FINAL ROAD CONSTRUCTION PLANS

OWINGS PROPERTY, LOT 5

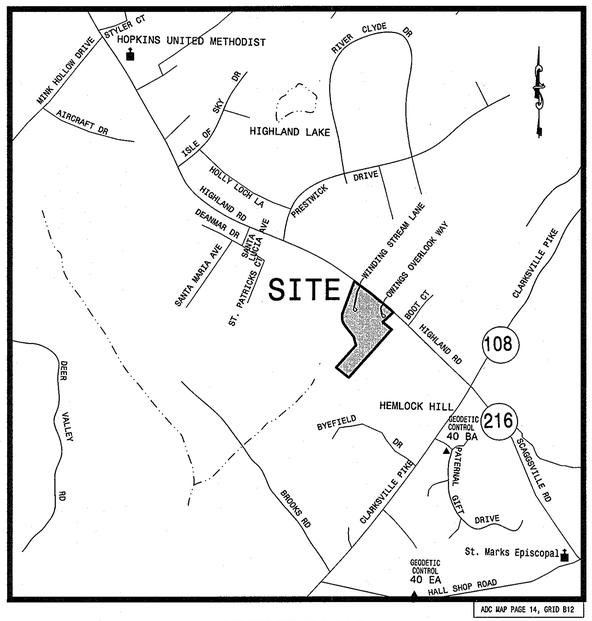
5th ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

SITE DATA
1. LOCATION: TAX MAP 40, PARCEL 44, LOT 5
2. 5TH ELECTION DISTRICT
3. ZONING: RR-DEO
4. GROSS AREA OF PROJECT: 25.6264 Ac.
5. NO. OF RESIDENTIAL DWELLING UNITS: 6
6. AREA OF PROPOSED RESIDENTIAL LOTS 17-22: 5.9662 Ac.
7. OPEN SPACE REQUIRED: NONE
8. NON-BUILDABLE PRESERVATION SPACE TO BE OWNED BY HOA: 16.60 Ac.
9. NON-BUILDABLE BULK PARCEL: 1.6983 Ac.
10. RECREATION OPEN SPACE REQUIRED: NONE
11. AREA OF PROPOSED PUBLIC ROADS: 1.36 Ac.
12. AREA OF 100 YEAR FLOOD PLAIN: 0.27 Ac. + 0.21 Ac. = 0.48 Ac.
13. AREA OF 25% SLOPES AND STEEPER: 0.23 Ac.
14. NO. OF LOTS/PARCELS:
    6 BUILDABLE LOTS
    2 NON-BUILDABLE PRESERVATION PARCELS
    1 NON-BUILDABLE BULK PARCEL
15. SP 03-03 FOR THIS SUBDIVISION APPROVED ON JULY 28, 2005.

GENERAL NOTES:

1. THE PROJECT IS IN CONFORMANCE WITH THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS DATED 7/28/06.
2. THIS PLAN SHALL BE SUBJECT TO THE AMENDED FIFTH EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND AMENDED ZONING REGULATIONS PER COUNCIL BILL 50-2001.
3. DEED REF.: LIBER 1100 FOLIO 242
4. PROJECT BACKGROUND INFORMATION GROSS AREA: 25.6294 Ac NET AREA: 25.6294 - (0.48 Ac.) - (0.23 Ac.) = 24.9194 NO. OF ENTITIES PERMITTED BY RIGHT (25.6294/4.25) = 6 MAXIMUM NO. OF UNITS BASED ON DEO/CEO (25.1494/2) = 12 NO. OF DEO'S REQUIRED: 0 PROPOSED LOTS = 6 (6 RESIDENTIAL)
5. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY WITH 2-FOOT CONTOUR INTERVALS PREPARE BY AIR SURVEY PHOTOGRAMMETRIC MAPPING SERVICES, DATED MARCH 18, 2001.
6. PROJECT BOUNDARY IS BASED ON BOUNDARY SURVEY BY AB CONSULTANTS INC., NOVEMBER 2005 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 No. 40BA AND 40EA ARE THE CLOSEST TO THIS PROJECT AND WERE USED FOR THIS PROJECT. TRAVERSE RAN BY MARKS AND ASSOCIATES, BOUNDARY SURVEY BY AB CONSULTANTS.
7. STORMWATER MANAGEMENT QUALITY & QUANTITY CONTROL PROVIDED BY A MICRO POOL POND WITH EXTENDED DETENTION FACILITY TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOA.
8. WATER WILL BE PRIVATE WELL FOR ALL LOTS
9. SEWER FOR LOT 22 IS PRIVATE. LOTS 17-21 WILL HAVE A PUBLIC SHARED SYSTEM CONTRACT No. 50-4436-D TO BE MAINTAINED BY HOWARD COUNTY UNDER CONT.# 50-4436-D.
10. THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY DEWBERRY & DAVIS LLC AND APPROVED BY THE U.S. CORPS OF ENGINEERS ON MAY 13, 2002 AND APPROVED ON FEB. 3 2004.
11. FOREST STAND DELINEATION BY DEWBERRY & DAVIS LLC, FEB 2002, APPROVED JUNE 2003
12. APFO TRAFFIC STUDY PREPARED BY LEE CUNNINGHAN & ASSOC. AUG., 2002., APPROVED ON FEB. 3 2004.
13. FOR FLAG OR PIPE STEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPE STEM AND THE ROAD RIGHT-OF-WAY LINE ONLY AND NOT ONTO THE FLAG OR PIPE STEM LOT DRIVEWAY.
14. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWRD COUNTY DESIGN MANUAL, VOL. III (2006) AND AS MODIFIED BY GUIDELINES FOR THE STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 2006). A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
15. THIS PROPERTY IS NOT WITHIN THE METROPOLITAN DISTRICT.
16. SEDIMENT & EROSION CONTROL PER SEPARATE PLAN.
17. THERE ARE NO BURIAL OR CEMETERY LOCATIONS ON THIS SITE.
18. THIS SITE MEETS THE OBJECTIVES OF ZONING SECTION 105.F.(6) BY:
    A. PROVIDING PRESERVED AREAS THAT FUNCTION AS FOREST CONSERVATION AREAS AND PRESERVE THE RURAL CHARACTER OF THE SITE.
    B. CLUSTERING LOTS & CONSOLIDATING SEPTIC AREAS TO MINIMIZE DISTURBANCE TO FOREST AREA RESOURCES.
    C. ELIMINATING FARMING DISTURBANCE ACTIVITIES.
    D. PRESERVING EXISTING VEGETATION ALONG HIGHLAND ROAD.
19. PLANNING & ZONING FILE NUMBERS: SP 03-03, AND WP 03-056.
20. THE ON-SITE REFORESTATION CONSERVATION SURETY IS $73,398.60 (3.37 Ac x $0.50/SF). ON-SITE FOREST RETENTION BOND AMOUNT IS $14,636.16 (1.68 AC x $0.20/SF). TOTAL FOREST CONSERVATION SURETY AMOUNT IS $88,034.76.
21. A FOREST CONSERVATION PLAN IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD CO. CODE & THE FOREST CONSERVATION MANUAL, IS PROVIDED AS PART OF THIS ROAD CONSTRUCTION, GRADING, AND STORMWATER MANAGEMENT PLAN. FOREST CONSERVATION WILL BE PROVIDED ON SITE REFORESTATION AND AFORESTATION OF 3.37 AC. MIN.
22. THERE ARE NO HISTORIC SITES ON THIS PROPERTY.
23. WATERSHED: PORTION OF PATUXENT RIVER CLASSIFIED AS USE IV-P STREAM.
24. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
25. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
26. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
27. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
28. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE IN ACCORDANCE WITH AASHTO T-180 STANDARDS.
29. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $32,850 FOR REQUIRED PLANTS ONLY. 89 SHADE TREES @ $300 = $26,700 41 EVERGREEN TREES @ $150 = $6,150.
30. FINANCIAL SURETY FOR THE REQUIRED STREET TREE PLANTINGS MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $26,400 FOR REQUIRED PLANTS ONLY. 90 SHADE TREES @ $300 = $27,000 WHICH AMOUNT IS PART OF THE FINANCIAL GUARANTEE TO THE PROPOSED PUBLIC IMPROVEMENTS.
31. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
32. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GTA, DATED JULY 18, 2003 & MARCH 29, 2006.
33. ALL SIGN POSTS 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 TOP OF EACH POST.
34. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM DWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY MDE.
35. THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY DEWBERRY ON MAY 12, 2003 AND WAS APPROVED ON JULY 28, 2005.
36. WAIVER REQUEST NO. WP-03-56 IS FOR TWO ACCESS POINTS ONTO HIGHLAND ROAD HAS BEEN GRANTED
    A.) ONE ACCESS POINT IS FOR AN INSTITUTIONAL USE AND IS NO LONGER APPLICABLE
    B.) THE SECOND ACCESS POINT IS FOR PREVIOUS LOCATION OF WINDING STREAM LANE AND IS NO LONGER APPLICABLE
37. DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, ALL EASEMENTS SHOWN ON THIS PLAT FOR WATER, SEWER, STORM DRAINAGE, OTHER PUBLIC UTILITIES, AND FOREST CONSERVATION (DESIGNATED AS "FOREST CONSERVATION AREA"), LOCATED IN, OVER AND THROUGH THE NON-BUILDABLE, PRESERVATION PARCEL 'F' OR PORTIONS THEREOF, AND SHOWN ON THIS PLAT AS THE FOREST CONSERVATION AREA. ANY AND ALL CONVEYANCES OF AFORESAID PARCEL SHALL BE SUBJECT TO THE EASEMENTS HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID \ LOT(S). DEVELOPER SHALL EXECUTE AND DELIVER A DEEDS FOR THE EASEMENTS HEREIN RESERVED TO HOWARD COUNTY, WITH A METES AND BOUNDS DESCRIPTION OF THE FOREST CONSERVATION AREA. UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR ACCEPTANCE BY HOWARD COUNTY, AND, IN CASE OF A FOREST EASEMENT(S), UPON COMPLETION OF DEVELOPER'S OBLIGATION UNDER THE FOREST CONSERVATION INSTALLATION AND DEVELOPER'S SURETY POSTED WITH SAID AGREEMENT, THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.



VICINITY MAP
SCALE: 1"=1000'

SHEET INDEX

SHEET NO.	DESCRIPTION
1	FINAL PLAN - TITLE SHEET
2	ROADWAY PLAN AND PROFILE - WINDING STREAM LANE
3	ROADWAY PLAN AND PROFILE - OWINGS OVERLOOK
4	ROADWAY PLAN AND PROFILE - HIGHLAND ROAD
5	CROSS SECTIONS - HIGHLAND ROAD IMPROVEMENT
6	CROSS SECTIONS - HIGHLAND ROAD IMPROVEMENT
7	DRIVEWAY PROFILE - LOT 22
8	TYPICAL SECTION AND ROAD DETAILS
9	STORM DRAIN PROFILE
10	STORM DRAIN DETAILS
11	STORM DRAIN DRAINAGE AREA MAP
12	GRADING, EROSION & SEDIMENT CONTROL PLAN
13	GRADING, EROSION & SEDIMENT CONTROL PLAN
14	GRADING, EROSION & SEDIMENT CONTROL PLAN
15	GRADING, EROSION & SEDIMENT CONTROL PLAN
16	EROSION & SEDIMENT CONTROL NOTES
17	EROSION & SEDIMENT CONTROL DETAILS
18	STORMWATER MANAGEMENT, BMP A - PLAN & SECTIONS
19	STORMWATER MANAGEMENT DETAILS
20	POND SPECIFICATIONS & NOTES
21	EXISTING SWM DRAINAGE AREA MAP, SITE & OFFSITE AREAS
22	EXISTING SWM DRAINAGE AREA MAP, SITE AREA ONLY
23	DEVELOPED SWM DRAINAGE AREA MAP, SITE & OFFSITE AREAS
24	DEVELOPED SWM DRAINAGE AREA MAP, SITE AREA ONLY
25	SOIL BORING LOG
26	LANDSCAPE/FOREST CONSERVATION PLAN
27	LANDSCAPE/FOREST CONSERVATION PLAN
28	LANDSCAPE/FOREST CONSERVATION NOTES AND DETAILS
29	HIGHLAND ROAD - PAVING MARKING PLAN
30	HIGHLAND ROAD - MAINTENANCE OF TRAFFIC PLAN

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 06/06/08
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS AS ARE REENED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — DATE 06/06/08
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 7-1-08

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/2/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/2/08

HOWARD COUNTY GEODETIC CONTROL

MON. NOS.	N	E	ELEV.
40BA	549,925.102	1,324,025.124	534.654
40EA	547,911.373	1,324,510.058	503.948

DATE	NO.	REVISION

NOTE

INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF THE MAINS BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF THE START OF EXCAVATION. CONTACT "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO THE START OF EXCAVATION. IF CLEARANCES ARE LESS THAN SHOWN ON THIS PLAN OR TWELVE (12) INCHES, WHICHEVER IS LESS, CONTACT THE ENGINEER AND THE UTILITY BEFORE PROCEEDING WITH CONSTRUCTION.

