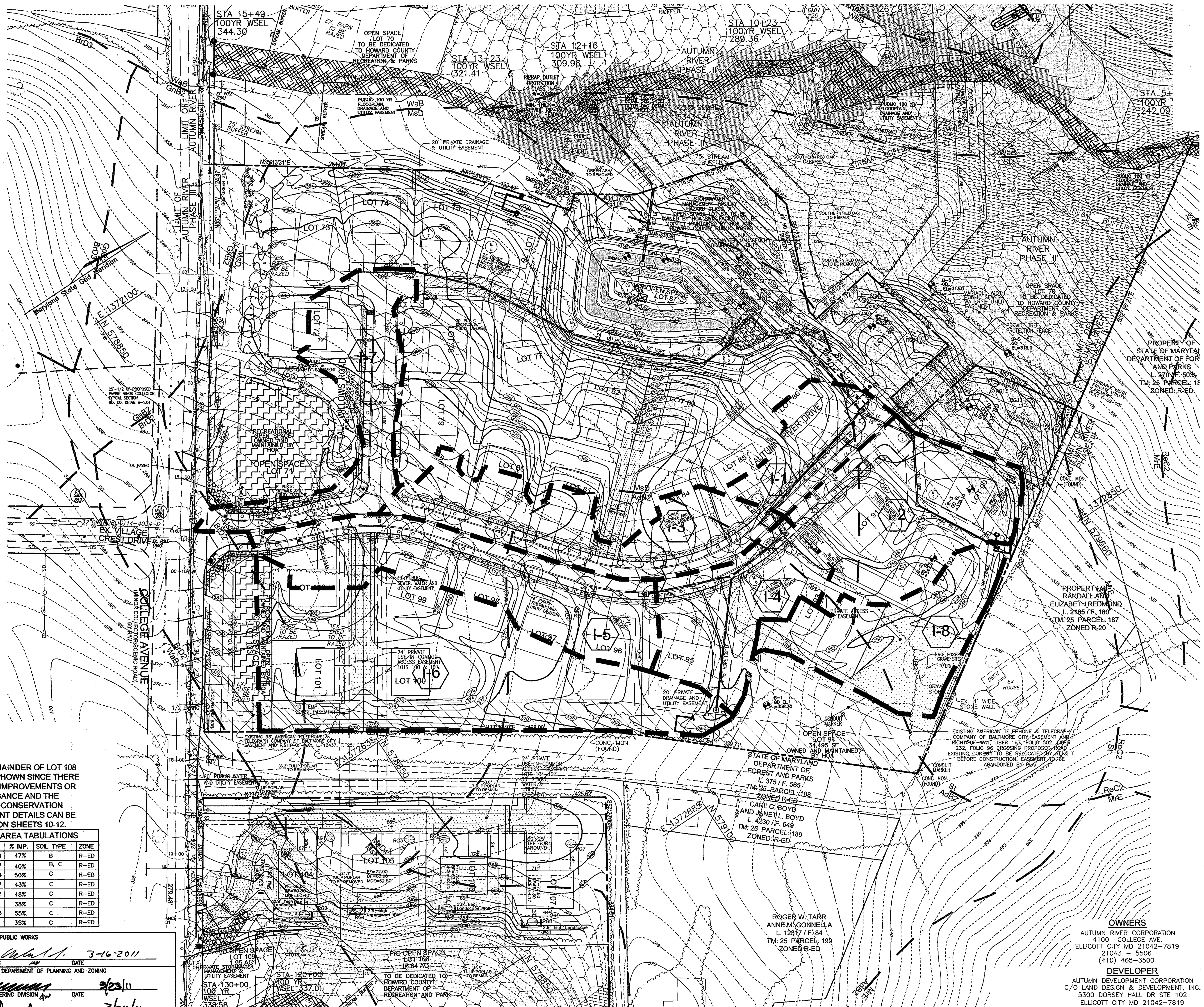
STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY:	JCO
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	FEBRUARY 2011
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: 09-27-2012

F-10-067

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	MONTALTO LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
MsD	MONTALTO 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
WaB	WATCHUNG SILT LOAM, 3 TO 8 PERCENT SLOPES	D



LEGEND:

Symbol	Description
— — 398 — —	EXISTING CONTOUR
—(406)—	PROPOSED CONTOUR
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN INLET
	EXISTING TREELINE (FIELD LOCATED)
	WETLANDS BUFFER
	STREAM CENTERLINE
	STREAM BUFFER
150-WATT POST TOP / 100-WATT POST TOP	PROP. STREET LIGHT
	PROP. STREET SIGNS
—x—x—	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
M1B2 / M1D3	SOILS BOUNDARY
	MODERATE SLOPES (15% - 24.99%)
	STEEP SLOPE (>25%)
	PUBLIC 100 YR FLOODPLAIN DRAINAGE & UTILITY EASEMENT
	EXISTING FOREST CONSERVATION EASEMENT
	FOREST CONSERVATION AREA (RETENTION)
	RECREATION OPEN SPACE
	6' PUBLIC SIDEWALK & UTILITY EASEMENT
	DRAINAGE AREA DIVIDE
	20' PUBLIC DRAINAGE & UTILITY EASEMENT
	PROP. ROAD WIDENING 4' PAVING ALONG FRONTAGE OF THE PROPERTY

NOTE: THE REMAINDER OF LOT 108 IS NOT SHOWN SINCE THERE ARE NO IMPROVEMENTS OR DISTURBANCE AND THE FOREST CONSERVATION EASEMENT DETAILS CAN BE FOUND ON SHEETS 10-12.

DRAINAGE AREA TABULATIONS					
NO.	AREA	'C'	% IMP.	SOIL TYPE	ZONE
I-1	0.29 AC.	0.39	47%	B	R-ED
I-2	0.61 AC.	0.37	40%	B, C	R-ED
I-3	0.61 AC.	0.44	50%	C	R-ED
I-4	0.44 AC.	0.37	43%	C	R-ED
I-5	0.72 AC.	0.42	48%	C	R-ED
I-6	1.31 AC.	0.31	38%	C	R-ED
I-7	0.50 AC.	0.53	55%	C	R-ED
I-8	0.52 AC.	0.31	35%	C	R-ED

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 3-16-2011
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 3/23/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 3/24/11
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

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NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE III
STORMDRAIN DRAINAGE AREA MAP

LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'
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STATE OF MARYLAND — ROBERT HARRIS VOGEL — No. 16193 — PROFESSIONAL ENGINEER
ROBERT H. VOGEL, PE No.16193

DESIGN BY: JCO
DRAWN BY: KG
CHECKED BY: RHV
DATE: FEBRUARY 2011
SCALE: AS SHOWN
W.O. NO.: 04-145

PROFESSIONAL CERTIFICATE

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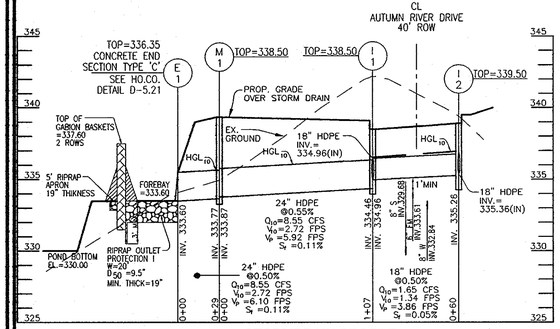
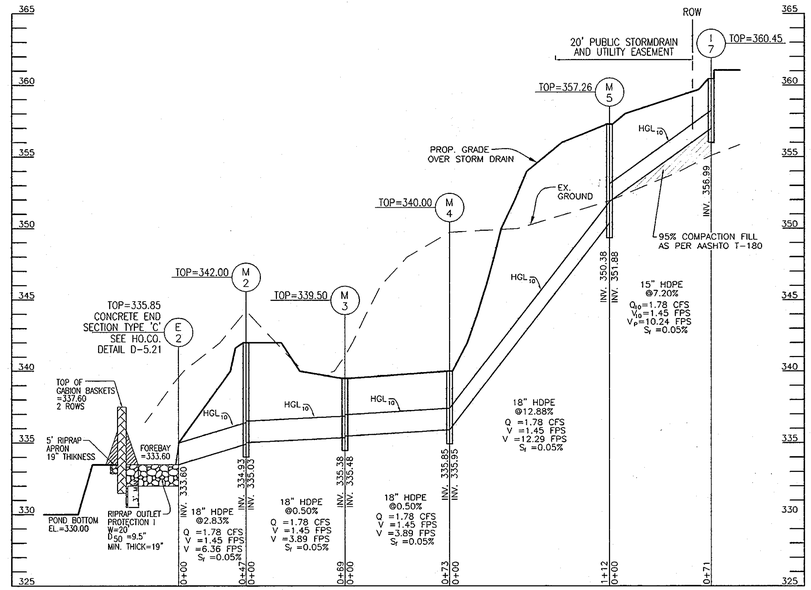
F-10-067



