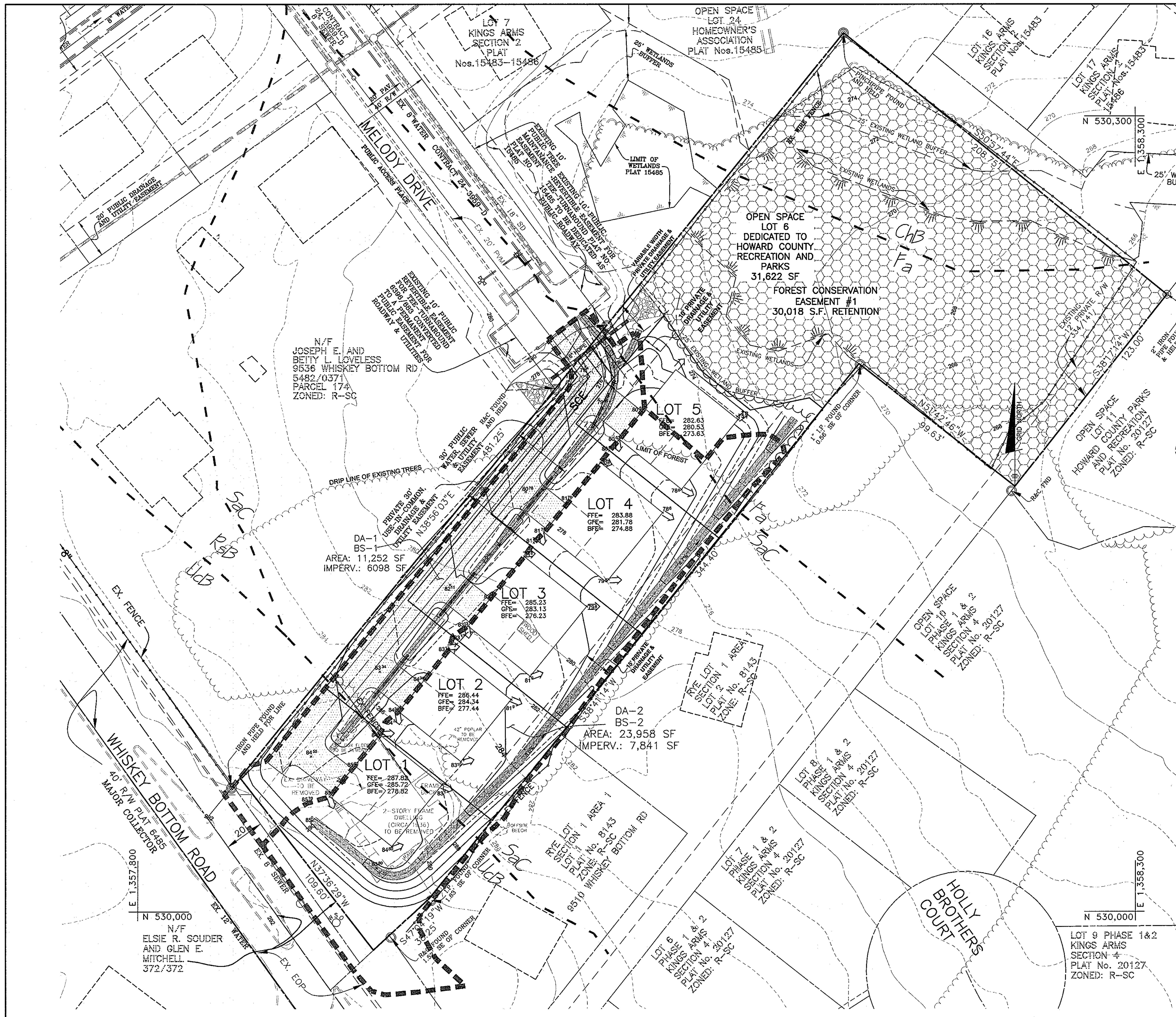


GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
ChB	B	CHILLUM–RUSSETT LOAMS, 2 TO 5 PERCENT SLOPES
* Fa	D	FALLSINGTON SAND LOAM, 0 TO 2 PERCENT SLOPES
SaC	B	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPES, **
RsB	C	RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES
UcB	D	URBAN LAND–CHILLUM–BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES **

* INDICATES HYDRIC SOILS
** MODERATELY ERODIBLE
TAKEN FROM HOWARD COUNTY SOILS SURVEY, ISSUED MAY 2008, MAP NO. 28

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/09/11

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/13/11

SITE ANALYSIS DATA/TABULATION

A) TOTAL PROJECT AREA.............................. 1.54± AC.
B) AREA OF WETLANDS AND BUFFER.............................. 0.63± AC.
C) AREA OF 100–YR. FLOODPLAIN.............................. 0.00 AC.
D) AREA OF FOREST.............................. 0.72± AC.
E) AREA OF STEEP SLOPES 25% OF GREATER.............................. 0.00 AC.
F) AREA OF DEDICATION.............................. 0.00 AC.
G) MODERATELY ERODIBLE SOILS .... 0.56± AC.
H) NUMBER OF UNITS ALLOWED 6
I) NUMBER OF RESIDENTIAL UNITS PROPOSED.............................. 5
J) AREA OF PLAN SUBMISSION.............................. 1.54± AC.
K) LIMIT OF DISTURBED AREA.............................. 0.86± AC.
L) OPEN SPACE REQUIRED.............................. 0.39± AC.
M) OPEN SPACE PROVIDED.............................. 0.73± AC.
N) PRESENT ZONING DESIGNATION.............................. R–SC
O) PROPOSED USES FOR THE SITE: SINGLE FAMILY DETACHED DWELLINGS
P) IMPERVIOUS COVER.............................. 0.34± AC.

LEGEND

- EXISTING CONTOURS
- SOIL DELINEATION
- EXISTING TREE DRIP LINE
- EXISTING FOREST LINE
- PROPOSED WOODS LINE
- EXISTING FENCE
- SPECIMEN TREE
- WETLANDS
- 25' WETLAND BUFFER
- FOREST CONSERVATION AREA
- FACILITY DRAINAGE AREA
- PROPOSED PAVEMENT
- EROSION CONTROL MATTING
- PROPOSED HOUSES
- EXISTING HOUSES

DESIGN NARRATIVE:

THE SITE WAS ANALYZED AS WOODS IN GOOD CONDITION AND A TARGET RCN WAS DETERMINED. A TARGET RAINFALL DEPTH TREATMENT (Pe) WAS DETERMINED BASED ON THE MEASURED IMPERVIOUS AREAS AND HSG TYPES. THE TARGET Pe FOR THIS SITE IS 1.7 INCHES. THE TARGET Pe WAS TREATED USING ENVIRONMENTAL SITE DESIGN PRACTICES AS OUTLINED IN CHAPTER 5 OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL, AS AMENDED BY MARYLAND'S STORMWATER MANAGEMENT ACT OF 2007. THE SELECTED METHODS ARE GRASS/BIO–SWALES FOR BOTH FRONTS AND BACKS OF LOTS.

THIS SITE HAS A SIGNIFICANT AMOUNT OF WETLANDS. TO PROTECT THESE NATURAL RESOURCES, IT IS IMPORTANT TO MAINTAIN THE FLOW OF STORMWATER TO THESE AREAS, AND TO ADEQUATELY TREAT THE STORMWATER TO AVOID DAMAGE TO SENSITIVE SPECIES. THE DESIGN INCORPORATES MODERATELY SIZED HOUSES WITH MINIMUM WIDTH DRIVEWAYS IN ORDER TO CREATE THE LEAST POSSIBLE STORMWATER RUNOFF.

DRIVEWAYS WILL BE TREATED IN A PARALLEL BIO–SWALE ALONG THE FRONTS OF THE HOUSES. ROOFTOP RUNOFF WILL BE CONVEYED BY OVERLAND FLOW TO THE REAR BIO–SWALE. THE BIO–SWALES WILL UTILIZE MINIMAL DEPTH PLANTING SOIL, AND WILL BE GRASS LINED FOR STABILITY. VEGETATION WILL INCLUDE MEDIUM SHADE TREES. OUTFALLS GENERALLY CORRESPOND WITH THE NATURAL DRAINAGE PATTERNS FOR THE SITE.