OWNER / DEVELOPER

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

JOSE H. ESCALANTE — 06/06/08

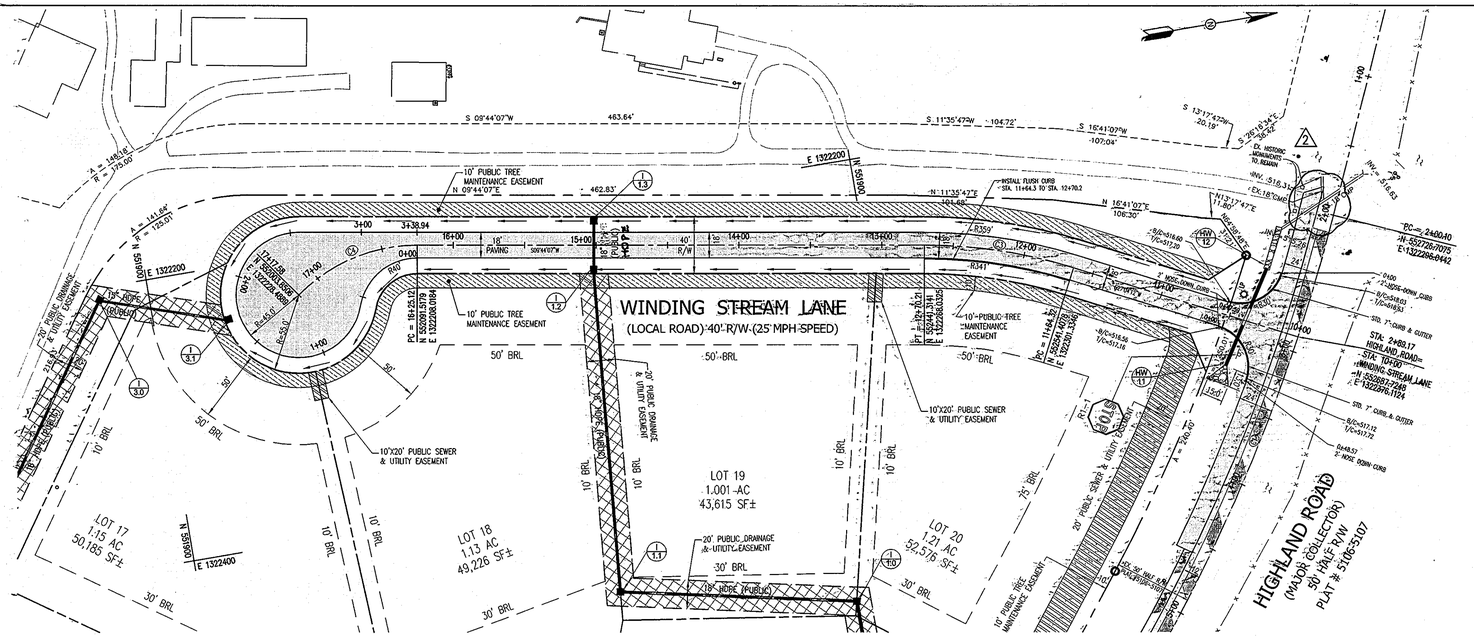
DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT : TITLE SHEET

OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: AS SHOWN
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 1- 30

F-06-112



WINDING STREAM LANE - PLAN

SCALE: 1"=50'

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHD. BRG.	CHD. DIST.	TAN	DELTA
C1	1275.00'	333.16'	N58°33'20"W	332.21'	167.53	14°58'17"
C3	350.00'	105.89'	S18°24'10"W	105.49'	53.35	17°20'05"
C4	115.78'	92.46'	S13°08'35"E	90.03'	48.86	45°45'25"

NOTES:

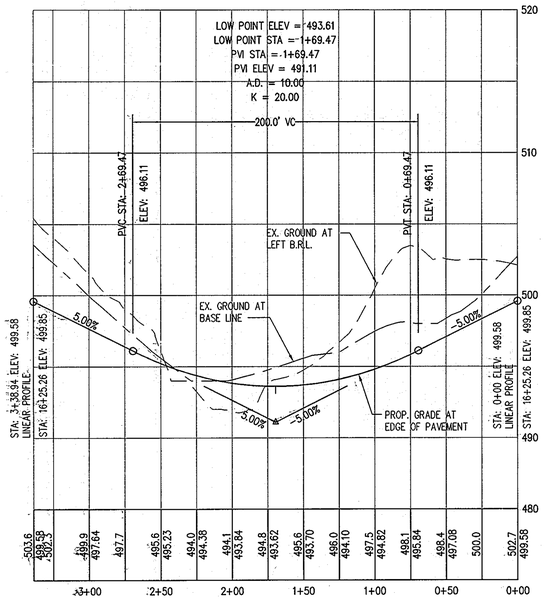
1. FOR FILL UNDER PUBLIC STREET COMPACTION SHALL BE ACCORDANCE TO ASSHTO T-180 STANDARDS.
2. HIGHLAND ROADWAY IMPROVEMENT SHOWN SHALL BE ACCORDANCE WITH DESIGN MANUAL, VOLUME IV, STD. DETAIL R-1.08. SEE SHT 6.
3. ALL SIGNAGE AND PAVEMENT MARKING MUST BE ACCORDANCE WITH THE LATEST MUTCD STANDARDS.
4. ALL NEW PAVEMENT MARKING AND SIGN LOCATION SHALL BE APPROVED BY ACCOUNTY TRAFFIC ENGINEER, PRIOR TO INSTALL CALL 410-313-5752.
5. ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) – 3' LONG. A GALVANIZED STEEL POST GAP SHALL BE MOUNTED ON TOP OF EACH POST.
6. ROAD ENTRANCE FILLET SHALL BE STANDARD 7" CURB & GUTTER.
7. HALF OF HIGHLAND ROAD EXISTING R/W IS 50 FT. FROM THE CENTER OF HIGHLAND ROAD PER PLAT # 5106-5107.

LEGEND:

- FULL DEPTH ASPHALT PAVING
- 1-1/2" MILLING & OVERLAY
- STABILIZED SHOULDER DOUBLE BIT. SURFACE TREATMENT

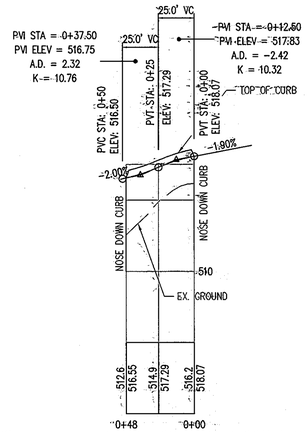
STREET LIGHT SCHEDULE				
SYMBOL	POLE TYPE	FIXTURE	LOCATION	LAMP SIZE
LP	14' BLACK FIBERGLASS POLE	POST-TOP: ACORN	STA. 0+45, 17.5' RT. WINDING STREAM LANE	150W HPS 250 V

ROAD NAME	STATION	DESIGN SPEED	ROAD CLASSIFICATION	PAVING TYPE
WINDING STREAM LANE	STA. 10+00.60 TO STA. 17+17.58	25	PUBLIC ACCESS PLACE	P-2

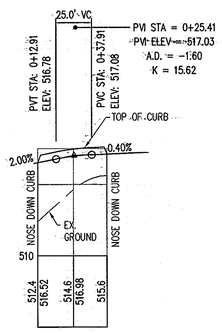


CUL-DE-SAC - LINEAR PROFILE

SCALE: 1"=50' (H) AND 1"=5' (V)



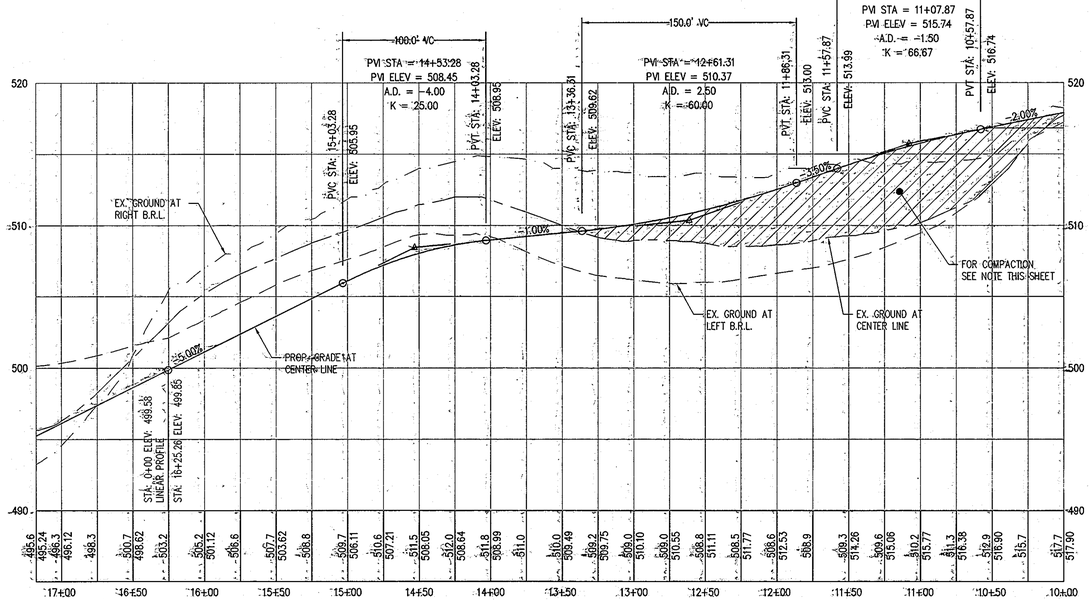
HIGHLAND RD. TO WINDING STREAM WAY



WINDING STREAM WAY TO HIGHLAND RD.

CURB RETURN - PROFILE

SCALE: 1"=50' (H) AND 1"=5' (V)



WINDING STREAM LANE - PROFILE

SCALE: 1"=50' (H) AND 1"=5' (V)

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW REVISED ENTRANCE.

BENCH MARK - CONTROL POINTS			
POINTS	NORTHING	EASTING	TYPE
TRAV 15	552328.2656	1322789.9791	PK NAIL
TRAV 16	551993.6856	1323220.6324	PK NAIL

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sanjay Patel — 05/25/2013

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

William C McElwee — 7/8/2013

"SK HOMES AT HIGHLAND OWINGS, LLC" — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-22-13 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 8/5/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 8/06/13 DATE

DATE	NO.	REVISION
05/11/12	1	REVISE ROAD PROFILES & GRADES ON WINDING STREAM LN
04/25/13	2	REVISE DRIVEWAY ENTRANCE

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

Sanjay Patel — 31042

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092

CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

PROJECT

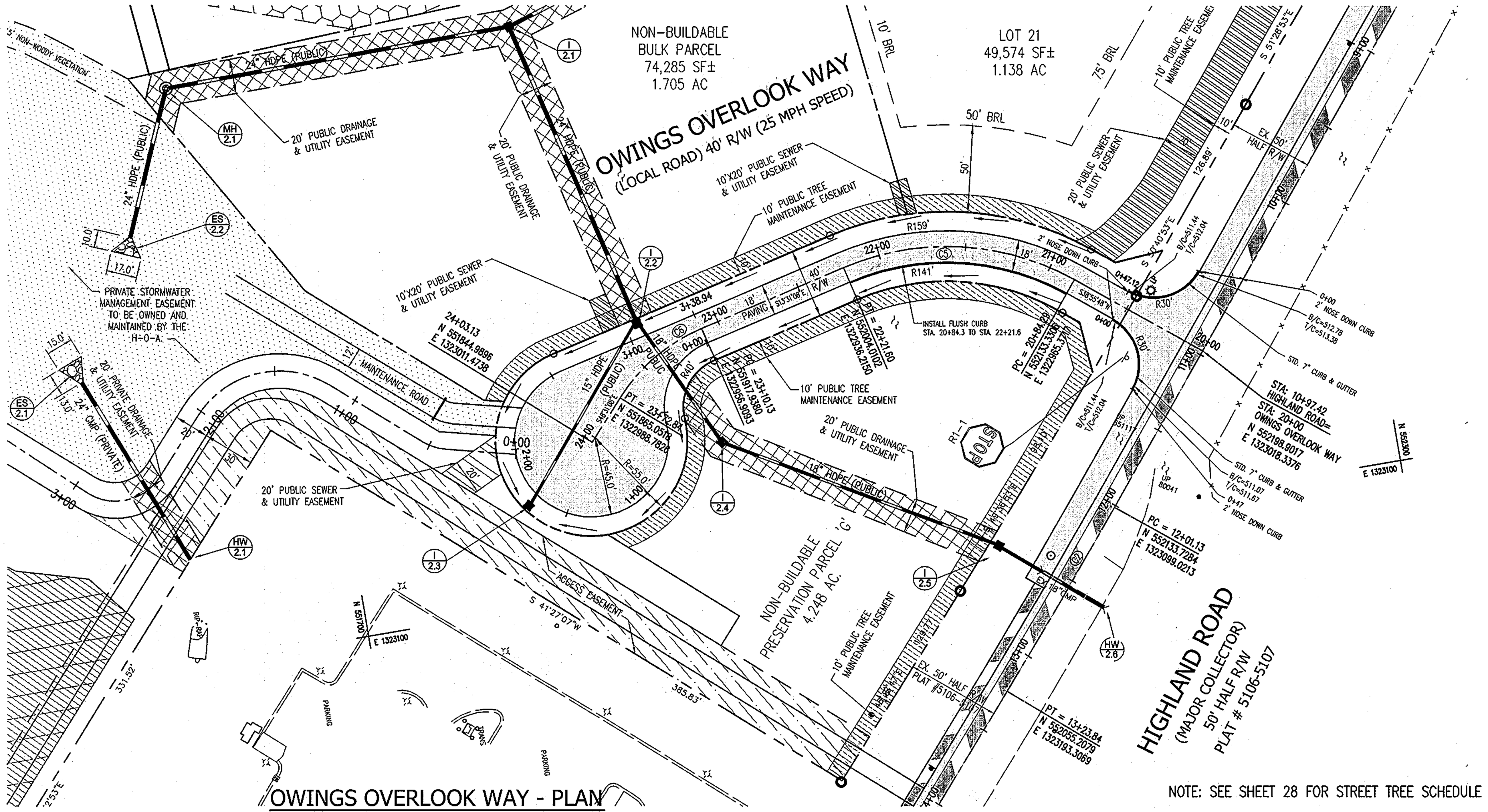
ROADWAY PLAN

OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 – HARWOOD OWINGS PROPERTY
TAX MAP 40 GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.	2011200
SCALE:	AS SHOWN
DATE:	06/27/12
DRAWN BY:	HRP
CHECKED BY:	SBP
SHEET:	2-30

F-06-112



OWINGS OVERLOOK WAY - PLAN

SCALE: 1"=50'

NOTE: SEE SHEET 28 FOR STREET TREE SCHEDULE

STREET LIGHT SCHEDULE

SYMBOL	POLE TYPE	FIXTURE	LOCATION	LAMP SIZE
LP ✡	14' BLACK FIBERGLASS POLE	POST-TOP: ACORN	STA. 0+43, 16' RT. OWINGS OVERLOOK WAY	150W HPS 250 V

CURVE TABLE

CURVE	RADIUS	LENGTH	CHD. BRG.	CHD. DIST.	TAN	DELTA
C2	4100.00'	122.70'	N50°12'46"W	122.70'	61.36	1°42'53"
C5	150.00'	137.31'	S12°42'20"W	132.57'	73.89	52°26'56"
C6	103.00'	62.71'	S31°04'35"E	61.75'	32.36	34°53'06"

NOTES:

1. FOR FILL UNDER PUBLIC STREET COMPACTION SHALL BE ACCORDANCE TO ASSHTO T-180 STANDARDS.
2. HIGHLAND ROADWAY IMPROVEMENT SHOWN SHALL BE ACCORDANCE WITH DESIGN MANUAL, VOLUME IV, STD. DETAIL R-1.08. SEE SHT 6.
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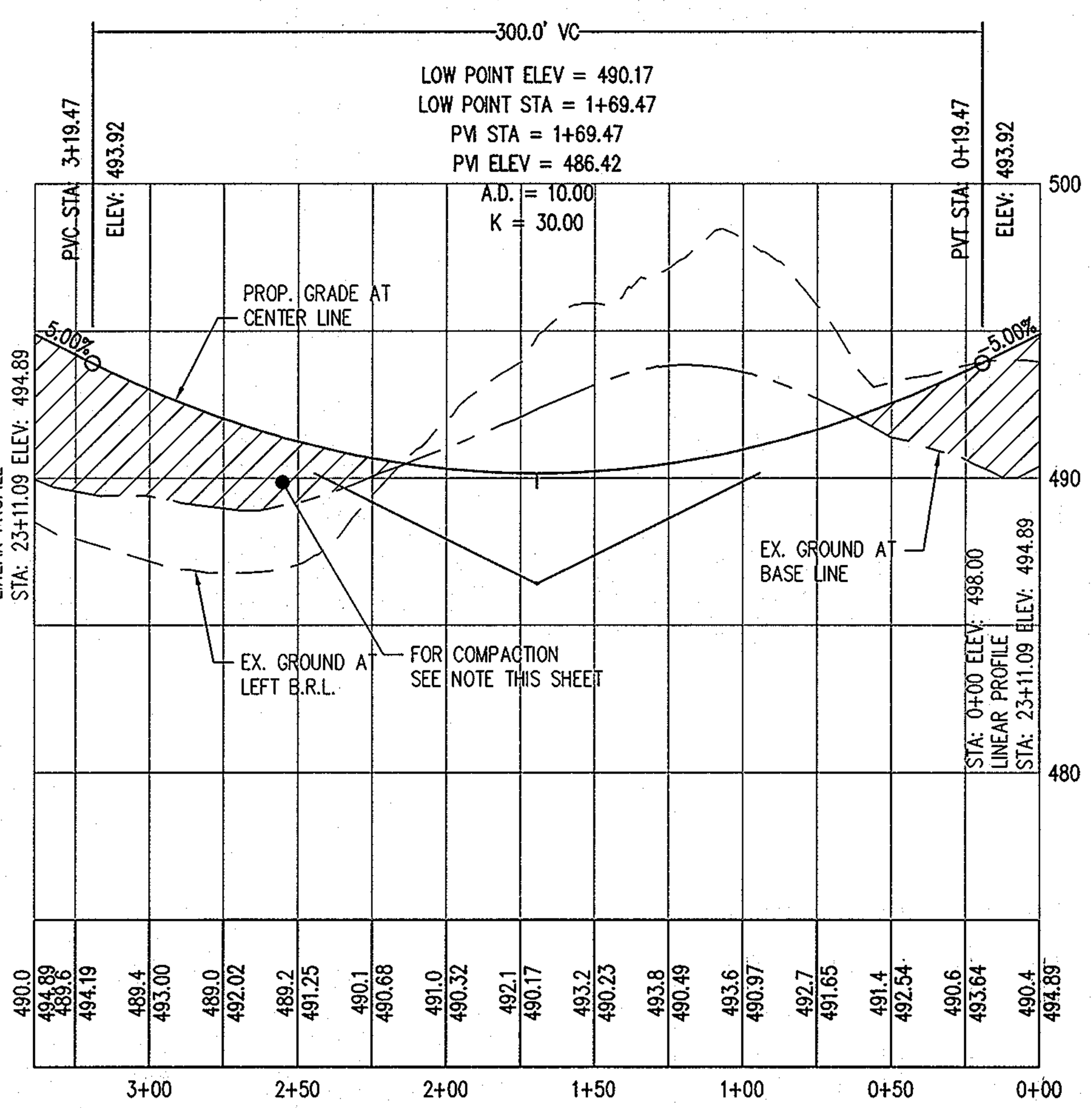
6. ROAD ENTRANCE FILLET SHALL BE STANDARD 7" CURB & GUTTER.
7. HALF OF HIGHLAND ROAD EXISTING R/W IS 50 FT. FROM THE CENTER OF HIGHLAND ROAD PER PLAT # 5106-5107.

ROAD NAME	STATION	DESIGN SPEED	ROAD CLASSIFICATION	PAVING TYPE
OWINGS OVERLOOK WAY	STA. 20+00.00 TO STA. 24+03.13	25	PUBLIC ACCESS PLACE	P-2

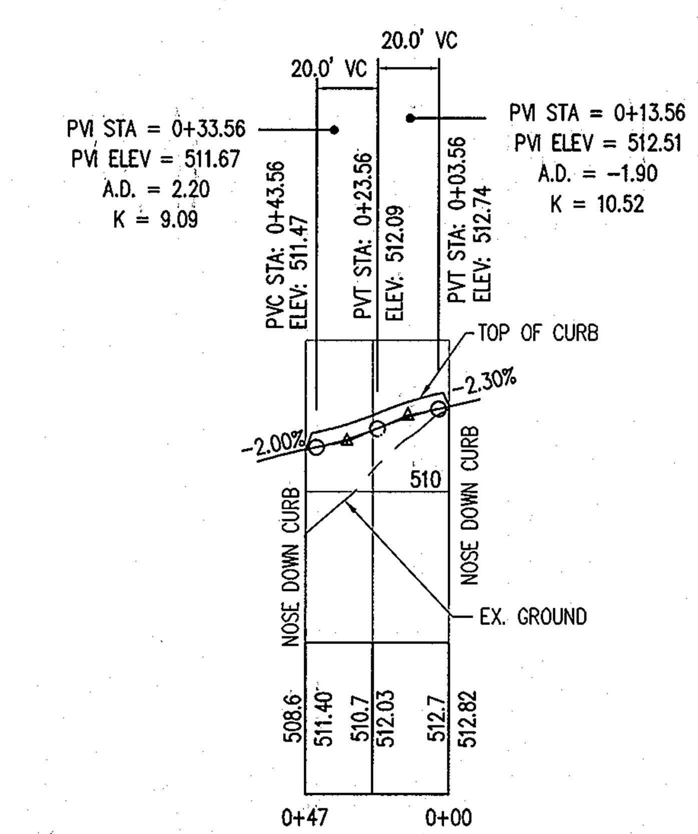
LEGEND:

- FULL DEPTH ASPHALT PAVING
- 1 1/2" MILLING & OVERLAY
- STABILIZED SHOULDER DOUBLE BIT. SURFACE TREATMENT

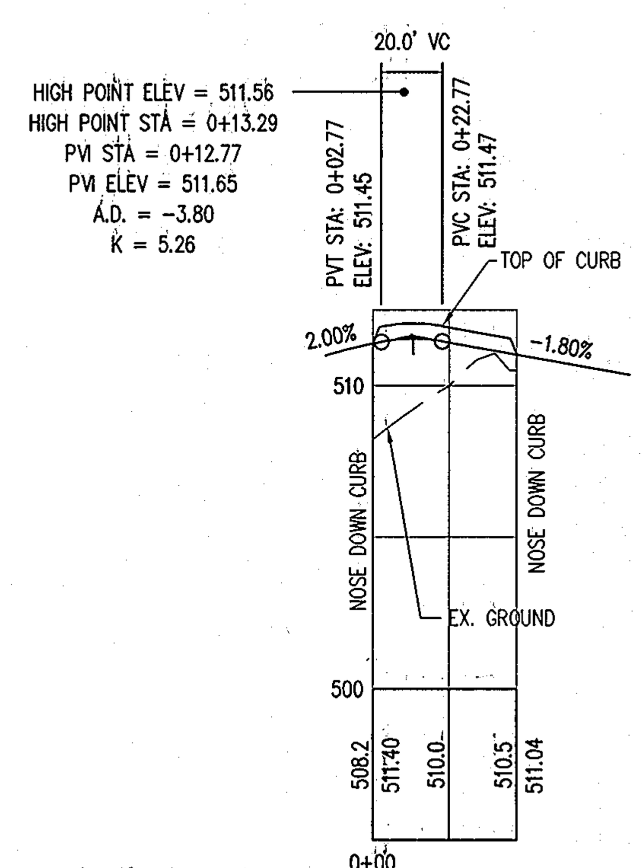


CUL-DE-SAC - LINEAR PROFILE

SCALE: 1"=50' (H) AND 1"=5' (V)



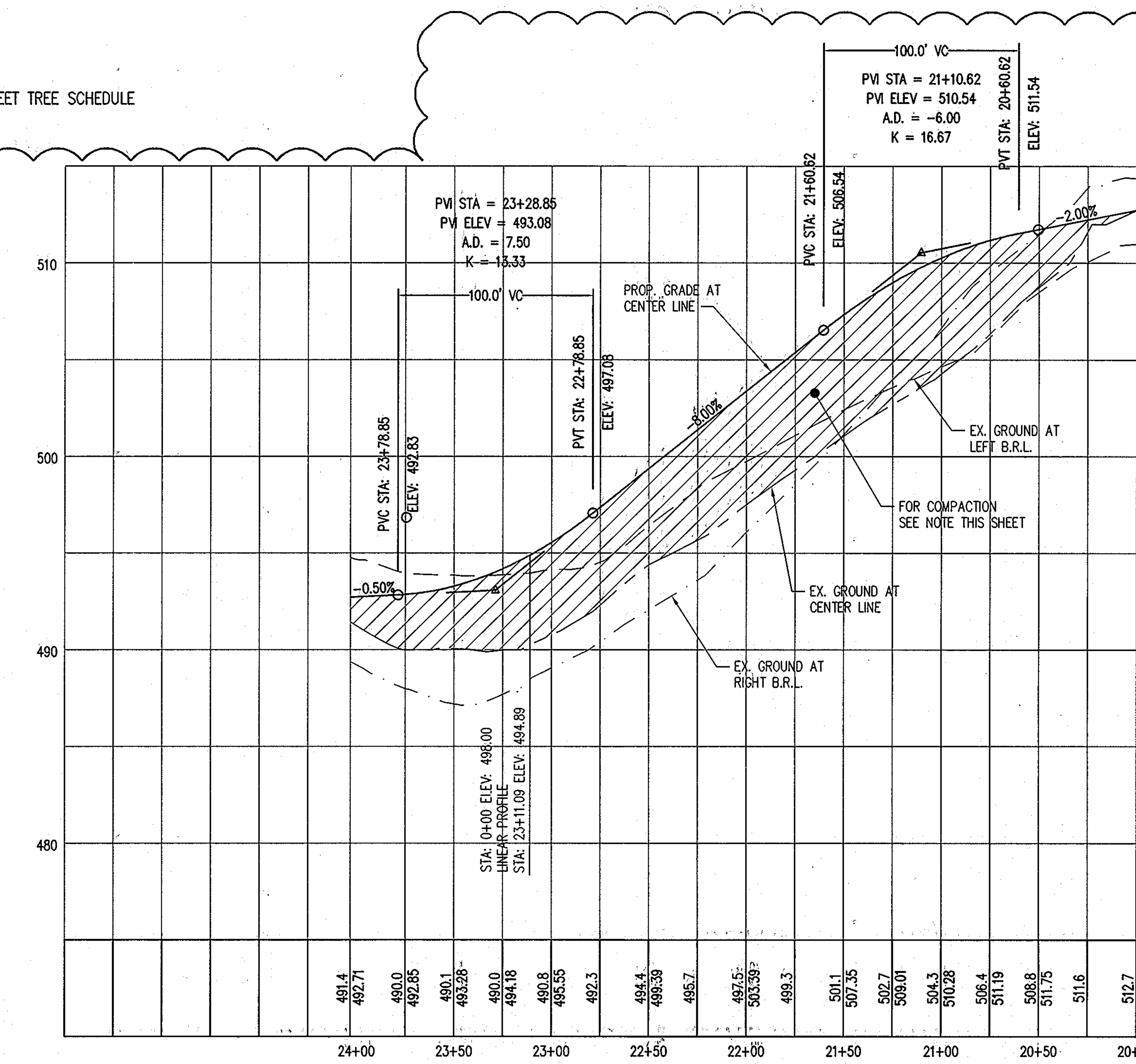
HIGHLAND RD. TO OWINGS OVERLOOK WAY



OWINGS OVERLOOK WAY TO HIGHLAND RD.

CURB RETURN - PROFILE

SCALE: 1"=50' (H) AND 1"=5' (V)



OWINGS OVERLOOK WAY - PROFILE

SCALE: 1"=50' (H) AND 1"=5' (V)

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW PROPOSED GRADE FOR OWINGS OVERLOOK WAY
2. TO SHOW ROADWAY PROFILE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sanjay Patel — 05/25/2013
SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

William C McElwee — 7/8/2013
SK HOMES AT HIGHLAND OWINGS, LLC — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
7-22-13
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
8/5/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
8/06/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DATE	NO.	REVISION
04/11/12	1	REVISE ROAD PROFILES & GRADES ON OWINGS OVERLOOK WAY
04/25/13	2	REVISE ROAD PROFILES & GRADES ON OWINGS OVERLOOK WAY

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092
CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

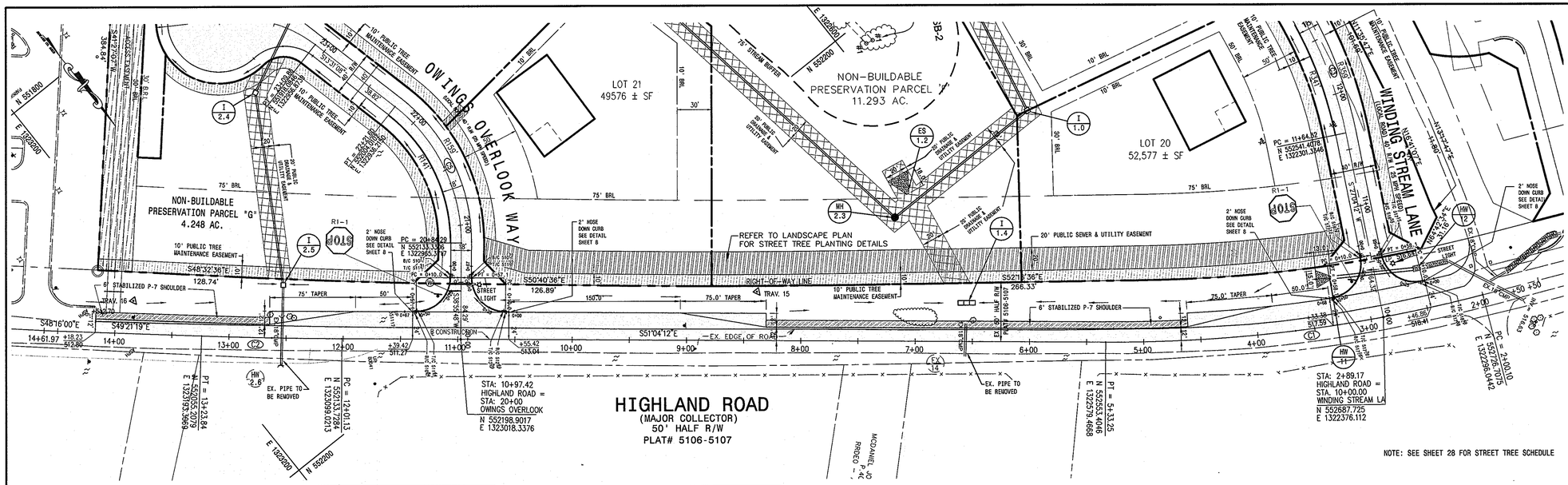
PROJECT
ROADWAY PLAN

OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO. 2011200
SCALE: AS SHOWN
DATE: 06/27/12
DRAWN BY: HRP
CHECKED BY: SBP
SHEET: 3-30