STORMDRAIN PROFILE

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



STORMDRAIN PROFILE

SCALE : HORIZONTAL – 1"=50'
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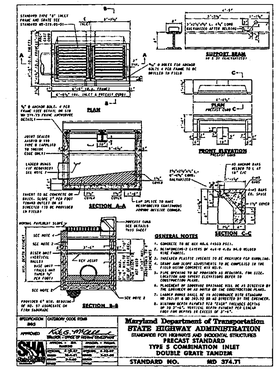
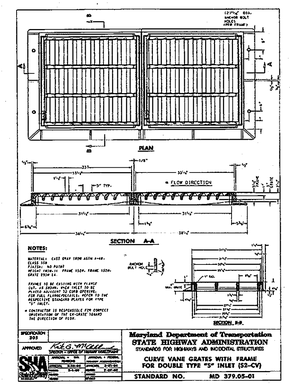




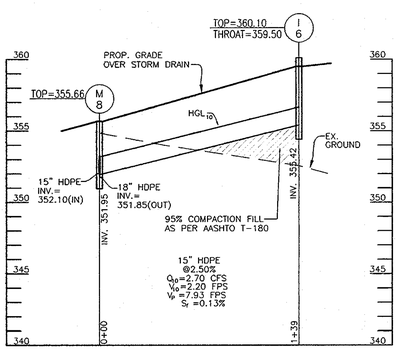
STRUCTURE SCHEDULE

NO.	TYPE	LOCATION	TOP ELEV.*	THROAT	INV. IN	INV. OUT	REMARKS
I-1	TYPE 'DOUBLE S' INLET	AUTUMN RIVER DRIVE 8+05.56,30.12'LT.	338.50		334.96	334.46	MD 374.71 MD 379.05.01
I-2	TYPE 'DOUBLE S' INLET	AUTUMN RIVER DRIVE 8+28.41,27.37'RT.	339.50		335.36	335.26	MD 374.71 MD 379.05.01
I-3	TYPE 'A-10' INLET	AUTUMN RIVER DRIVE 6+62.43,12'LT.	349.64		345.14	345.04	D-4.03
I-4	TYPE 'A-10' INLET	AUTUMN RIVER DRIVE 6+62.43,12'RT.	349.64		345.53	345.43	D-4.03
I-5	TYPE 'A-10' INLET	AUTUMN RIVER DRIVE 5+01.65,12'RT.	362.14		–	358.21	D-4.03
I-6	TYPE 'D' INLET	N. 579166.48 E. 1372804.58	360.10	359.50	–	355.42	D-4.10
I-7	TYPE 'A-10' INLET	TALL WILLOWS ROAD 2+56.09,24.63'RT.	360.45		–	356.99	MD 374.71
I-8	TYPE 'D' INLET	N. 579510.07 E. 1372825.81	342.86	342.36	–	339.36	D-4.10
M-1	STANDARD 4' PRECAST MANHOLE	N. 579459.62 E. 1372518.52	338.50		333.87	333.77	G-5.12
M-2	STANDARD 4' PRECAST MANHOLE	N. 579356.99 E. 1372491.32	342.00		335.03	334.93	G-5.12
M-3	STANDARD 4' PRECAST MANHOLE	N. 579309.69 E.1372440.55	339.50		335.48	335.38	G-5.12
M-4	STANDARD 4' PRECAST MANHOLE	N. 579260.03 E. 1372387.55	340.00		335.95	335.85	G-5.12
M-5	STANDARD 4' PRECAST MANHOLE	N. 579205.68 E. 1372290.07	357.26		351.88	350.38	G-5.12
M-6	STANDARD 4' PRECAST MANHOLE	N. 579419.02 E. 1372305.45	317.00		311.20	310.08	G-5.12
M-7	STANDARD 4' PRECAST MANHOLE	N. 579408.47 E. 1372216.17	330.00		324.00	320.00	G-5.12
M-8	STANDARD 4' PRECAST MANHOLE	N. 579258.99 E. 1372695.32	355.66		351.95 352.10	351.85	G-5.12
M-9	STANDARD 4' PRECAST MANHOLE	N. 579464.55 E. 1372741.52	341.75		338.40	338.15	G-5.12
E-1	24" HDPE END SECTION TYPE 'C'	N. 579435.76 E. 1372501.49	336.35		333.60	–	–
E-2	18" HDPE END SECTION TYPE 'C'	N. 579403.73 E. 1372489.23	335.85		333.60	–	–
E-3	12" TYPE 'C' ENDWALL	N. 579360.23 E. 1372371.05	334.75		–	333.00	D-5.21
CS-1	CONCRETE CONTROL STRUCTURE	N. 579363.42 E. 1372367.07					SEE DETAIL SHEET 10
HW-1	30" TYPE 'A' HEADWALL	N. 579409.82 E. 1372208.62	314.00		–	310.00	D-5.12

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

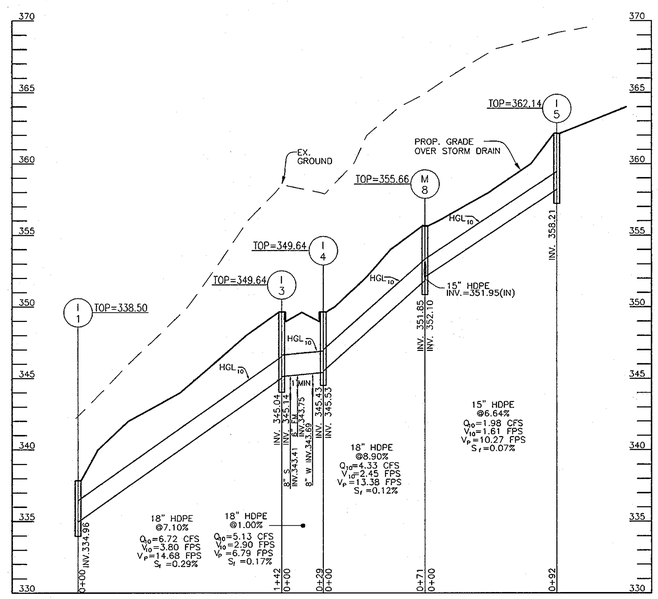
PIPE SCHEDULE

PIPE SIZE	TYPE	TOTAL LENGTH
15"	HDPE	504 LF
18"	HDPE	821 LF
24"	RCP	201 LF



STORMDRAIN PROFILE

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



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SCALE : HORIZONTAL – 1"=50'
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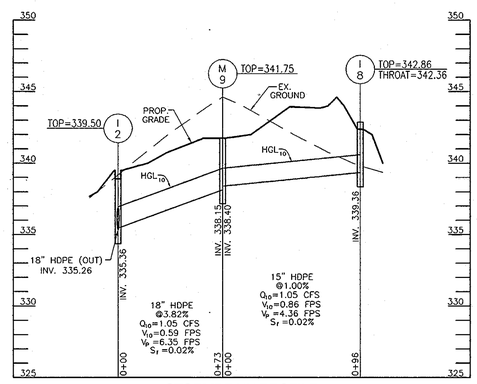


STORMDRAIN PROFILE

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

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE III
STORMDRAIN PROFILES

LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'
HOWARD COUNTY, MARYLAND
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, P-07-016, P-08-006, WP-09-063, F-09-021,
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: JCO
DRAWN BY: KG
CHECKED BY: RHV
DATE: FEBRUARY 2011
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: 09-27-2012