SEDIMENT AND EROSION CONTROLS HAVE BEEN DESIGNED BASED ON THE 1994 MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. EROSION CONTROL MATTING AND SUPER SILT FENCE WILL BE USED TO PREVENT RUNOFF CONTAINING UNACCEPTABLE LEVELS OF TSS FROM LEAVING THE SITE AND ENTERING THE ADJACENT WETLANDS DURING THE CONSTRUCTION. IT WILL BE THE OBLIGATION OF THE CONTRACTOR TO INSTALL, INSPECT AND MAINTAIN THESE PRACTICES.

THE TARGET Pe FOR THIS SITE IS 1.7 INCHES. BY USING ENVIRONMENTAL SITE DESIGN PRACTICES AS OUTLINED IN CHAPTER 5 OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL AS AMENDED BY MARYLAND STORMWATER MANAGEMENT ACT OF 2007, FULL TREATMENT OF THE TARGET Pe OF 1.7 WAS ACHIEVED, FULLY ADDRESSING THE STORMWATER MANAGEMENT REQUIREMENTS.

A DESIGN MANUAL WAIVER WILL BE REQUESTED TO OBTAIN PERMISSION TO CONSTRUCT THE FRONT SWALE LESS THAN 15' FROM THE HOUSES. A WAIVER PETITION WILL BE SUBMITTED TO ALLOW REMOVAL OF TWO SPECIMEN TREES.