F-06-112



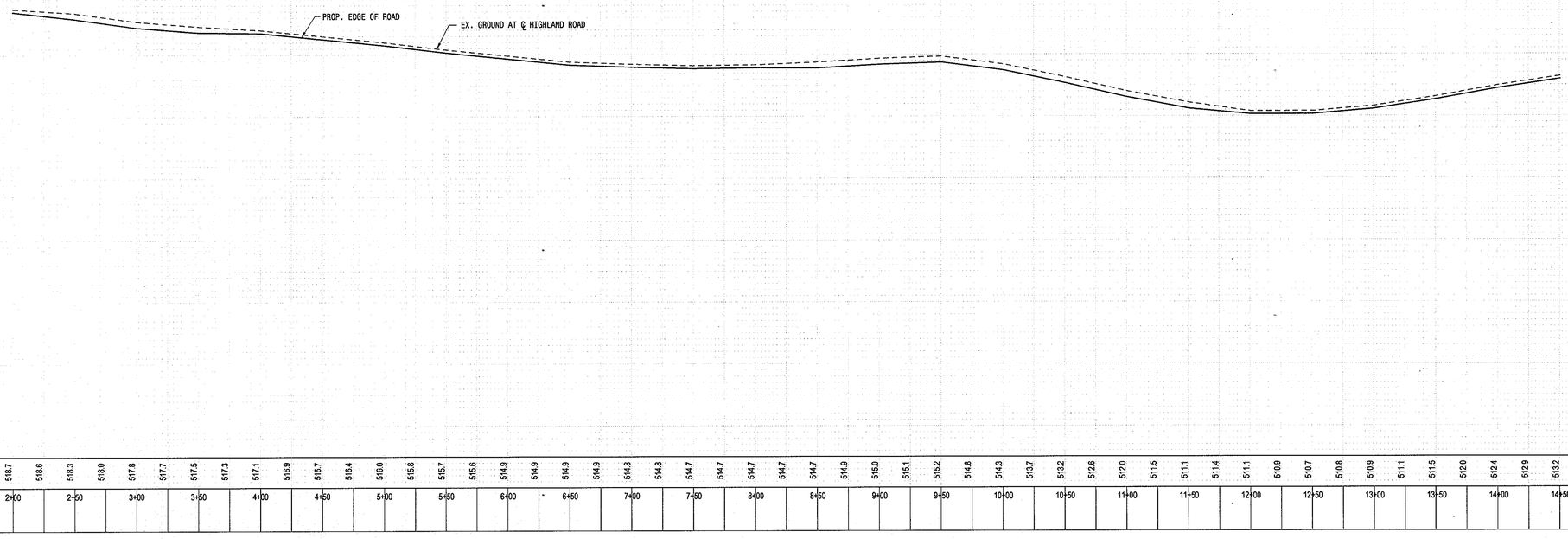
HIGHLAND ROAD - PLAN

SCALE : 1" = 50'

NOTE: SEE SHEET 28 FOR STREET TREE SCHEDULE

CURVE TABLE						
CURVE	DELTA	R	T	L	LC	CHD
C1	14°58'17"	1275.00'	167.5319'	333.1552	332.2082	N58°33'20"W
C2	1°42'53"	4100.00'	61.3568'	122.7044	122.6998	N50°12'46"W

BENCH MARK – CONTROL POINTS			
POINTS	NORTHING	EASTING	TYPE
TRAV 15	552328.2058	1322789.9701	PK. NAIL
TRAV 16	551993.6856	1323220.6324	PK. NAIL



HIGHLAND ROAD - PROFILE

SCALE : 1" = 50' HOR.
1" = 5' VER.

STD. 7" COMBINATION CURB AND GUTTER, SEE DETAIL ON SHEET 12 (HO. CO. STD.#R-3.01)

STA. 2+48.83, 24.0' RT (HIGHLAND ROAD) TO STA. 10+53.97, 9' RT (WINDING STREAM LA) – 48 LF.
STA. 3+30.32, 24.0' RT (HIGHLAND ROAD) TO STA. 10+55.31, 9' LT (WINDING STREAM LA) – 48 LF.
STA. 10+58.42, 24.0' RT (HIGHLAND ROAD) TO STA. 20+54.00, 9' RT (OWINGS OVERLOOK) – 48 LF.
STA. 11+36.42, 24.0' RT (HIGHLAND ROAD) TO STA. 20+54.10, 9' LT (OWINGS OVERLOOK) – 48 LF.

NOSE DOWN CURB, SEE DETAIL ON SHEET 12

STA. 10+55.32, 9' RT (WINDING STREAM LA) – 1 EA.
STA. 10+55.32, 9' LT (WINDING STREAM LA) – 1 EA.
STA. 2+46.86, 24.0' RT (HIGHLAND ROAD) – 1 EA.
STA. 3+33.38, 24.0' RT (HIGHLAND ROAD) – 1 EA.
STA. 10+55.42, 21.7' RT (HIGHLAND ROAD) – 1 EA.
STA. 11+39.42, 21.7' RT (HIGHLAND ROAD) – 1 EA.
STA. 20+57.00, 9' RT (OWINGS OVERLOOK) – 1 EA.
STA. 20+56.98, 9' LT (OWINGS OVERLOOK) – 1 EA.

NOTES:

1. ALL SIGNAGE AND PAVEMENT MARKINGS MUST BE IN ACCORDANCE WITH THE LATEST MUTCD STANDARDS.
2. ALL NEW PAVEMENT MARKINGS AND SIGN LOCATION SHALL BE APPROVED BY A COUNTY TRAFFIC ENGINEER PRIOR TO INSTALLATION. CALL 410-313-5752
3. 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 POST CAP SHALL BE MOUNTED ON TOP OF EACH POST.
4. 150– WATT HPS VAPOR "PREMIER" POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE SHALL BE UTILIZED.

STREET LIGHTING SCHEDULE

SYMBOL	POLE TYPE	FIXTURE	LOCATION	LAMP SIZE
LP ☼	14' BLACK FIBERGLASS POLE	POST-TOP: ACORN	STA 0+45', 17.5' RT. WINDING STREAM WAY	150 watts HPS
			STA 0+43', 16' RT. OWINGS OVERLOOK WAY	

NOTES:

1. HIGHLAND ROADWAY IMPROVEMENT SHOWN SHALL BE IN ACCORDANCE WITH DESIGN MANUAL, VOLUME IV, STD. DETAIL R-1.08. SEE SHT 6.

LEGEND

- FULL DEPTH ASPHALT PAVING
- 1 1/2" MILL & OVERLAY
- STABILIZED SHOULDER DOUBLE BIT. SURFACE TREATMENT

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/3/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/2/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7080 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRY ESCALANTE — REG. NO. 13265 — PROFESSIONAL ENGINEER
6/6/08

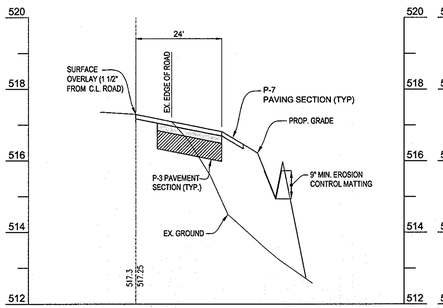
DALE THOMPSON BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7300
Fax 410-381-8747

PROJECT :
PLAN & PROFILE - HIGHLAND ROAD
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

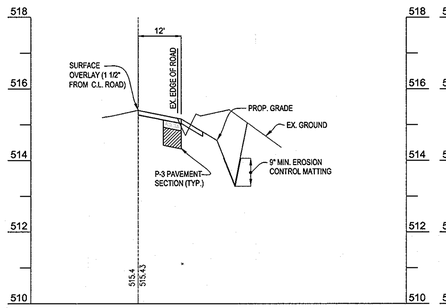
PROJECT NO.
SCALE: AS SHOWN
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 4 - 30

F-06-112

NOTE
1. ROADWAY WIDENING FOR HIGHLAND ROAD SHALL BE IN ACCORDANCE WITH DESIGN MANUAL, VOLUME IV STANDARDS DETAIL, R-10.01.



CROSS SECTION 3+50
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



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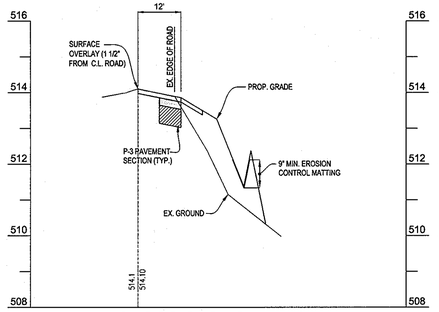

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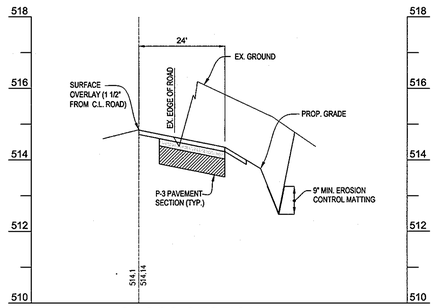
1" = 2' (VERT.)



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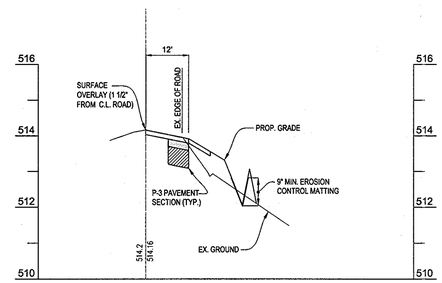

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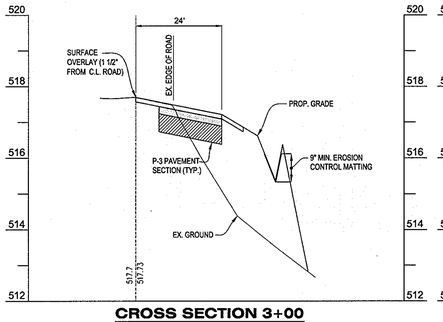
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



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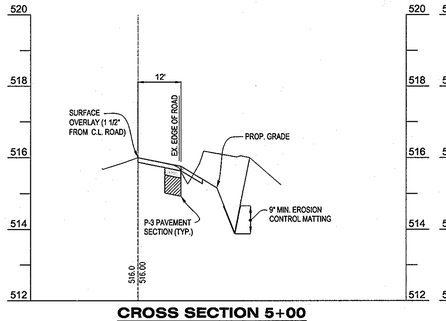

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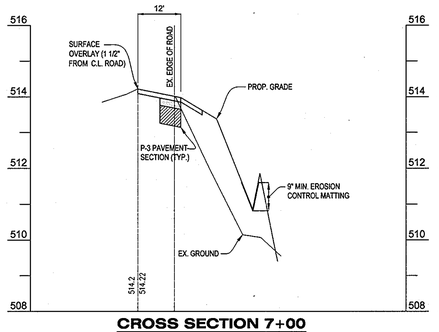

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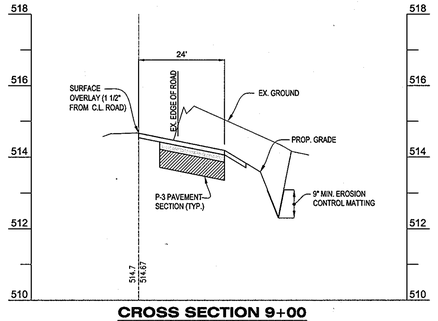

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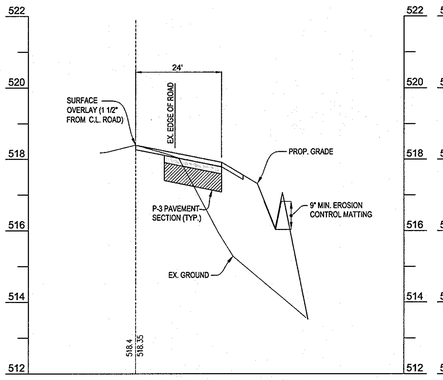

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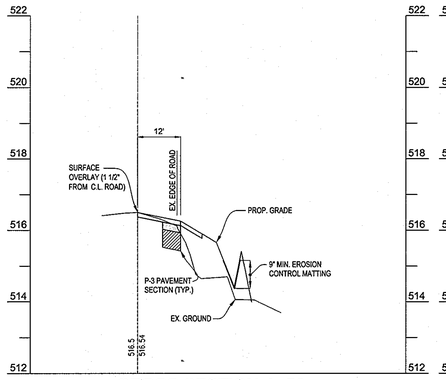
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



CROSS SECTION 4+50
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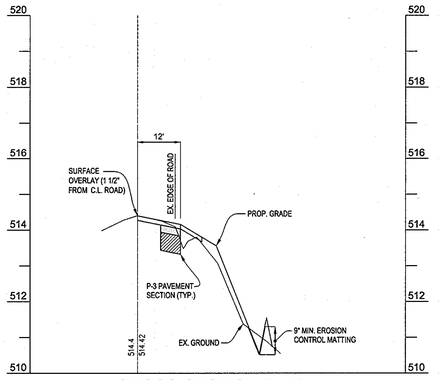
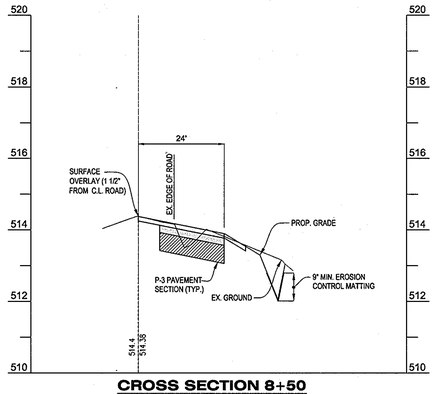
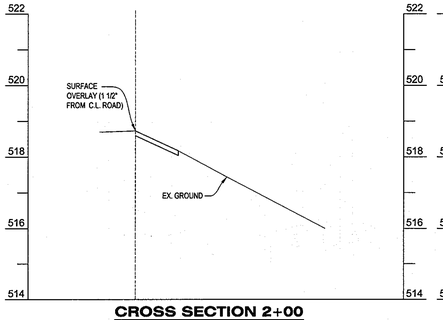
1" = 2' (VERT.)