SHEET 8 OF 13

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-16-2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

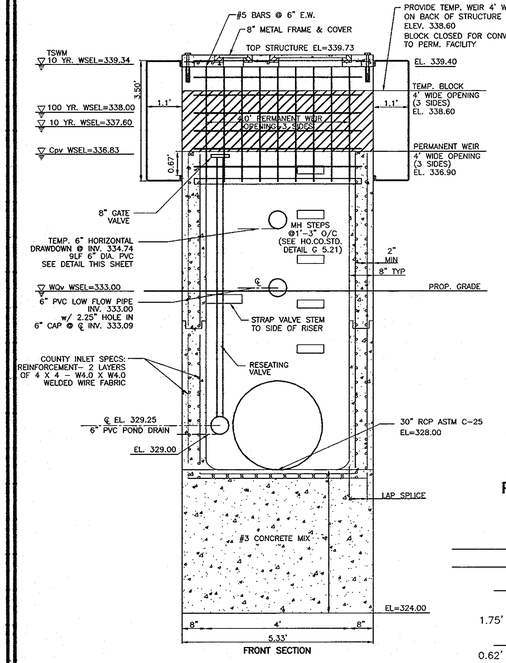
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/28/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/28/11

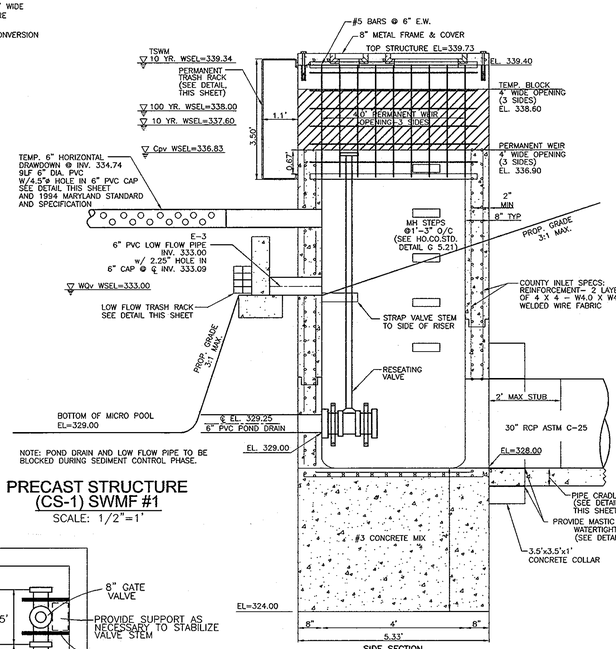
OWNERS
AUTUMN RIVER CORPORATION
4100 COLLEGE AVE.
ELLICOTT CITY MD 21042-7819
21043 – 5506
(410) 465-3500

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

F-10-067



FRONT SECTION

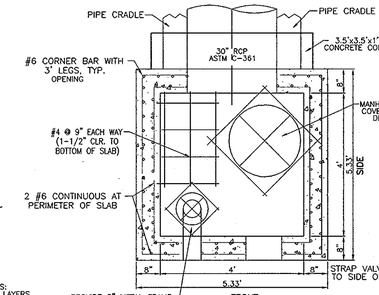


NOTE: POND DRAIN AND LOW FLOW PIPE TO BE BLOCKED DURING SEDIMENT CONTROL PHASE.

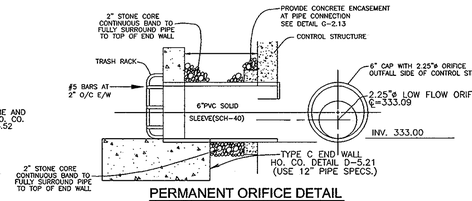
PRECAST STRUCTURE (CS-1) SWMF #1

SCALE: 1/2"=1'

SIDE SECTION

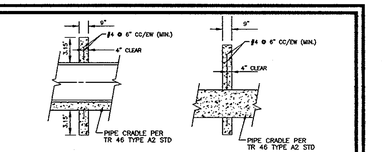


FRONT
4" TOP SLAB



PERMANENT ORIFICE DETAIL

NOT TO SCALE

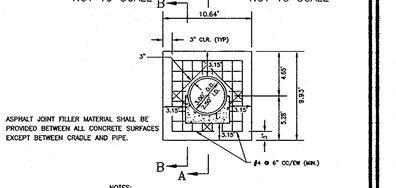


SECTION A-A

NOT TO SCALE

SECTION B-B

NOT TO SCALE

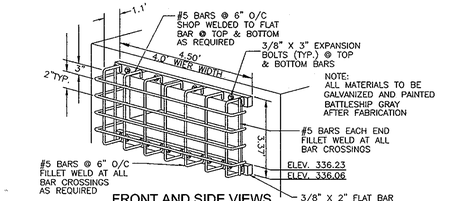


ASPHALT JOINT FILLER MATERIAL SHALL BE PROVIDED BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN CRADLE AND PIPE.

NOTES:
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.

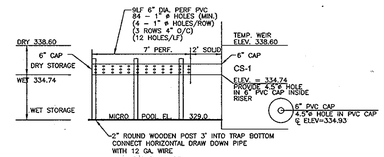
(2)CONCRETE ANTI-SEEP COLLAR DETAIL

NOT TO SCALE



FRONT AND SIDE VIEWS TRASH RACK DETAIL

NOT TO SCALE

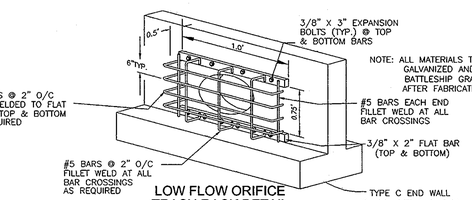


TEMP. SEDIMENT BASIN HORIZONTAL DRAW-DOWN DEVICE

NOT TO SCALE
REF.: 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PAGE C-10-29

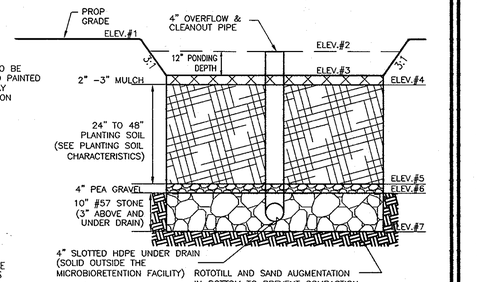
CONSTRUCTION SPECIFICATIONS

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.



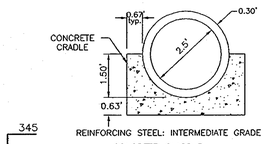
LOW FLOW ORIFICE TRASH RACK DETAIL

NOT TO SCALE



DETAIL – MICROBIORETENTION/RAIN GARDEN

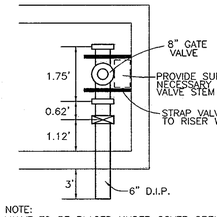
NOT TO SCALE



REINFORCING STEEL: INTERMEDIATE GRADE
CONCRETE: CLASS B
fc'=3,500 P.S.I.
fcs=1,600 P.S.I.
(REF. TR-46)

PIPE CRADLE DETAIL

NOT TO SCALE



NOTE:
VALVE TO BE PLACED UNDER COVER OPENING.

POND DRAIN DETAIL

NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT EXTENDED DETENTION FACILITY

STORMWATER MANAGEMENT FACILITY
ROUTINE MAINTENANCE

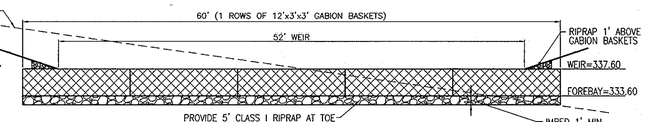
1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IT IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND 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.
5. MAINTAINANCE OF THE DECORATIVE FENCING IS TO BE BY THE HOMEOWNERS ASSOCIATION.

NON-ROUTINE MAINTENANCE

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, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

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, SCS "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, SURVEILANCE, 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.



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, AND TO PERM. POOL ELEVATION.