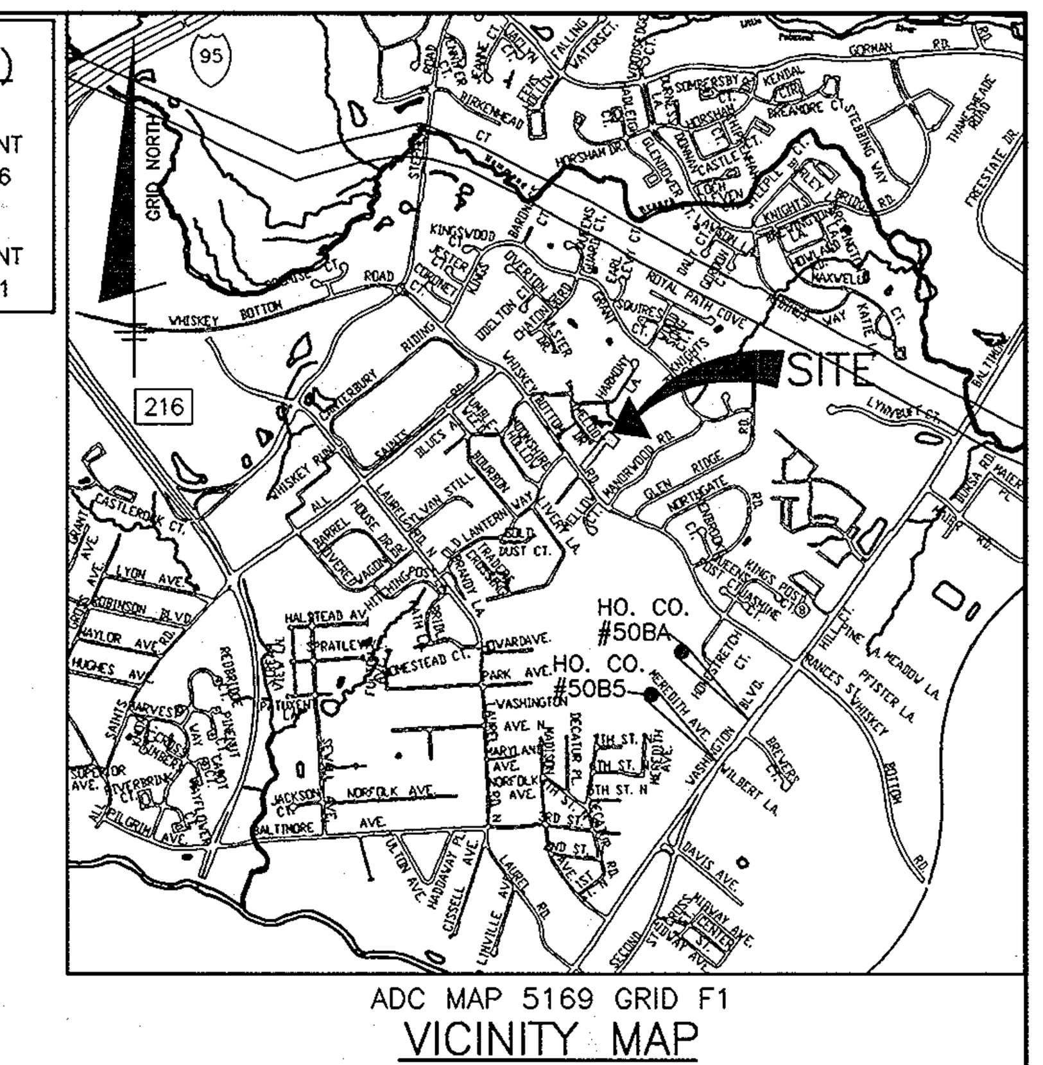
GENERAL NOTES

1. SUBJECT PROPERTY ZONED R–SC PER THE 2–2–04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING AMENDMENTS EFFECTIVE 7–28–06.
2. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE APRIL 13, 2004.
3. PROJECT BOUNDARY AND TOPOGRAPHY ARE BASED ON FIELD RUN BOUNDARY SURVEY AND TOPO PERFORMED BY BENCHMARK ENGINEERING INC. DATED SEPTEMBER, 2010.
4. EXISTING OFF–SITE TOPOGRAPHY SHOWN HEREON IS BASED ON HOWARD COUNTY GIS.
5. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. #50BA AND #50B5 WERE USED FOR THIS PROJECT.
6. EXISTING UTILITIES SHOWN HAVE BEEN TAKEN FROM CONTRACT DRAWINGS AND FIELD SURVEYED LOCATIONS. IF NECESSARY, CONTRACTOR SHALL ADJUST ANY OR ALL STRUCTURE TOP ELEVATIONS TO MATCH PROPOSED GRADES.
7. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM, OR THEIR REQUIRED BUFFERS UNLESS DEEMED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING.
8. NO 100–YEAR FLOODPLAIN IS LOCATED WITHIN THE PROJECT BOUNDARIES.
9. THERE IS AN EXISTING STRUCTURE LOCATED ON THIS SITE TO BE REMOVED.
10. THERE ARE NO CEMETERIES LOCATED ON THIS SITE.
11. A NOISE STUDY IS NOT REQUIRED FOR THIS DEVELOPMENT.
12. THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
13. WATER AND SEWER ARE PUBLIC. THE PUBLIC CONNECTION WILL BE MADE TO FACILITIES CONSTRUCTED UNDER CONTRACT NUMBER IS 24–3959–D. THE DRAINAGE AREA IS "PATAPSCO RIVER".
14. THE FOREST CONSERVATION ACT OBLIGATION FOR THIS PROJECT WILL BE MET BY THE ON–SITE RETENTION OF FOREST.
15. THERE ARE NO PREVIOUS DPZ FILES FOR THIS SITE.
16. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION AND/OR SITE DEVELOPMENT PLAN.
17. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION AND/OR SITE DEVELOPMENT PLAN STAGES. THEREFORE, THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED COMMENTS (INCLUDING THOSE THAT MAY ALTER OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES.
18. WP–11–153 TO ALLOW SWALES LESS THAN 15' FROM FRONTS OF HOUSES, AND FOR REMOVAL OF SPECIMEN TREES HAS BEEN SUBMITTED TO HOWARD COUNTY DPZ MARCH 22, 2011 FOR REVIEW AND THE APPROVAL OF SUBDIVISION AS SHOWN WILL BE CONTINGENT ON THE ACTION TAKEN BY DPZ ON THE WAIVER.

BENCH MARKS–(NAD'83)

HO. CO. #50BA EL. N/A
STANDARD DISC ON CONC. MONUMENT
N 527561.6702 E 1359772.5936

HO. CO. #50B5 EL.178.242
STANDARD DISC ON CONC. MONUMENT
N 524999.3640 E 1357925.6751



ADC MAP 5169 GRID F1
VICINITY MAP
SCALE: 1" = 2000'