CROSS SECTION 6+50
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



CROSS SECTION 8+50
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



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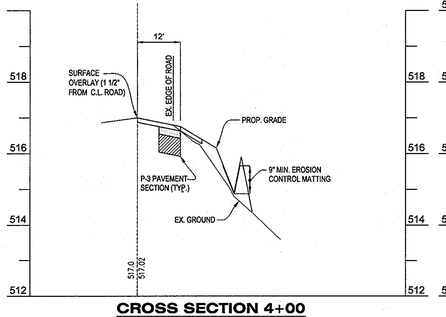

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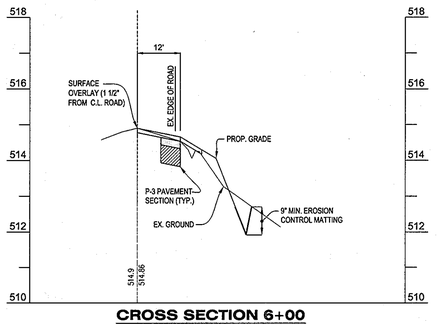


CROSS SECTION 6+00
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)

NOTE:
PER PAVING SECTIONS P-3 & P-7
SEE SHEET 8.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/8/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 7/3/08 DATE

DATE	NO.	REVISION

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7030 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

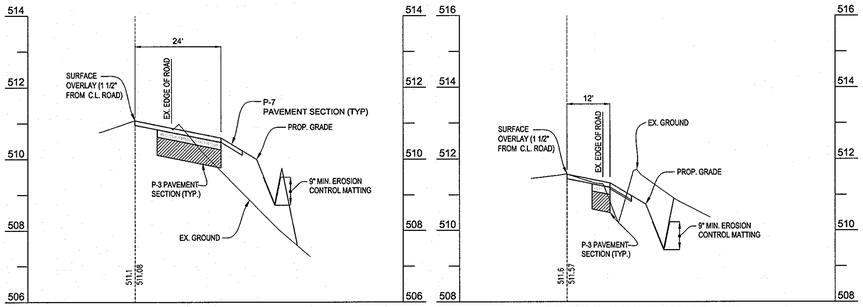
STATE OF MARYLAND — JOSE H. ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER — 6/6/08

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-5736
301-596-7380
Fax 410-381-8747

PROJECT : CROSS SECTION PLAN
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

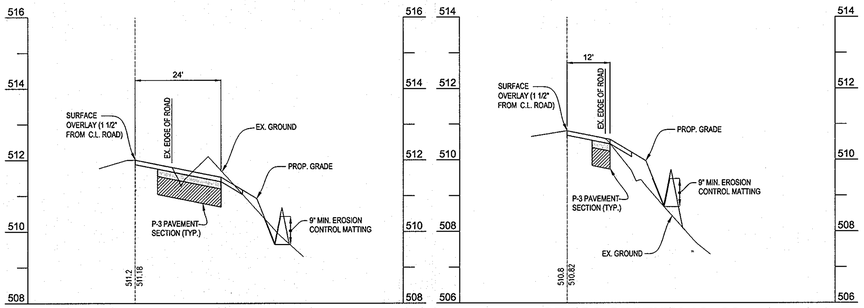
PROJECT NO.
SCALE: AS SHOWN
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 5 - 30

F-06-112



CROSS SECTION 11+50
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)

CROSS SECTION 13+50
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



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SCALE: 1" = 20' (HOR.)
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CROSS SECTION 13+00
SCALE: 1" = 20' (HOR.)
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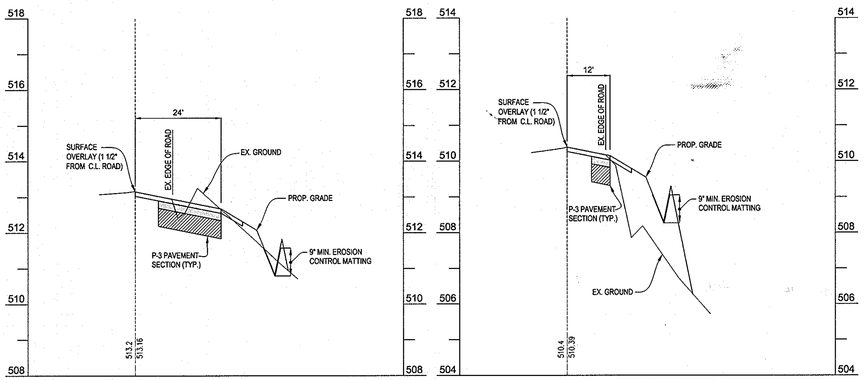
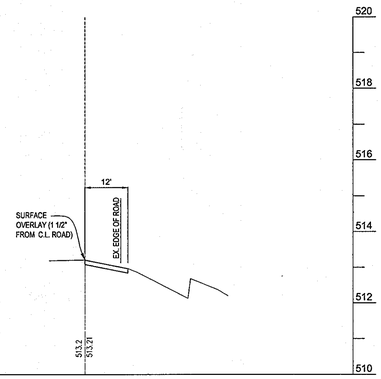


CROSS SECTION 10+50
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)

CROSS SECTION 12+50
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



CROSS SECTION 14+17
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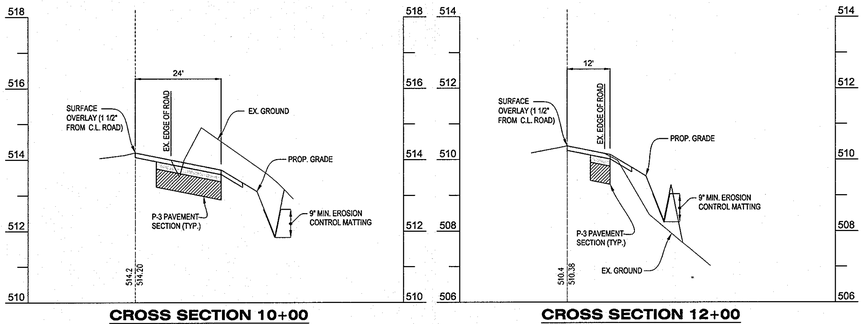
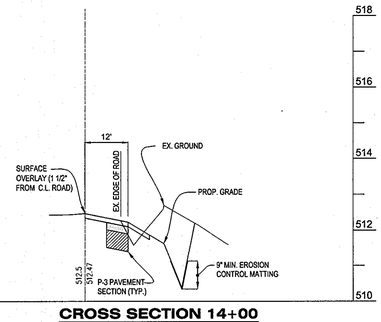
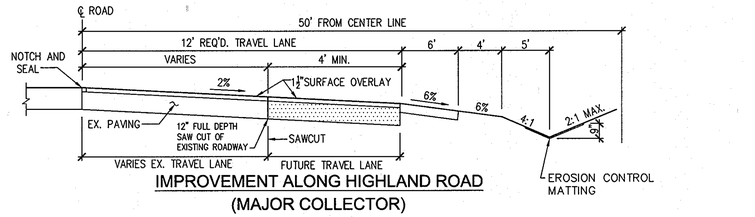


CROSS SECTION 10+00
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)

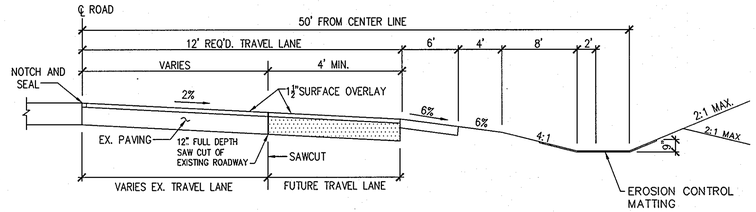
CROSS SECTION 12+00
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)



CROSS SECTION 14+00
SCALE: 1" = 20' (HOR.)
1" = 2' (VERT.)

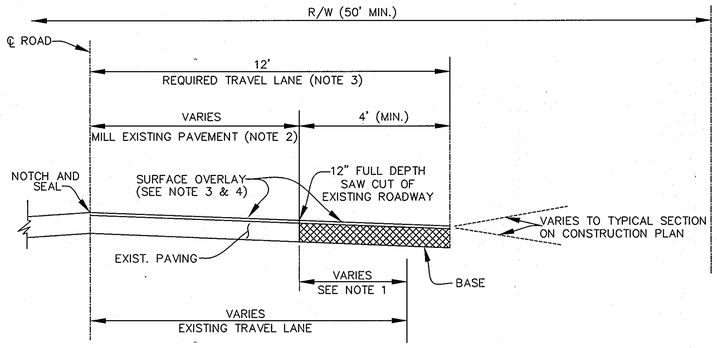


IMPROVEMENT ALONG HIGHLAND ROAD
(MAJOR COLLECTOR)
STA. 2+00 TO STA. 2+32
STA. 10+08 TO 14+00
NOT TO SCALE



IMPROVEMENT ALONG HIGHLAND ROAD
(MAJOR COLLECTOR)
STA. 2+80 TO STA. 10+70
NOT TO SCALE

NOTE
1. ROADWAY WIDENING FOR HIGHLAND ROAD SHALL BE IN ACCORDANCE WITH DESIGN MANUAL, VOLUME IV STANDARDS DETAIL, R-1.08.



NOTE 1 – WHEN EXISTING TRAVEL LANE IS LESS THAN THE REQUIRED 12' LANE. CONTRACTOR SHALL REMOVE A MINIMUM OF 1' FULL DEPTH OF THE EXISTING ROADWAY. IF CURB AND GUTTER IS INSTALLED, PROVIDE A MINIMUM OF 4' OF WIDENING FROM FACE OF GUTTER PAN.

NOTE 2 – THE EXISTING PAVEMENT TO BE RESURFACED SHALL BE MILLED AT DEPTH OF 1 1/2" (MINIMUM).

NOTE 3 – THE RESURFACING SHALL BE PLACED TO THE CENTERLINE OF THE ROADWAY.

NOTE 4 – RESURFACING COURSE TO BE EQUAL TO THE SURFACE COURSE OF THE TYPICAL PAVEMENT SECTION

WIDENING STRIPS ALONG EXISTING ROADWAYS
(NOT TO SCALE)

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REENED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/3/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 7/1/08 DATE

DATE	NO.	REVISION

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRY ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER — 6/6/08

DALE THOMPSON BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

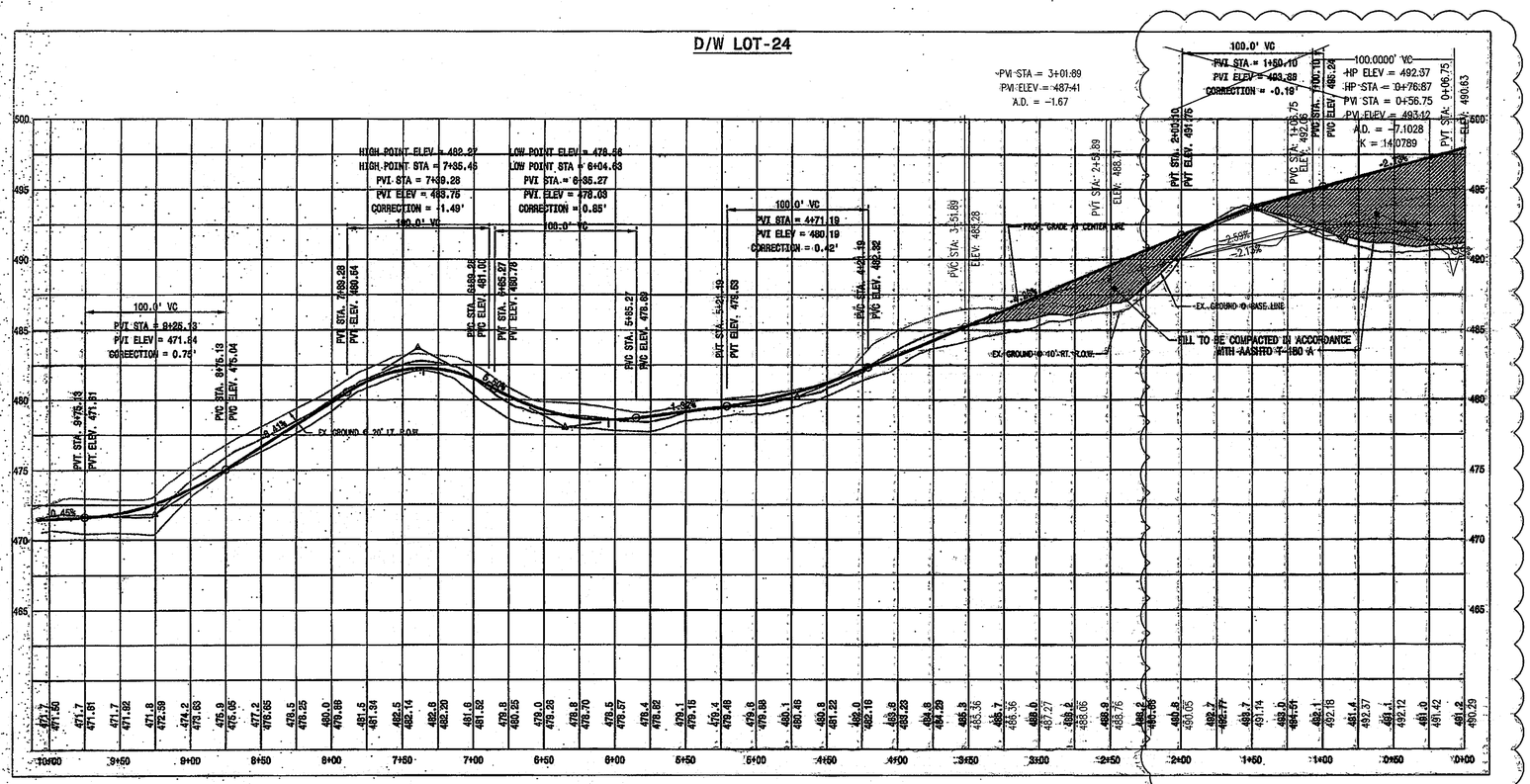
PROJECT :
CROSS SECTION PLAN
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

PROJECT NO.
SCALE: AS SHOWN
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 6 - 30

F-06-112

D/W LOT-24



PROFILE
SCALE: 1" = 50' (HOR.)
1" = 5' (VERT.)

2

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Jeenjay Patel — 04/25/13
SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

William C. McElwee — 7/8/2013
SK HOMES AT HIGHLAND OWINGS, LLC — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

Walter Z. Mallett — 7-22-13
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

8/5/13
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Kent Sheubrooks — 8/06/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092
CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

DATE	NO.	REVISION
02/10/12	1	REVISE ROAD GRADES
04/25/13	2	REVISE ROAD GRADES

OWNER/DEVELOPER

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW PARTIALLY REVISED LOT 24 DRIVEWAY PROFILE

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

STATE OF MARYLAND — JEENJAY PATEL — 31042 — REGISTERED PROFESSIONAL ENGINEER

Jeenjay Patel

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-28-08.