GABION BASKET WEIR DETAIL

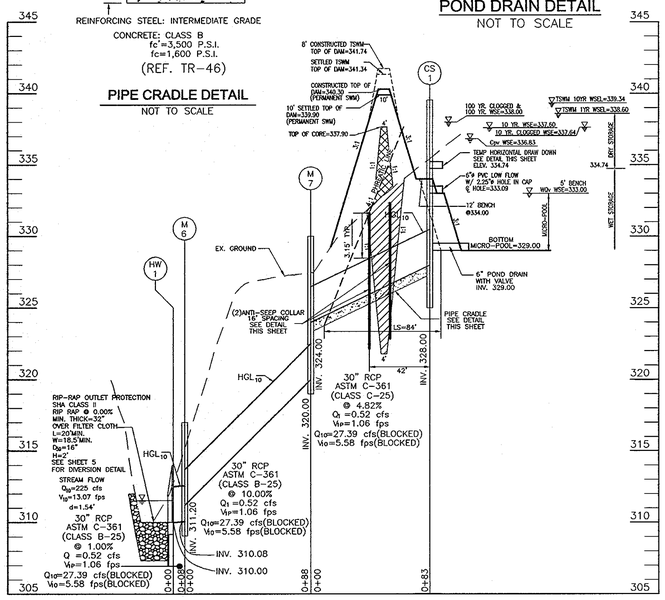
SCALE: 1"=8'

RAIN GARDEN ELEVATIONS

LOT #	RAIN GARDEN	1	2	3	4	5	6	7	4" INV.
LOT 104	RG 1	367.50	367.00	368.00	365.75	363.75	363.42	362.59	362.84
	RG 2	360.30	358.00	357.00	356.75	354.75	354.42	353.58	353.84
LOT 105	RG 3	369.70	369.00	368.00	367.75	365.75	365.42	364.59	364.84
	RG 4	362.50	361.00	360.00	359.75	357.75	357.42	356.59	356.84
LOT 106	RG 5	369.00	368.50	367.50	367.25	365.25	364.92	364.16	364.34
	RG 6	363.40	362.50	361.50	361.25	359.25	358.92	358.09	358.34
LOT 107	RG 7	368.00	367.50	366.50	366.25	364.25	363.92	363.09	363.34
	RG 8	364.30	363.50	362.50	362.25	360.25	359.92	359.09	359.34
LOT 88	RG 9	331.00	329.00	328.00	327.75	325.42	325.42	324.59	324.84
	RG 10	332.00	329.00	328.00	327.75	325.42	325.42	324.59	324.84
LOT 89	RG 11	327.00	326.00	325.00	324.75	322.75	322.42	321.59	321.84
	RG 12	330.00	327.00	326.00	325.75	323.75	323.42	322.59	322.84

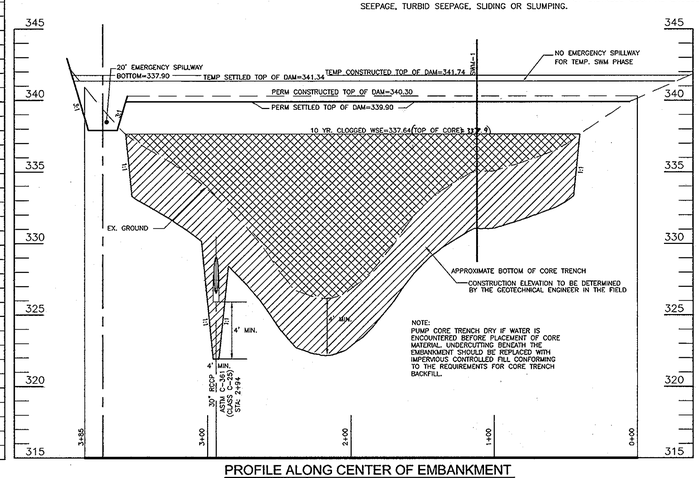
RAIN GARDEN PLANT LIST

QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
1	PLATANUS X ACERIFOLIA(PA)	LONDON PLANE TREE	2 1/2"-3" Cal.
1	ILEX GLABRA(IG)	INK BERRY	2 '-3' HT.
6	LOBELEA CARDINALIS(LC)	CARDINAL FLOWER LODELIA	1 GAL. CONTAINER
4	DRYOPTERIS SP.(DS)	WOOD FERN	1 GAL. CONTAINER
3	ASTER NOVAE-ANGLIAE(AN)	NEW ENGLAND ASTER	1 GAL. CONTAINER



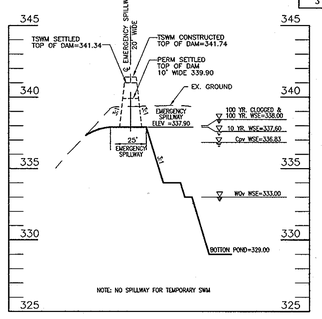
SECTION THROUGH PRINCIPAL SPILLWAY

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



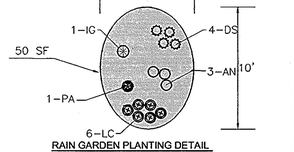
PROFILE ALONG CENTER OF EMBANKMENT

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



PROFILE EMERGENCY SPILLWAY

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



RAIN GARDEN PLANTING DETAIL
N.T.S.

OPERATION AND MAINTENANCE SCHEDULE FOR RAIN GARDEN AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

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
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ATTN: MR. DONALD R. REUWER
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NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE III
STORMWATER MANAGEMENT DETAILS

LOTS 72-86, 88-93, 95-102, 104-107
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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, P-07-016, P-08-006, WP-09-063, F-09-021.
TAX MAP #25 GRID 14 & 21 — PARCELS 172 & 279
2ND ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

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ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
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FAX: 410.461.9961

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

DESIGN BY: JCO
DRAWN BY: KG
CHECKED BY: RHV
DATE: FEBRUARY 2011
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: 09-27-2012

SHEET 9 OF 13

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-16-2011
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/23/11
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/24/11

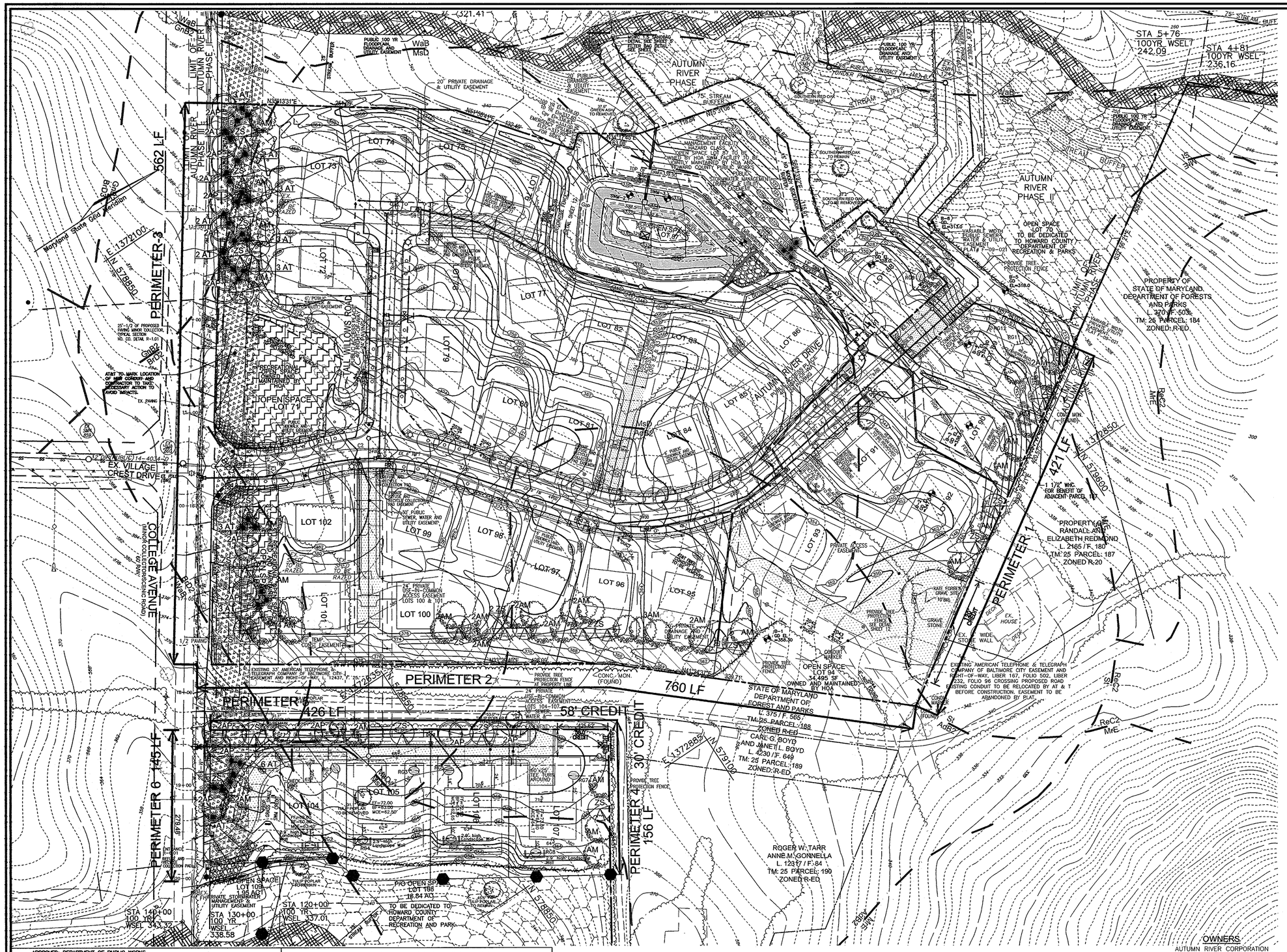
BY THE DEVELOPER:
"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL 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 2/4/11