KINGS ARMS SECTION 5		Project Number 2364		
Determine ESD Implementation Goals				
Soil Conditions for "Woods in Good Condition"				
HSG	RCN	Area (ft2)	Percent	
A	38			
B	55	24804	69%	
C	70			
D	77	11275	31%	
Target RCN	62	36079		
Determine Target Pe Using Table 5.3				
Soil Conditions Developed Condition				
HSG	Area (ft2)	Impervious	Percent	Target Pe
A				
B	24804	11290		1.8
C				
D	11275	3218		1.6
Weighted Pe	36079	14508	40%	1.7
* See graphical determination.				
Practices and Sizing				
Drainage Area 1:	SW-1	Treated by Bioswales		
Total Area:	11251			
Impervious Area:	6108			
Impervious:	54%			
Rv =	0.539			
ESDV =	877.4	c.f		
Drainage Area 2:	SW-2	Treated by Bioswales		
Total Area:	23316			
Impervious Area:	7700			
Impervious:	33%			
Rv =	0.347			
ESDV =	1172.2	c.f		

Bio-Swales									
Pe=	1.7	inches							
Practice	Type	DA	Imp.	Qe	ESDv Required	Af	Depth	ESDv Provided	Af 2% of DA
BS-1	M-6	11251	6108	0.93	875	468	0.96	878	PASS
BS-2	M-6	23316	7700	0.60	1169	1053	0.58	1169	PASS

SHEET INDEX	
NO.	DESCRIPTION
1	ENVIRONMENTAL CONCEPT PLAN
2	SEDIMENT AND EROSION CONTROL PLANS

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
60 THOMAS JOHNSON DRIVE ▲ FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — ALICE A. MILLER — No. 28376 — PROFESSIONAL ENGINEER — 3 June 11

Professional Certification. 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. 28376, Expiration Date: 1-1-2013.

OWNER/DEVELOPER:

SECURITY DEVELOPMENT LLC
PO BOX 417
ELLICOTT CITY, MARYLAND 21041
410-465-4244

KINGS ARMS

SECTION 5
LOTS 1–5 AND
OPEN SPACE LOT 6

TAX MAP: 47 PARCEL: 816
GRID: 22 DESIGN ZONE: R–SC
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

ENVIRONMENTAL CONCEPT PLAN

DATE: MARCH, 2011	PROJECT NO. 2364
SCALE: 1" = 30'	SHEET 1 OF 2

DESIGN: AAM | DRAFT: AAM | CHECK: CAM

ECP–11–050

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1850).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL", REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	1.54	ACRES
AREA DISTURBED	0.86	ACRES
AREA TO BE ROOFED OR PAVED	0.34	ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.52	ACRES
TOTAL CUT	1913	CY
TOTAL FILL	1588	CY
OFFSITE WASTE AREA LOCATION	A SITE WITH AN ACTIVE GRADING PERMIT	

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

TEMPORARY SEEDBED PREPARATIONS

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, 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 PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH 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 FT. 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 COVERED.

PERMANENT SEEDBED PREPARATIONS

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 ON OF THE FOLLOWING SCHEDULES:

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

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

TOPSOIL SPECIFICATIONS

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

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

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

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

I. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

I. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for 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 or topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

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

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil 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 placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

I. Composted Sludge Material for use as a soil conditioner for sites having distributed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

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

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guidelines Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1973.

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 tracked 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 similiar 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 similiar 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. Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.
2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA-ARS.