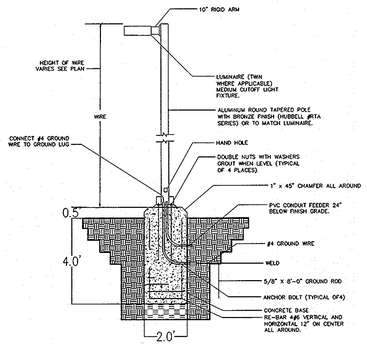
STATE OF MARYLAND — JOHN E. HOHENWARTER — 13265 — PROFESSIONAL ENGINEER

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6786
301-596-7280
Fax 410-381-8747

PROJECT :
DRIVEWAY PROFILE LOT-22
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: AS SHOWN
DATE: 06/06/08
DESIGN BY: AVG
CHECKED BY: JHE
SHEET: 7-30

F-06-112

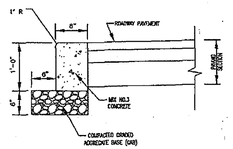


STREET LIGHT POLE BASE DETAIL

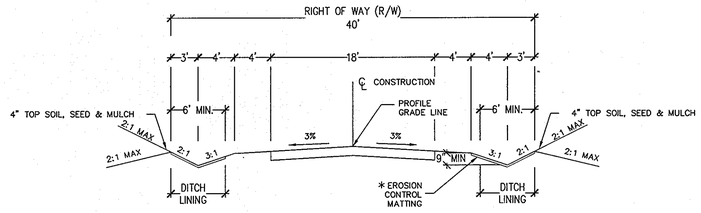
NO SCALE

NOTE

1. LIGHT TO BE 150-WATTS HPS VAPOR "PREMIER" POST TOP FIXTURE.
2. LIGHTING DETAIL FOR INFORMATIONAL PURPOSES ONLY. SEE ELECTRICAL AND ARCHITECTURAL PLANS FOR ACTUAL LIGHTING DETAILS AND SPECIFICATIONS.



Revised	Howard County, Maryland Department of Public Works	Curb Flush	Detail R-3.07
Revised 5/21/2007 Approved	Approved Chief, Bureau of Engineering		



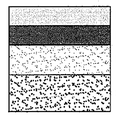
TYPICAL PAVEMENT SECTION WINDING STREAM LANE & OWINGS OVERLOOK WAY

STA. 10+00 TO STA. 17+21.93 WINDING STREAM WAY
STA. 20+00 TO STA. 24+42.22 OWINGS OVERLOOK WAY
NOT TO SCALE

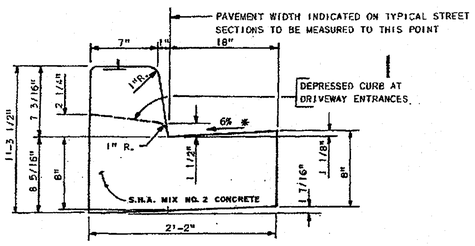
NOTE : INSTALL FLUSH CURB AT STA. 11+64.3 LT. TO 12+70.2, WINDING STREAM LANE, STA. 20+84.3 LT. TO STA. 22+21.6 LT. , OWING OVERLOOK WAY.

* NOTE:
ROAD WIDENING AT HIGHLAND ROAD SHALL BE IN ACCORDANCE WITH DESIGN MANUAL, VOLUME IV, STANDARD DETAIL R-10.01

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥ 7	3 TO <5	5 TO <7	≥ 7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			HMA WITH CONSTANT GAB		
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY; LOCAL ROADS; ACCESS PLACE, ACCESS STREET; CUL-DE-SACS; RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY; LOCAL ROADS; ACCESS PLACE, ACCESS STREET; CUL-DE-SACS; NON-RESIDENTIAL; MINOR COLLECTORS; RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	6.0	3.0	6.0	6.0	6.0
P-7	STABILIZED SHOULDER: MINOR ARTERIAL	CHIP SEAL DOUBLE SURFACE TREATMENT	1.75	1.75	1.75	NA	NA	NA
		GRADED AGGREGATE BASE (GAB)	16.5	14.5	13.0	NA	NA	NA

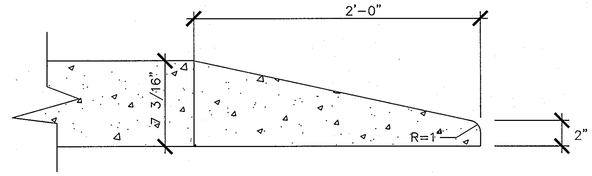


NOTES
1. ROADWAY WIDENING FOR HIGHLAND ROAD SHALL BE IN ACCORDANCE WITH DESIGN MANUAL, VOLUME IV STANDARDS DETAIL, R-10.01.



STANDARD 7" COMBINATION CURB AND GUTTER (HOWARD CO. STD. #R-3.01)

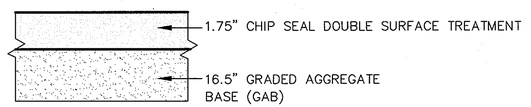
NOT TO SCALE



NOSE DOWN CURB

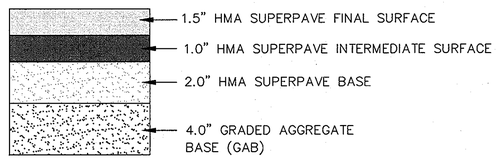
NOT TO SCALE

NOTE:
PAVING SECTIONS SHOWN ARE BASED ON CBR VALUES OF LESS THAN 5. IF FIELD EVALUATION FOUND THE CBR VALUES TO BE GREATER THAN 5, THE PAVING SECTIONS WILL BE REVISED ACCORDINGLY.



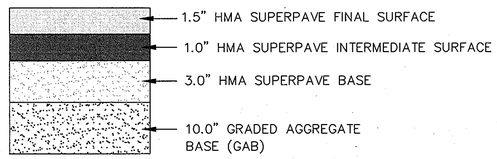
P-7 PAVEMENT SECTION

NOT TO SCALE



P-2 PAVEMENT SECTION (WINDING STREAM LA. & OWINGS OVERLOOK)

NOT TO SCALE



P-3 PAVEMENT SECTION (HIGHLAND ROAD)

NOT TO SCALE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 06/06/08
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — DATE 06/06/08
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 7-1-08

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/3/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/3/08

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301 870 5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRY ESCALANTE — REGISTERED PROFESSIONAL ENGINEER
6/6/08

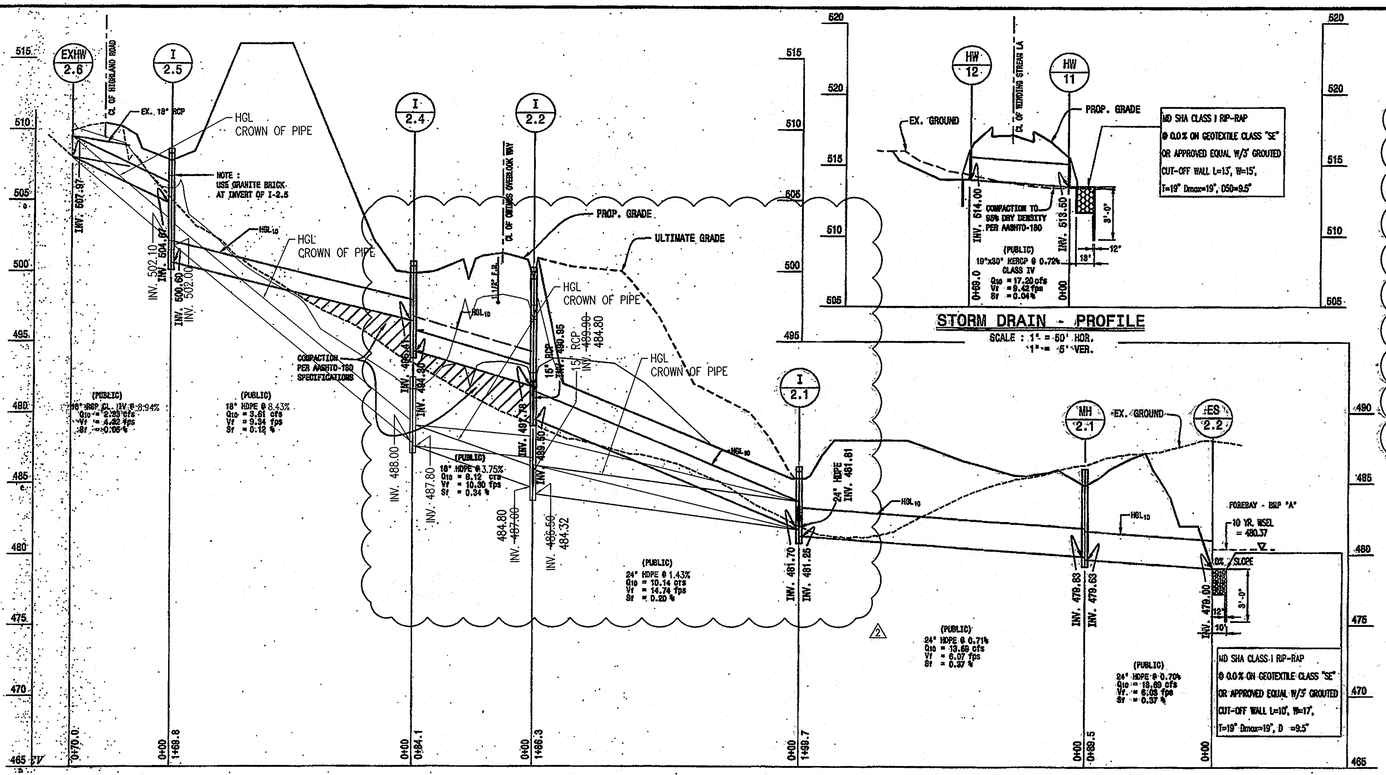
DALE THOMPSON BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT :
TYPICAL SECTION AND ROAD DETAILS
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: AS SHOWN
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 8 - 30

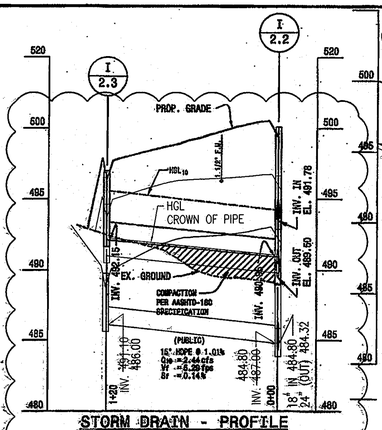
F-06-112

I:\OWINGS\ISP\OWINGS5-10-23-07\FP08-TYPICAL SECTION.dwg, TYPICAL SECTION, 6/6/2008 4:08:14 PM, guz



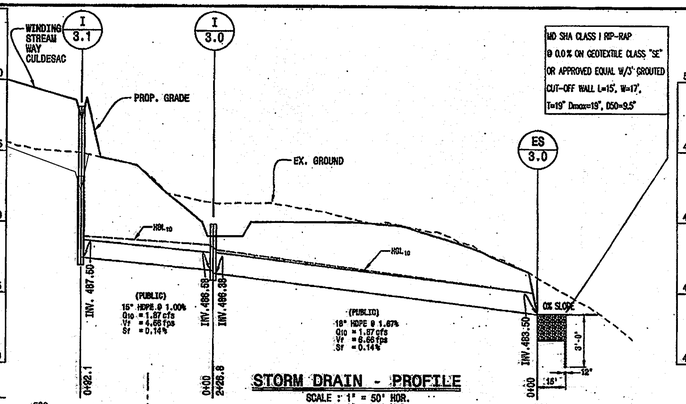
STORM DRAIN - PROFILE

SCALE : 1" = 50' HOR.
1"= 5' VER.



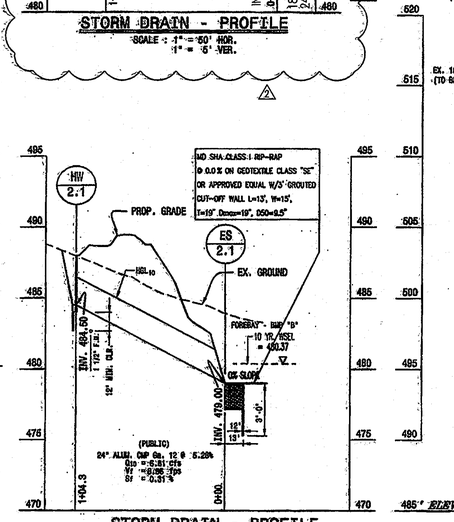
STORM DRAIN - PROFILE

SCALE : 1" = 50' HOR.
1"= 5' VER.



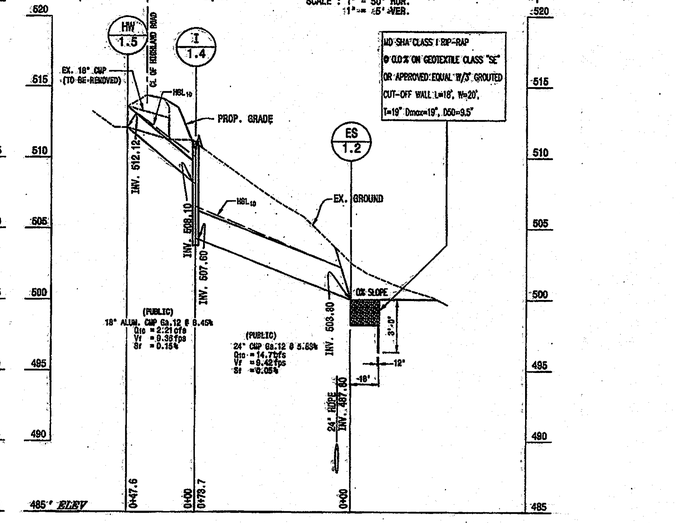
STORM DRAIN - PROFILE

SCALE : 1" = 50' HOR.
1"= 5' VER.