BY THE ENGINEER:
"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 2/7/11

THIS DEVELOPMENT PLAN IS APPROVED FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SCD — DATE 3/9/11

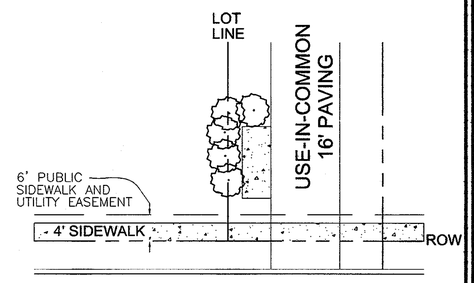
"AS-BUILT" CERTIFICATION
"I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS."
ROBERT H. VOGEL, P.E. #16193 — DATE
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER. NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

F-10-067



LEGEND

- 24' PRIVATE USE-IN COMMON ACCESS EASEMENT
- 20' PUBLIC DRAINAGE & UTILITY EASEMENT
- EX. FOREST CONSERVATION
- AQUATIC BENCH
- PROP. ROAD WIDENING 4' PAVING ALONG FRONTAGE OF THE PROPERTY
- PROPOSED TREE
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER
- 6' PUBLIC SIDEWALK & UTILITY EASEMENT
- FOREST CONSERVATION (RETENTION)
- PUBLIC 100 YR FLOODPLAIN EASEMENT
- 40' WIDE BG & E WIREZONE
- FOREST CONSERVATION EASEMENT SIGN
- TREE PROTECTION FENCE
- SPECIMEN TREE TREE PROTECTION FENCE HO.CO. DETAIL L-9.02
- RECREATION OPEN SPACE
- LANDSCAPE PERIMETER



ROAD

TYPICAL REFUSE AND RECYCLE COLLECTION PAD PLANTING DETAIL

SCALE: NOT TO SCALE

NOTE:
FOR STORMWWATER MANAGEMENT PERIMETER AND PLANTINGS SEE SHEET 12.

NO.	REVISION	DATE

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

LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'
HOWARD COUNTY, MARYLAND
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, P-07-016, P-08-006, WP-09-063, F-09-021.
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:	JCO
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	FEBRUARY 2011
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: 09-27-2012

SHEET 10 OF 13

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS	DATE 3-16-2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/23/11
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 3/24/11

DEVELOPER'S/BUILDER'S CERTIFICATE

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

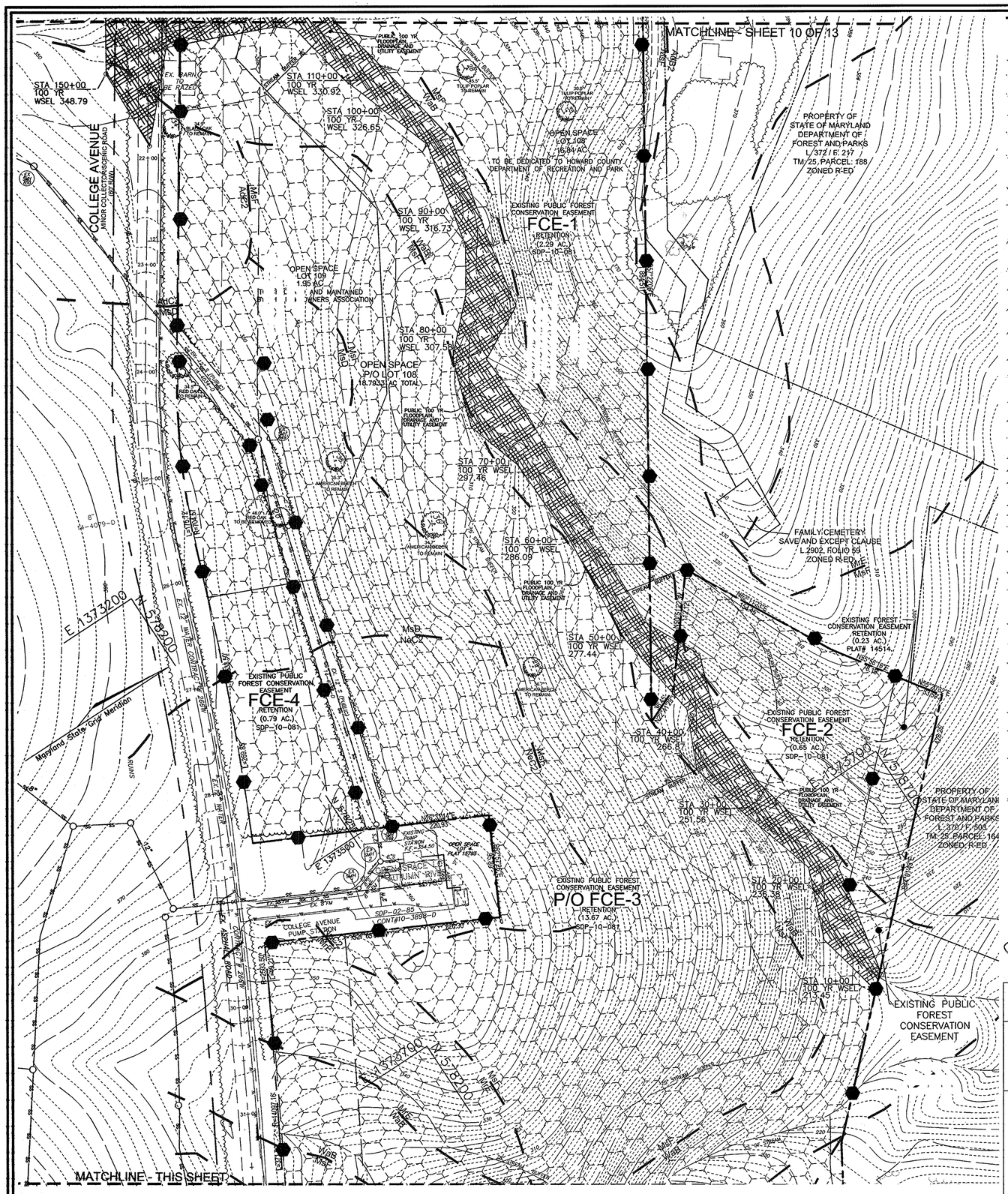
SIGNATURE OF DEVELOPER — DATE 2/4/11

J. CHRIS OGLE
DNR QUALIFIED PROFESSIONAL

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

F-10-067



LEGEND:

- LANDSCAPE PERIMETER
- EX. FOREST CONSERVATION
- FOREST CONSERVATION (RETENTION)
- PUBLIC 100 YR. FLOOD PLAIN EASEMENT
- FOREST CONSERVATION EASEMENT SIGN SEE DETAIL THIS SHEET
- TREE PROTECTION FENCE
- SPECIMEN TREE TREE PROTECTION FENCE HO.CO. DETAIL L-9.02
- VARIABLE WIDTH SEWER & UTILITY EASEMENT
- PROP. ROAD WIDENING 4' PAVING ALONG FRONTAGE OF THE PROPERTY
- WETLANDS BUFFER
- STREAM CENTERLINE
- STREAM BUFFER

J. CHRIS OGLE
DNR QUALIFIED PROFESSIONAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-16-2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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S-98-16, P-99-16, F-00-131, F-01-08, P.B.325, P.B.148, PLAT#15794 & 15795,
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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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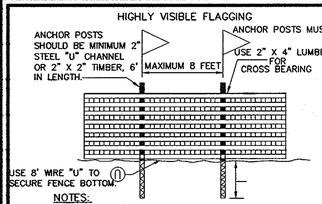
EXPIRATION DATE: 09-27-2012

SHEET 11 OF 13

F-10-067



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

1. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
2. 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.
3. 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.
4. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
5. NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN THE LANDSCAPE EDGE FOR WHICH CREDIT IS BEING TAKEN; HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED.
6. CONTRACTOR SHALL CERTIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
7. 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.

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(a)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF $21,300.00 TO BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THE REQUIRED 71 PUBLIC STREET TREES.

FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING PROVIDED PER THE MANUAL TO BE POSTED WITH THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $32,210.00 FOR THE REQUIRED 29 SHADE TREES, 115 EVERGREEN TREES/ORNAMENTAL TREES, 68 SHRUBS AND 422 LF OF DECORATIVE FENCING.

EX. FOREST CONSERVATION EASEMENT TABLE TOTAL RETENTION: 17.62 AC.
FOREST CONSERVATION EASEMENT 1 RETENTION AREA : 2.29 AC.
FOREST CONSERVATION EASEMENT 2 RETENTION AREA : 0.65 AC.
FOREST CONSERVATION EASEMENT 3 RETENTION AREA : 13.67 AC.
FOREST CONSERVATION EASEMENT 4 RETENTION AREA : 0.79 AC.
FOREST CONSERVATION EASEMENT 5 RETENTION AREA : 0.02 AC.
TOTAL PROP. RETENTION AREA: 17.42AC.
EXISTING FOREST CONSERVATION EASEMENT RETENTION AREA : 0.23 PLAT # 14514
TOTAL RETENTION AREA: 17.65 AC.

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED R-ED

NET TRACT AREA:

A. TOTAL TRACT AREA	31.01 AC
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.76 AC
C. NET TRACT AREA	30.25 AC

LAND USE CATEGORY

INPUT THE NUMBER "1" UNDER THE APPROPRIATE 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 = 4.54 AC
F. CONSERVATION THRESHOLD	20% X D = 6.05 AC

EXISTING FOREST COVER:

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	22.91 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	16.86 AC.

BREAK EVEN POINT:

J. BREAK EVEN POINT	9.42 AC
K. CLEARING PERMITTED WITHOUT MITIGATION	13.49 AC

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED	5.49AC
M. TOTAL AREA OF FOREST TO BE RETAINED	*17.65 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

* INCLUDES 0.23 AC OF EXISTING FOREST CONSERVATION EASEMENT- PLAT# 14514. THE RETENTION OF 17.65 AC. OF CREDITED EASEMENT EXCEEDS THE BREAK EVEN POINT OF RETENTION OF 9.42 AC. FOR THIS SITE.
AUTUMN RIVER PHASE I: EXISTING FOREST EASEMENT COMBINED WITH FUTURE PHASE.
AUTUMN RIVER PHASE II: 13.81 AC. RETENTION IN CREDITED EASEMENT
AUTUMN RIVER PHASE III: 17.65 AC. RETENTION IN FORESTBANK EASEMENT " COLLEGE AVENUE PUMP STATION AUTUMN RIVER BULK PARCEL 'B' " SDP-10-081.

MICROPOOL POND HAZARD CLASS 'A' HERBACEOUS LANDSCAPE SCHEDULE

KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
IP	43	IRIS PSEUDACORIS YELLOW WATER IRIS	PLUG	1.5' OC
NL	200	NUPHAR LUTEUM SPATTERDOCK	PLUG	1.5' OC
SL	650	SAGITTARIA LATIFOLIA DUCK POTATO (DO NOT PLANT TUBERS)	PLUG	4' OC
VA	300	VALLISNERIA AMERICANA WILD CELERY	PLUG	2' OC
CE	200	CYPERUS ESCULENTUS YELLOW NUT SEDGE	PLUG	2' OC

*SURETY FOR INTERNAL PLANTING PROVIDED IN THE DED COST ESTIMATE

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.
ALL PLANT MATERIALS TO CONFORM TO THE MOST CURRENT ANN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH LCANW SPECIFICATIONS.

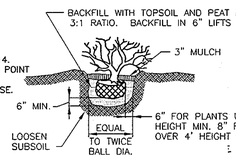
SCHEDULE D: STORMWATER MANAGEMENT AREA LANDSCAPING-TYPE 'B' BUFFER

CATEGORY	SWMF 1
LINEAR FEET OF PERIMETER	817'
CREDIT FOR EXISTING VEGETATION (YES, NO, AND LINEAR FEET)	YES 250'
CREDIT FOR FENCE (YES, NO, AND %)	YES* 422'
NUMBER OF TREES REQUIRED SHADE TREES 1:50 EVERGREEN TREES 1:40	145' 5 4
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	10** 4 43

*FENCE DETAIL – THIS SHEET
** 2:1 USED FOR SMALL TREES

TRASH PAD LANDSCAPING

KEY	QTY.	DESCRIPTION	SIZE	REMARK
DJ	25	DWARF JAPANESE YEW	3'-4' HT	B & B



SHRUB PLANTING DETAIL
NOT TO SCALE

PERIMETER PLANT LIST

KEY	QTY	BOTANICAL NAME/ COMMON NAME	SIZE	REMARKS
AP	26	ACER PALMATUM ATROPURPUREUM JAPANESE RED MAPLE (SHADE TREES-GROWTH HEIGHT=20') FOR BGE WIREZONE	4'-6' Ht.	B & B
AT	35	ARBORVITAE TECHNY THUJA OCCIDENTALIS, 'TECHNY' (EVERGREEN TREE) MATURE HEIGHT -20') FOR BGE WIREZONE	6'-8' Ht.	B & B
AM	40	AMUR MAPLE (ACER GINNALA)	4'-6' Ht.	B & B
ZS	22	ZELKOVA SERRATA 'VILLAGE GREEN' GREEN JAPANESE ZELKOVA	2 1/2"-3" Col.	B & B

SWM PERIMETER PLANT LIST

KEY	QTY	BOTANICAL NAME/ COMMON NAME	SIZE	REMARK
AT	4	ARBORVITAE TECHNY THUJA OCCIDENTALIS, 'TECHNY' (EVERGREEN TREE) MATURE HEIGHT -20')	6'-8' Ht.	B & B
AM	10	AMUR MAPLE (ACER GINNALA)	4'-6' Ht.	B & B
ZS	7	ZELKOVA SERRATA 'VILLAGE GREEN' GREEN JAPANESE ZELKOVA (ADDITIONAL)	2 1/2"-3" Col.	B & B
EK	43	EUONYMUS KIAUTSCHOVICUS 'MANHATTAN' MANHATTAN EUONYMUS	2 1/2"-3" Col.	B & B

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
AUTUMN RIVER DRIVE	1656/40	41	41
TALL WILLOWS ROAD	512/40	13	13
COLLEGE AVE-RD IMPROV.	407/30	14	17*

* SINCE THE AT&T EASEMENT BORDERS THE RIGHT-OR-WAY OF COLLEGE AVENUE THE REQUIRED STREET TREES HAVE BEEN RELOCATED WITHIN OPEN SPACE LOT 71.