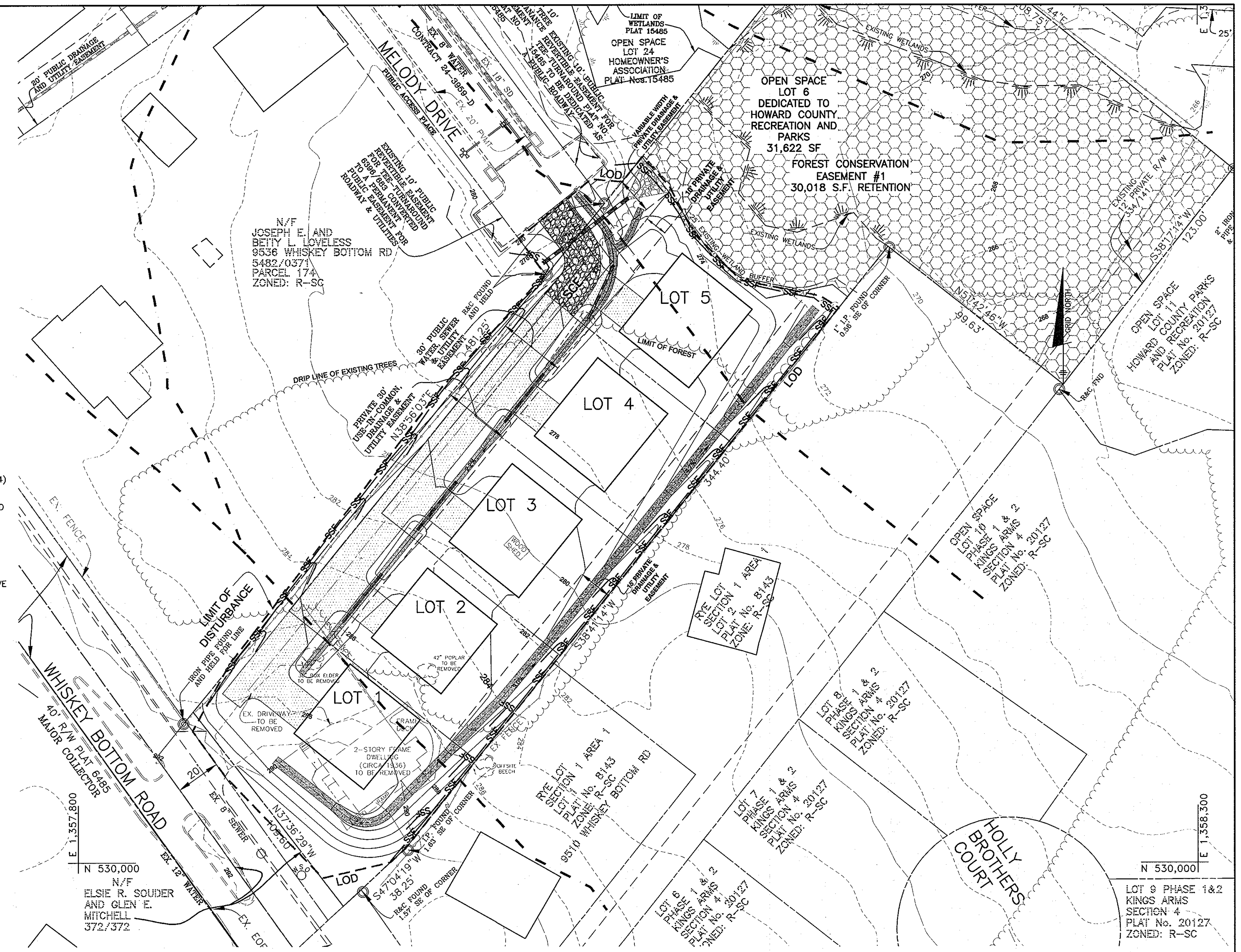
SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION
48 HOURS PRIOR TO START OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (DAY 1)
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND SUPER SILT FENCES. (DAY 2-4)
3. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, BRING SITE TO GRADE AND STABILIZE SWALES IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. UTILIZE DUST CONTROL METHODS. (DAY 5-20)
4. UNSTALL UTILITIES, FINAL GRADE AND PAVE DRIVEWAY. (DAY 21-30)
5. WHEN CONTRIBUTING AREAS TO BIO-SWALES ARE STABILIZED, INSTALL PLANTING SOIL, EROSION CONTROL MATTING AND PERMANENT SEEDING. (DAY 31-36)
6. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES, AND STABILIZED DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. (DAY 37-40)