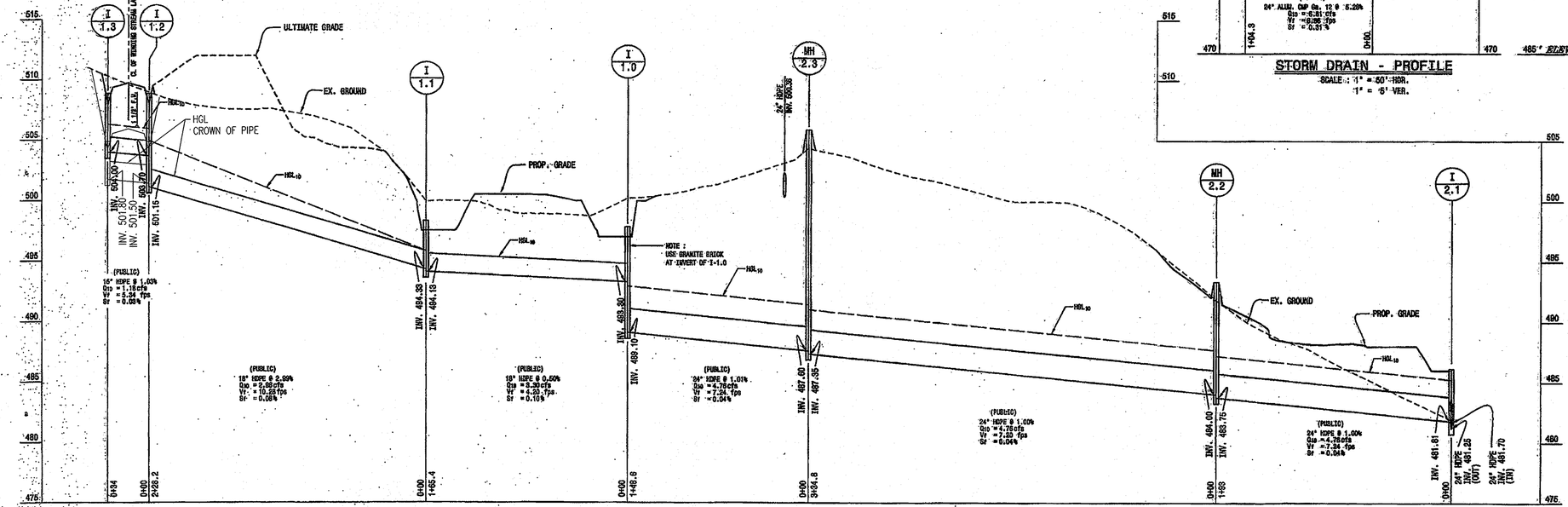
STORM DRAIN - PROFILE

SCALE : 1" = 50' HOR.
1" = 5' VER.



STORM DRAIN - PROFILE

SCALE : 1" = 50' HOR.
1"= 5' VER.



STORM DRAIN - PROFILE

SCALE : 1" = 50' HOR.
1" = 5' VER.

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW STORM DRAIN PROFILE DUE TO GRADE CHANGE.

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2 WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

31042 — REGISTERED PROFESSIONAL ENGINEER — STATE OF MARYLAND — SANJAY PATEL

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092
CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

STATE OF MARYLAND — SANJAY PATEL — 31042 — PROFESSIONAL ENGINEER — 04/25/13

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-992-6736
301-596-7283
Fax 410-381-8747

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sanjay Patel — SIGNATURE OF ENGINEER — 04/25/2013 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

William C. McElwee — SK HOMES AT HIGHLAND OWINGS, LLC — 7/8/2013 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

Walter A. Kelly — CHIEF, BUREAU OF HIGHWAYS — 7-22-13 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 8/5/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 8/06/13 DATE

DATE	NO.	REVISION
02/10/12	1	REVISED STORM DRAIN PROFILES BASED ON NEW PROP. SURFACE GRADE
04/25/13	2	REVISED STORM DRAIN PROFILES BASED ON NEW PROP. SURFACE GRADE

OWNER / DEVELOPER:
SK HOMES AT HIGHLAND OWINGS, LLC (301-870-5603)
7090 SAMUEL MORSE DRIVE, SUITE 500, COLUMBIA, MD 21046

PROJECT :

STORMDRAIN PROFILE & DETAILS
OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.	
SCALE:	AS SHOWN
DATE:	06/08/08
DRAWN BY:	AVG
CHECKED BY:	JHE
SHEET:	9 - 30

F-06-112

STRUCTURE SCHEDULE

STRUCTURE No.	STRUCTURE TYPE	TOP ELEVATION	INV. IN	INV. OUT	ROAD STATION	NORTHING	EASTING	OFFSET	Ho. Co. STD.
I-1.0	"D" INLET	497.83	497.00*, 493.30	489.10		552352.232	1322506.843		SD-4.39
I-1.1	"D" INLET	498.33	497.50*, 494.33	494.13		552190.3831	1322472.7545		SD-4.39
I-1.2	"K" INLET	505.30	501.50*	501.15		552210.4071	1322245.6645		SEE DETAIL THIS SHEET
I-1.3	"K" INLET	505.30	-	501.80		552216.1564	1322212.1541		SD. 4.36
I-1.4	"K" INLET	511.38	510.55*, 508.10	507.60		552450.3839	1322552.8959		SEE DETAIL THIS SHEET
I-1.5	"D" INLET	500.43	499.60*	495.95		552355.5501	1322469.2234		SD-4.39
I-2.1	"D" INLET	486.13	485.30*, 481.81, 481.70	481.25		551838.5578	1322767.0878		SD-4.39
I-2.2	"K" INLET	492.80	484.80, 484.32	484.80		551882.0742	1322948.0473		SEE DETAIL THIS SHEET
I-2.3	"K" INLET	489.70	-	486.00	△2	551808.9195	1323040.7641		SD-4.36
I-2.4	"D" INLET	491.80	488.00*	487.80		551918.3027	1323023.8663		SD-4.39
I-2.5	"D" INLET	505.85	502.10*	502.00		552064.7478	1323109.6336		SD-4.39
I-3.0	"D" INLET	489.63	489.00*, 488.72	486.52		551666.1023	1322207.9584		SD-4.39
I-3.1	"K" INLET	493.16	497.27	487.50		551962.3316	1322240.2389		SEE BELOW
MH-2.3	STD. MANHOLE	505.88	487.60	487.35		552352.6810	1322655.2952		G-5.12
MH-2.2	STD. MANHOLE	493.33	484.00	483.75		552022.1470	1322707.7839		G-5.12
MH-2.1	STD. MANHOLE	488.00	479.83	479.63		551639.8407	1322768.7479		G-5.12
HW-11		515.58	513.50	—					
MH-12		516.09	—	514.00					
HW-1.5		513.62	512.12	—		552458.0796	1322683.2462		SD-5.11
HW-2.1		488.00	484.50	—		551601.4722	1323028.3121		SD-5.11
EX. HW-2.6		510.00	-	507.97					
ES-1.2	END SECTION	—	—	503.30		552343.6869	1322633.7063		SD-5.51
ES-2.0	END SECTION	—	—	471.48		551469.5233	1322727.9787		SD-5.51
ES-2.1	END SECTION	—	—	479.00		552343.6869	1322633.7063		SD-5.51
ES-2.2	END SECTION	—	—	479.00		551467.1315	1322717.1987		SD-5.51
ES-3.0	END SECTION	485.60	—	483.54		551738.4475	1322393.9925		SD-5.51
S-2.0		481.25	—	471.00		551484.6959	1322794.8541		SEE DETAIL THIS SHEET 21

* UNLESS OTHERWISE NOTED, STRUCTURES ARE PUBLIC

*THROAT OPENING

PIPE SCHEDULE (PUBLIC)

PIPE SIZE (IN.)	CLASS/TYPE	TOTAL LENGTH (FT.)	REMARKS
15	HDPE	246	
18	HDPE	944	
24	HDPE	1153	
19"x30"	HERCP	70	
18"	ALUM.	48	
24	ALUM.	104	
24	CMP	74	

OUTFALL PROTECTION DATA

OUTFALL	DISCHARGE (CFS)	PIPE DIAMETER (IN)	STONE SIZE - d50 REQUIRED	STONE SIZE - d50 PROVIDED	LENGTH L (FT)	WIDTH, W (FT)
ES-1.2	14.7	24	3"	9.5"	16	20
ES-2.0	15.42	30	3"	9.5"	14.5	17
ES-2.1	6.81	24	2"	9.5"	13	15
ES-2.2	13.69	24	3"	9.5"	10	15
ES-3.0	4.87	18	3"	9.5"	15	17
HW-11	17.20	19"x30"		9.5"	13	15

OUTLET PROTECTION CONSTRUCTION SPECIFICATIONS

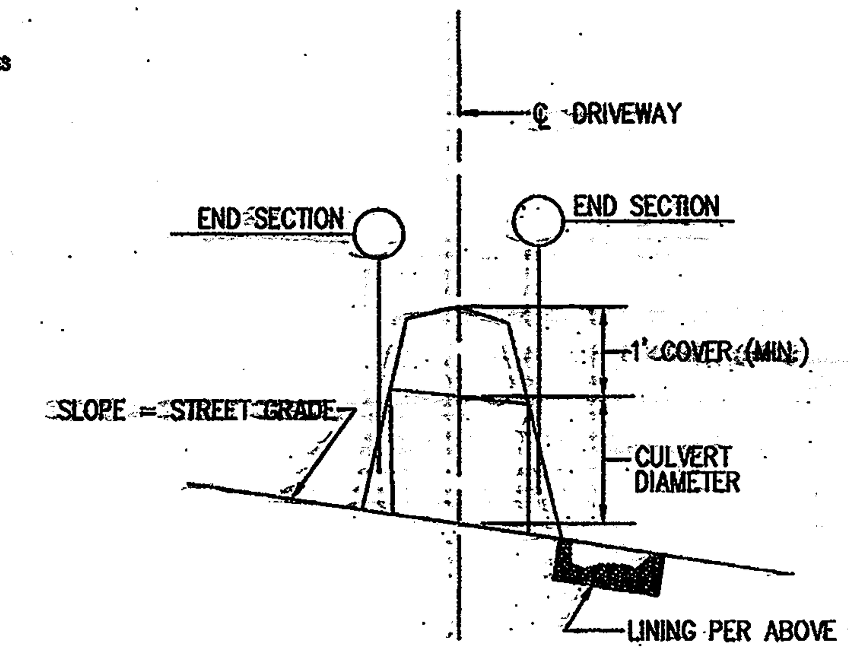
1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGE PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE SHALL BE A MINIMUM OF ONE FOOT.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

DRIVEWAY CULVERT DATA

LOT NUMBERS	STREET GRADE %	DISCHARGE Q_0(CFS)	PIPE TYPE/ DIAMETER	PIPE CAPACITY (CFS)	VELOCITY (1)CULVERT/DITCH(2) (FPS)	OUTFALL PREOTECTION FOR CULVERT AND ROAD SIDE DITCH	REMARKS
17	6.00	1.80	12" CMP	9.58	6.02 / 3.35	COURSE GRAVEL	Q TO I-2
18	4.00	1.80	12" CMP	7.13	4.91 / 2.73	COURSE GRAVEL	Q TO I-2
19	1.00	1.80	12" CMP	3.56	2.46 / 1.58	SOIL STABILIZATION MATTING OVER SEED & MULCH	Q TO I-2
20	2.00	1.80	12" CMP	5.04	3.47 / 2.21	SOIL STABILIZATION MATTING OVER SEED & MULCH	Q TO I-2
21	3.53	1.43	12" CMP	6.69	4.62 / 2.57	COURSE GRAVEL	Q TO I-2.2
22	3.53	2.44	15" CMP	12.14	4.62 / 2.57	COURSE GRAVEL	Q TO I-2.3

NOTE:

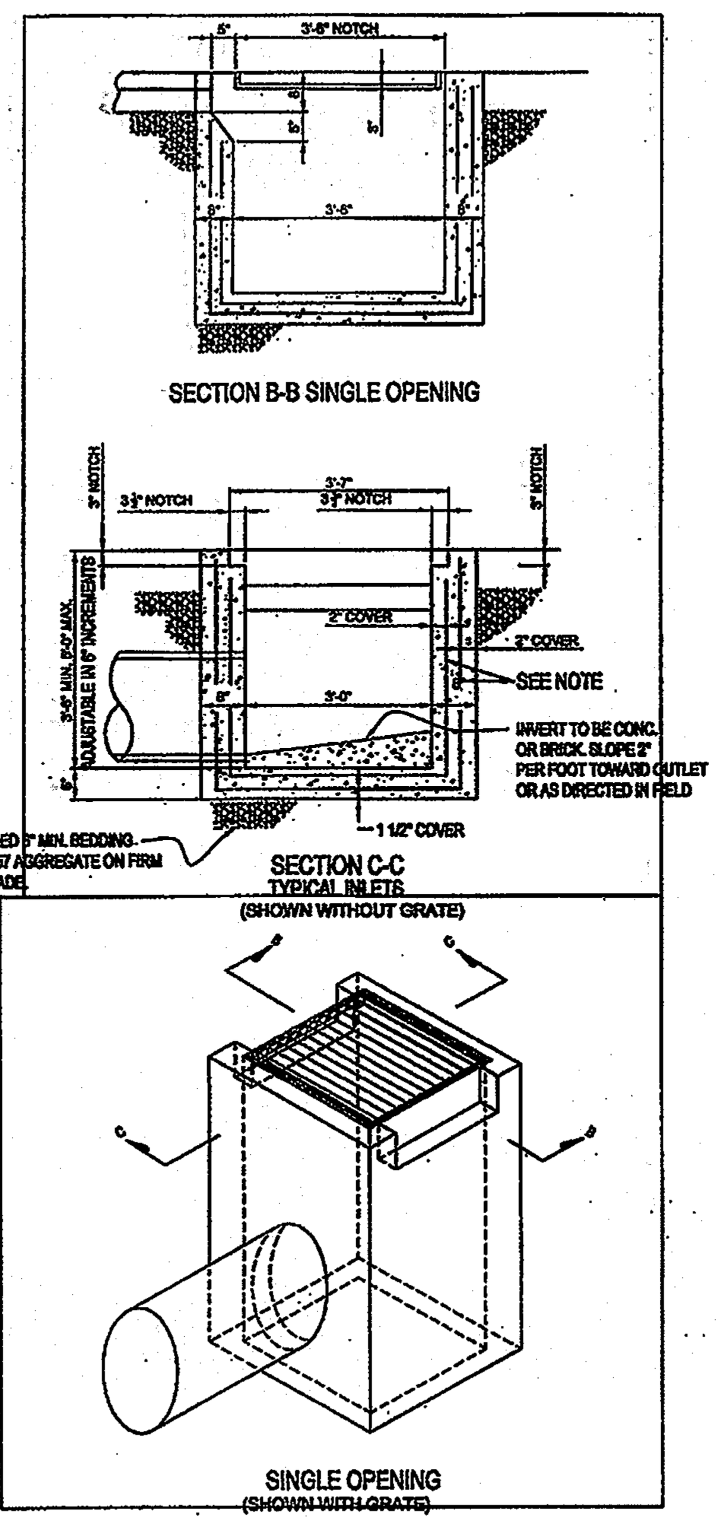
1. VELOCITIES DRIVEWAY CULVERTS ARE ASSUMED AS FULL FLOW VELOCITIES BASED ON:
   - a. STREET GRADE, = S
   - b. ASSUMED n = 0.024, and
   - c. MANNINGS EQUATION
   - $V = 24.57 \times D^{2/3} S^{1/2}$
2. DITCH VELOCITIES BASED ON:
   - a. DEPTH OF FLOW = 0.50'
   - b. AREA OF FLOW = 0.50 S.F.
   - c. FLOW WETTED PERIMETER = 2.24'
   - d. HYDRAULIC RADIUS = 0.223'
   - e. S = STREET GRADE,
   - f. MANNINGS EQUATION.
   - $V = 15.61 \times S^{1/2}$ FOR n = 0.035 (SOD, S&M, SOIL LINING)
   - $V = 13.68 \times S^{1/2}$ FOR n = 0.04 (COURSE GRAVEL)
3. FOR COURSE GRAVEL, d50 = 3"Ø STONE