PUBLIC ACCESS PLACE STREET TREE SCHEDULE

KEY	QTY	BOTANICAL NAME	SIZE	REM.
	54	ACER RUBRUM 'AUTUMN FLAME' AUTUMN FLAME RED MAPLE	2 1/2"-3" CAL.	B & B
	17	AMUR MAPLE (SHADE TREES-GROWTH HEIGHT=20') ACER GINNALA COLLEGE AVENUE	2 1/2"-3" CAL.	B & B

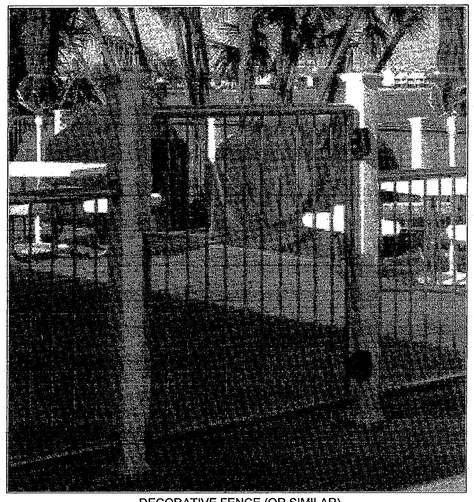
SCHEDULE A: PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES 1 A	2 A	3 C	4 A	5 A	6 C	TOTAL
PERIMETER/FRONTAGE DESIGNATION LANDSCAPE TYPE							
LINEAR FEET OF ROADWAY, PERIMETER/FRONTAGE	421'	760'	562'	156'	426'	145'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	YES* 120'	NO	NO	YES* 30'	YES* 58'	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED (LF REMAINING) SHADE TREES EVERGREEN TREES SHRUBS	301' 1:60 5 – –	760' 1:60 13 – –	562' 1:40 14 1:20 28	126' 1:60 2 – –	368' 1:60 6 – –	145' 1:40 4 1:20 7	44 35
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	10** – –	26** – –	28** 28	4** – –	12** – –	8** 7	88 35

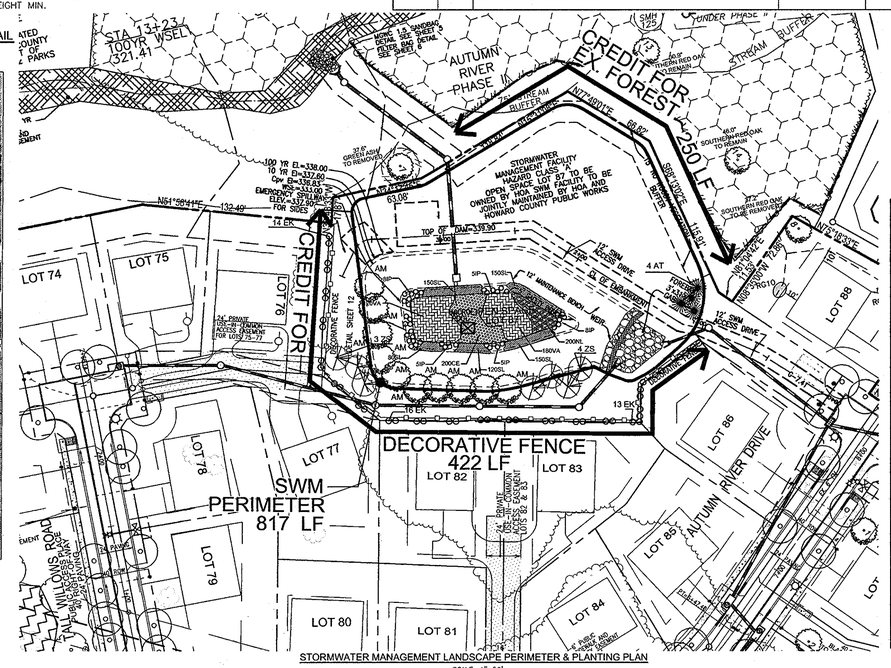
*EXISTING WOODS TO REMAIN ** 2:1 USED FOR SMALL TREES

NOTES

1. HOWARD COUNTY RESERVES THE RIGHT TO REQUIRED STORMWATER MANAGEMENT LANDSCAPING IN LIEU OF THE FENCE AT THE RATE OF 1 TREE PER 60 LINEAR FEET OR ONE SHRUB OR VINE PER 10 LINEAR FEET AS STATED ON PAGE 24 OF THE LANDSCAPE MANUAL.
2. NO LANDSCAPING TO BE INSTALLED WITHIN ANY PUBLIC EASEMENT FOR WATER, SEWER OR STORM DRAIN.
3. LANDSCAPING FOR LOTS 69 AND 70 ARE PROVIDED WITH PHASE II.



DECORATIVE FENCE (OR SIMILAR) FOR STORMWATER MANAGEMENT POND
NTS
*PLANTINGS OR EITHER SHRUBS MAY BE PROVIDED

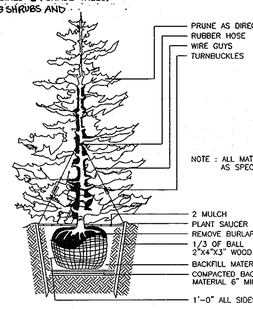


STORMWATER MANAGEMENT LANDSCAPE PERIMETER & PLANTING PLAN
SCALE: 1"=50'

EXISTING SHADE TREES

(32. 31.1")

ID#	SCIENTIFIC NAME	COMMON NAME	DBH	VIGOR	T. B. R./ REMAIN
1	FAGUS GRANDIFOLIA	AMERICAN BEECH	46.0	GOOD	TO BE REMOVED
2	QUERCUS NIGRA	BLACK OAK	40.0	EXCELLENT	TO BE REMOVED
7	FRAXINUS PENNSYLVANICA	GREEN ASH	37.6	GOOD	TO BE REMOVED
8	QUERCUS FALCATA	SOUTHERN RED OAK	37.2	FAIR	TO BE REMOVED
9	QUERCUS FALCATA	SOUTHERN RED OAK	51.3	FAIR	TO BE REMOVED
13	QUERCUS FALCATA	SOUTHERN RED OAK	30.9	GOOD	TO REMAIN
14	QUERCUS FALCATA	SOUTHERN RED OAK	32.4	GOOD	TO REMAIN
24	LIRIODENDRON TULIPIFERA	TULIP POPLAR	53.0	EXCELLENT	TO REMAIN
25	LIRIODENDRON TULIPIFERA	TULIP POPLAR	51.0	EXCELLENT	TO REMAIN
26	QUERCUS FALCATA	SOUTHERN RED OAK	46.0	EXCELLENT	TO BE REMOVED
27	LIRIODENDRON TULIPIFERA	TULIP POPLAR	36.2	EXCELLENT	TO REMAIN
28	LIRIODENDRON TULIPIFERA	TULIP POPLAR	45.5	POOR	TO REMAIN
29	FAGUS GRANDIFOLIA	AMERICAN BEECH	36.7	GOOD	TO REMAIN
30	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31.1	GOOD	TO REMAIN
31	LIRIODENDRON TULIPIFERA	TULIP POPLAR	34.9	GOOD	TO REMAIN
32	LIRIODENDRON TULIPIFERA	TULIP POPLAR	31.3	POOR	TO BE REMOVED
33	LIRIODENDRON TULIPIFERA	TULIP POPLAR	30.0	GOOD	TO REMAIN
34	QUERCUS NIGRA	BLACK OAK	33.4	GOOD	TO REMAIN
35	FAGUS GRANDIFOLIA	AMERICAN BEECH	35.3	GOOD	TO REMAIN
36	FAGUS GRANDIFOLIA	AMERICAN BEECH	34.7	POOR	TO REMAIN
37	QUERCUS FALCATA	SOUTHERN RED OAK	34.8	GOOD	TO REMAIN

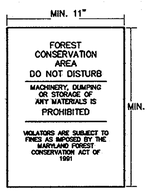


TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

FOREST PROTECTION NOTES

PRE-CONSTRUCTION ACTIVITIES

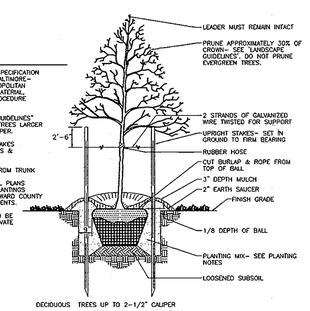
1. FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT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