LEGEND

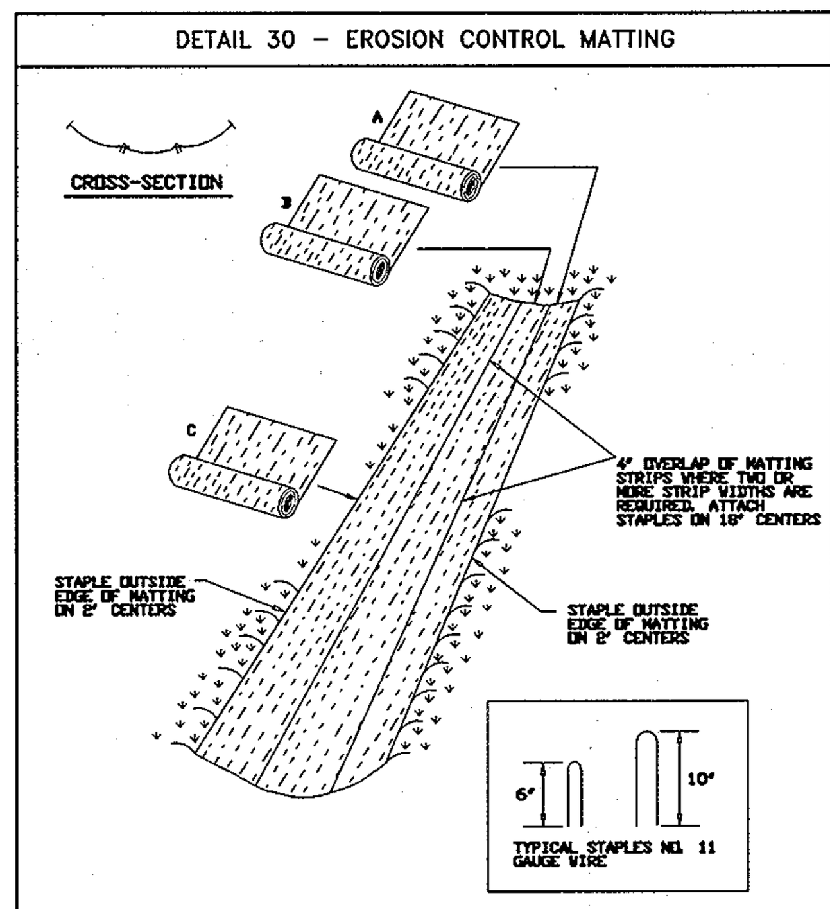
EXISTING CONTOURS	480 / 478	FOREST CONSERVATION AREA	
SOIL DELINEATION		PROPOSED PAVEMENT	
EXISTING WOODS LINE		EROSION CONTROL MATTING	
PROPOSED WOODS LINE		SUPER SILT FENCE	SSF SSF
EXISTING FENCE		STABILIZED CONSTRUCTION ENTRANCE	SCE
SPECIMEN TREE		EROSION CONTROL MATTING	
WETLANDS		LIMIT OF DISTURBANCE	
25' WETLAND BUFFER			
EXISTING HOUSES		PROPOSED HOUSES	



GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

DETAIL 30 - EROSION CONTROL MATTING



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

DETAIL 30 - EROSION CONTROL MATTING

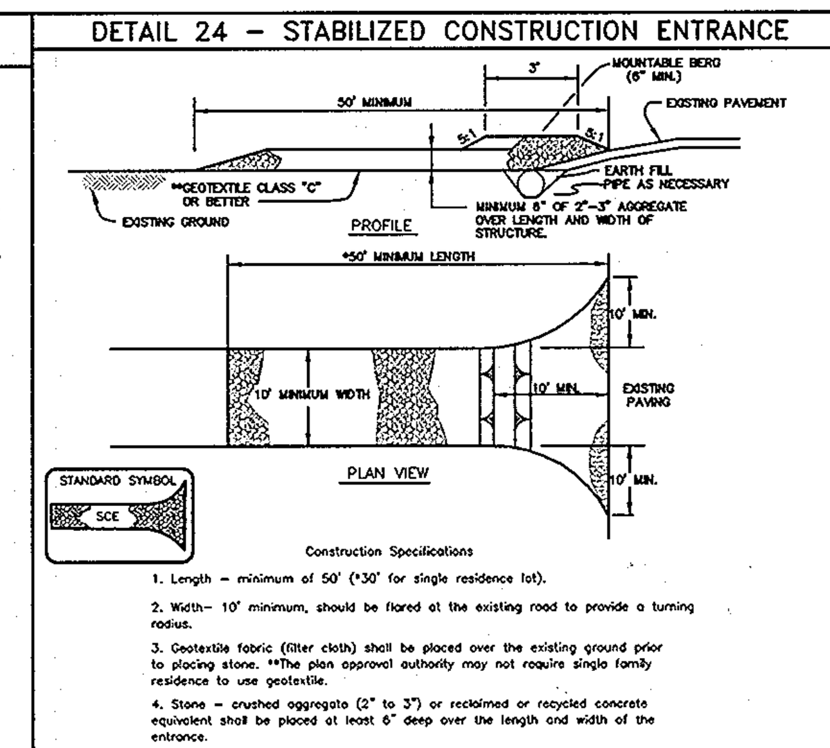
Construction Specifications

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

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

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

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

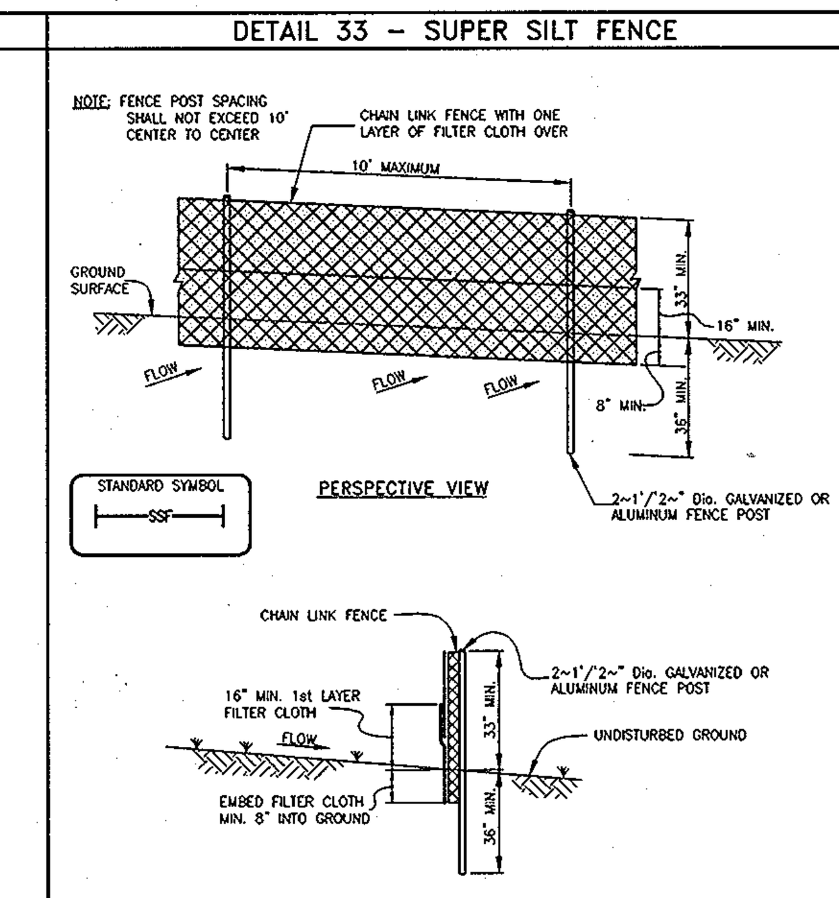


Construction Specifications

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

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

DETAIL 33 - SUPER SILT FENCE



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

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

SUPER SILT FENCE DESIGN CRITERIA

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

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 6/09/11
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 6/13/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
60 THOMAS JOHNSON DRIVE ▲ FREDERICK, MARYLAND 21702
(P) 301-371-3505 (F) 301-371-3506
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — ALICE A. MILLER — No. 28376 — PROFESSIONAL ENGINEER
3 June ll

Professional Certification. 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. 28376, Expiration Date: 1-1-2013.

OWNER/DEVELOPER:

SECURITY DEVELOPMENT LLC
PO BOX 417
ELLICOTT CITY, MARYLAND 21041
410-465-4244

KINGS ARMS

SECTION 5
LOTS 1-5 AND
OPEN SPACE LOT 6

TAX MAP: 47 — PARCEL: 816
GRID: 22 — DESIGN ZONE: R-SC
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SEDIMENT AND EROSION CONTROL PLAN, NOTES AND DETAILS

		DATE: FEBRUARY, 2011	PROJECT NO. 2364
DESIGN: AAM	DRAFT: EDD/AAM	CHECK: CAM	SCALE: 1" = 30'

ECP-11-050

C:\Projects\2364 Kings Arms Section 5\dwg\7026-ECP SEC SHEET 2.dwg, 6/3/2011 8:51:21 AM