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. NOT TO EXCEED 100 FEET AT ANY POINT. CONDITIONS ON-SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

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
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-16-2011

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/23/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/24/11

DEVELOPER'S/BUILDER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER — DATE 2/4/11

J. CHRIS OLE
DLDR QUALIFIED PROFESSIONAL

NO.	REVISION	DATE

FINAL ROAD CONSTRUCTION PLAN
AUTUMN RIVER - PHASE III
LANDSCAPE AND FOREST CONSERVATION DETAILS

LOTS 72-86, 88-93, 95-102, 104-107
OPEN SPACE LOTS 71, 87, 94, 103, 108 AND 109
RESUBDIVISION OF COLLEGE AVENUE PUMPING STATION BULK PARCEL 'B'
AND AUTUMN RIVER PHASE II NON-BUILDABLE BULK PARCELS 'D' & 'E'
HOWARD COUNTY, MARYLAND
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, P-07-016, P-08-006, WP-09-063, F-09-021
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

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

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

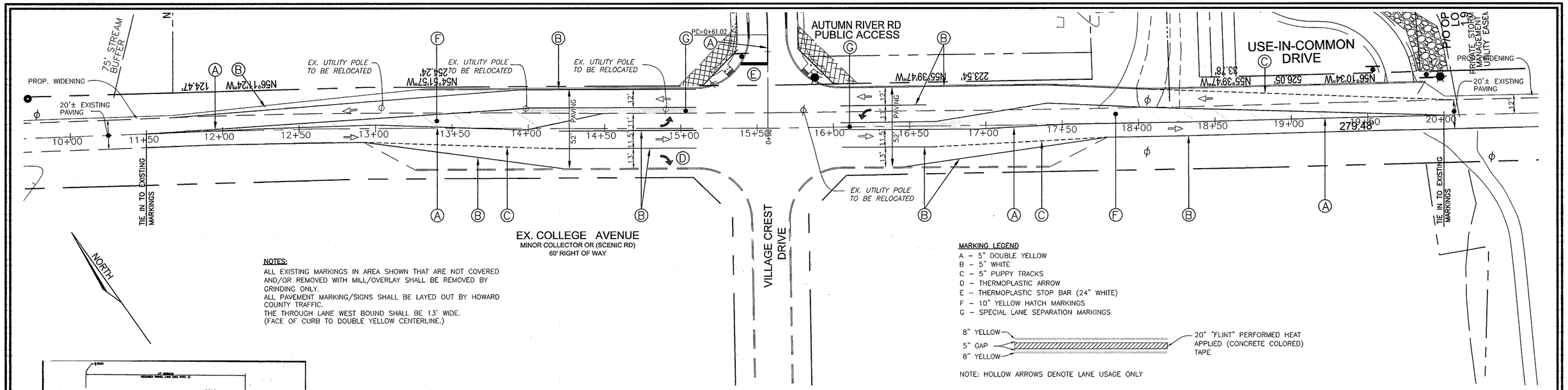
DESIGN BY:	JCO
DRAWN BY:	KG
CHECKED BY:	RHV
DATE:	FEBRUARY 2011
SCALE:	AS SHOWN
W.O. NO.:	04-145

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: 09-27-2012

SHEET 12 OF 13

F-10-067



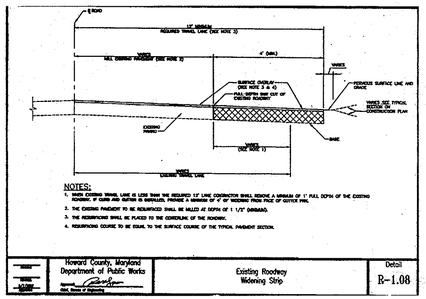
NOTES:

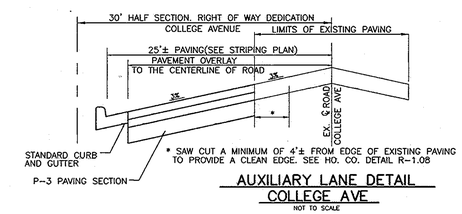
ALL EXISTING MARKINGS IN AREA SHOWN THAT ARE NOT COVERED AND/OR REMOVED WITH MILL/OVERLAY SHALL BE REMOVED BY GRINDING ONLY.
ALL PAVEMENT MARKING/SIGNS SHALL BE LAYED OUT BY HOWARD COUNTY TRAFFIC.
THE THROUGH LANE WEST BOUND SHALL BE 13' WIDE. (FACE OF CURB TO DOUBLE YELLOW CENTERLINE.)

MARKING LEGEND

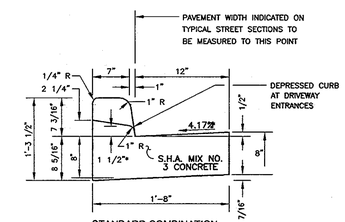
A – 5" DOUBLE YELLOW
B – 5" WHITE
C – 5" PUPPY TRACKS
D – THERMOPLASTIC ARROW
E – THERMOPLASTIC STOP BAR (24" WHITE)
F – 10" YELLOW HATCH MARKINGS
G – SPECIAL LANE SEPARATION MARKINGS

NOTE: HOLLOW ARROWS DENOTE LANE USAGE ONLY

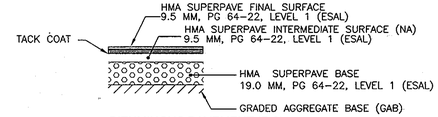




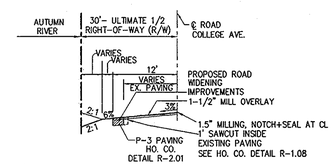
AUXILIARY LANE DETAIL
COLLEGE AVE
NOT TO SCALE



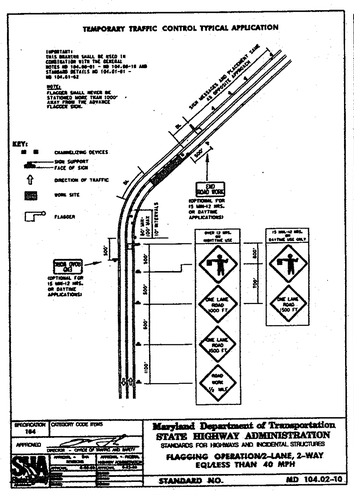
STANDARD COMBINATION CURB AND GUTTER
HOWARD COUNTY STANDARD R-3.01
NOT TO SCALE



BITUMINOUS PAVEMENT (P-3)
R-2.01
FOR WIDENING OF COLLEGE AVENUE



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



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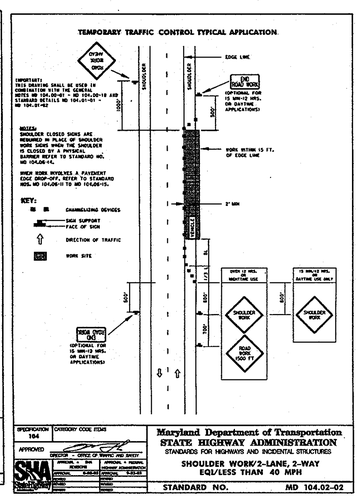

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NO.	REVISION	DATE

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M.O.T.-PAVEMENT MARKING PLAN & IMPROVEMENTS

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TAX MAP #25 GRID 14 & 21 PARCELS 172 & 279
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ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.9961

DESIGN BY: JCO
DRAWN BY: KG
CHECKED BY: RHV
DATE: FEBRUARY 2011
SCALE: 1" = 30'
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: 09-27-2012

STATE OF MARYLAND ROBERT HARRIS VOGEL No. 16193 PROFESSIONAL ENGINEER
3/7/11
ROBERT H. VOGEL, PE No.16193

SHEET 13 OF 13

OWNERS

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DEVELOPER

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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-16-200

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/23/11

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 3/24/11

"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."

ROBERT H. VOGEL, P.E. #16193 DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE SITE INSPECTION AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

F-10-067