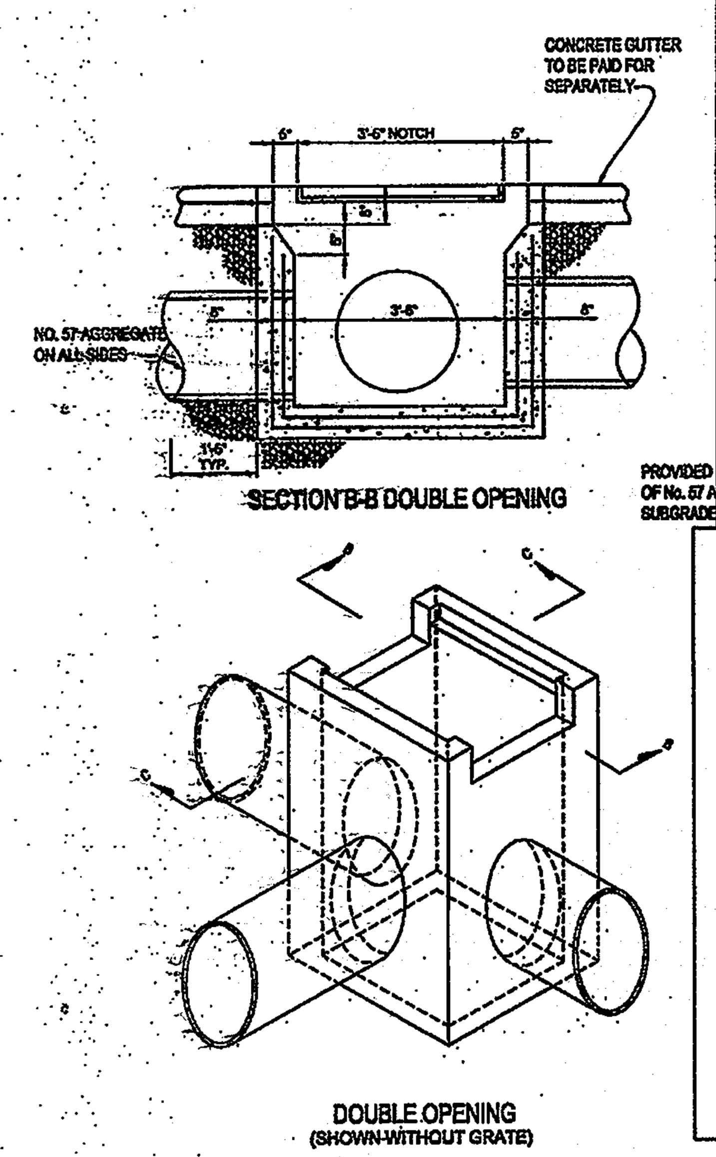


TYPICAL DRIVEWAY CULVERT PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

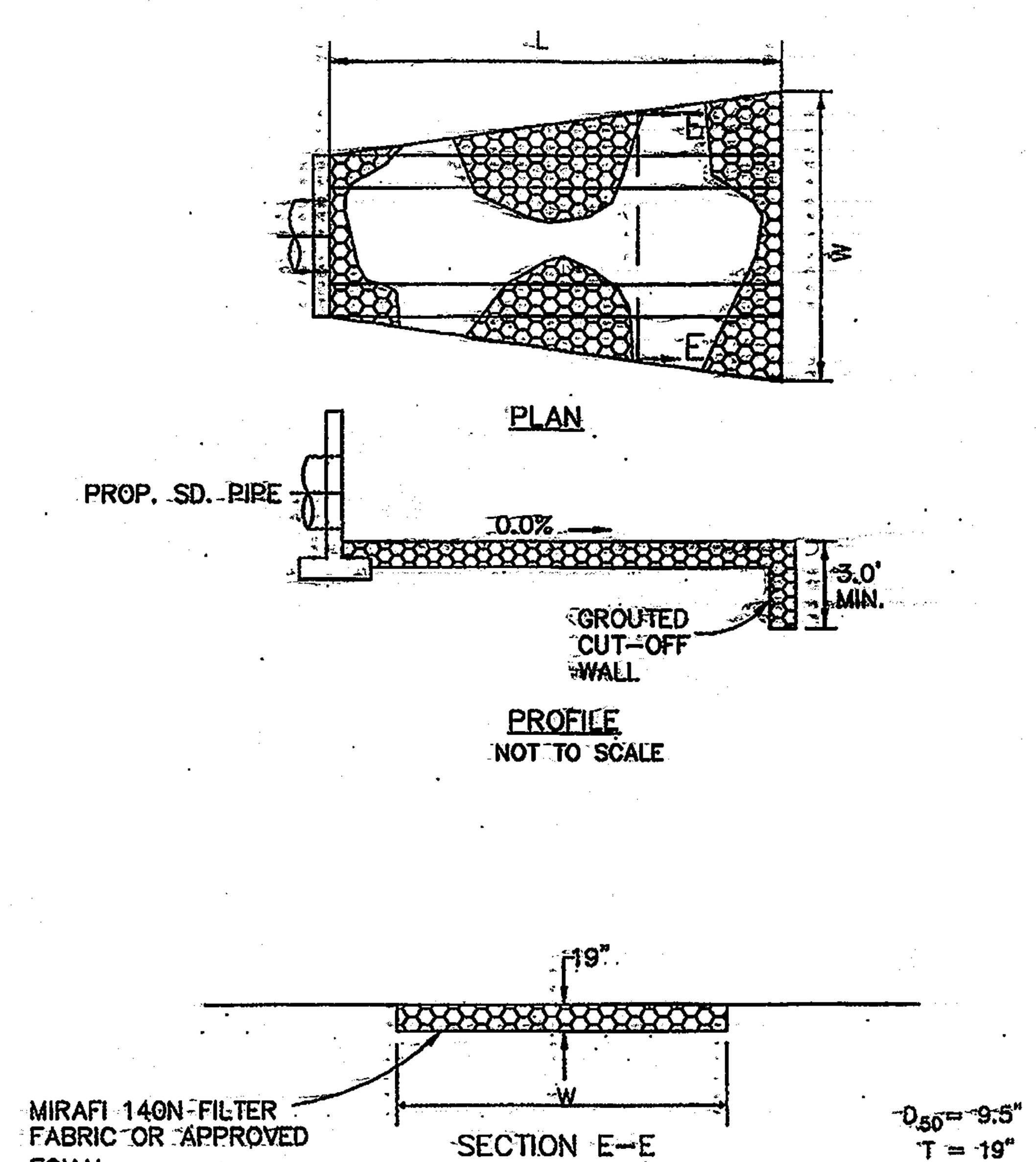
GENERALS NOTES

1. CONCRETE TO BE MIX No.6 (4500 P.S.I.
2. REINFORCING 2 LAYERS OF 4X4-W4XW4 WELDED WIRE FABRIC
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. PIPE OPENING TO BE PROVIDED AS REQUIRED, FOR SIZE, LOCATION AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.
5. FOR GRATE DETAILS SEE STANDARD MD. 378.05. GRATE TO BE AS SHOWN OR FINISH APPROVED EQUIVALENT.
6. MINIMUM DEPTH PAYMENT PER "EACH" INLET INCLUDES DEPTHS UP TO 3'-6". VERTICAL DEPTH PAYMENT PER "LINEAR FOOT" INCLUDES DEPTH IN EXCESS OF 3'-6".
7. A 6" PERFORATED CIRCULAR PIPE, FOR EROSION AND SEDIMENT CONTROL SHALL BE PLACED IN THE INLET WALL AT ALL INLET SEDIMENT TRAPS AS SHOWN ON THE PLANS.





MODIFIED K-INLET
PRE-CAST OPEN END GRATE
NOT TO SCALE



D_{50} = 9.5"
T = 19"
Dmax. = 19"

RIP-RAP OUTLET PROTECTION
NOT TO SCALE

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW STRUCTURE SCHEDULE DUE TO CHANGE IN GRADE

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092
CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL △1 AND △2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 04/25/2013

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

SK HOMES AT HIGHLAND OWINGS, LLC — DATE 7/8/2013

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7-22-13

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/5/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/06/13

DATE	NO.	REVISION
02/10/12	△1	REVISE STRUCTURE SCHEDULE ELEVATIONS
04/25/13	△2	REVISE STRUCTURE SCHEDULE ELEVATIONS

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT :

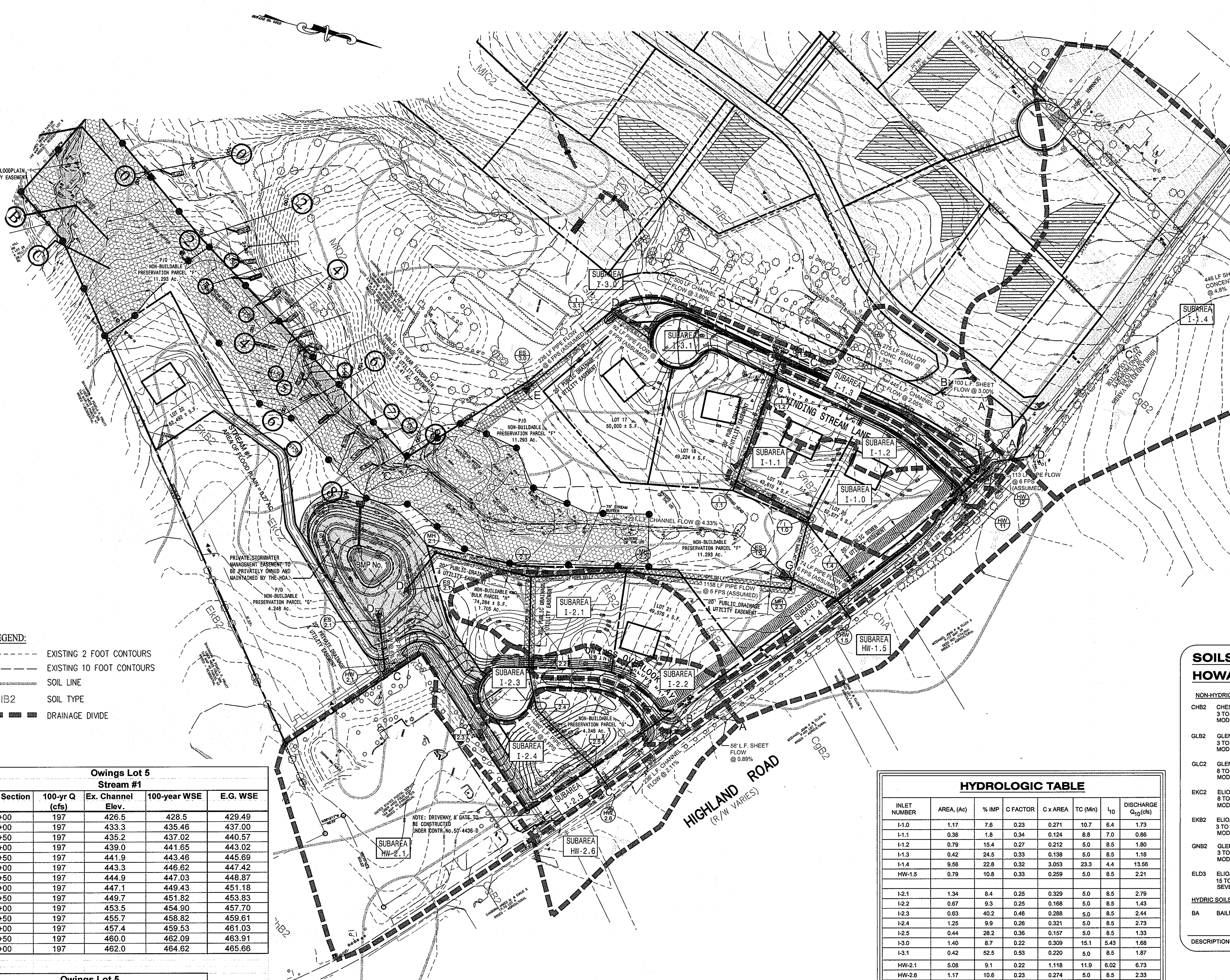
STORM DRAIN DETAILS

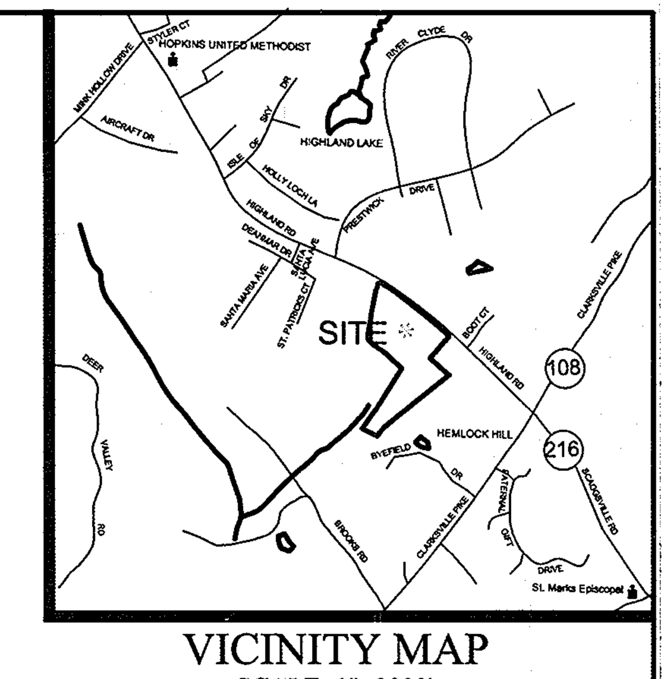
OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.:
SCALE: AS SHOWN
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 10 - 30

F-06-112





VICINITY MAP
SCALE: 1"=2000'

LEGEND:

- EXISTING 2 FOOT CONTOURS
- EXISTING 10 FOOT CONTOURS
- SOIL LINE
- GIB2 — SOIL TYPE
- DRAINAGE DIVIDE

Owings Lot 5
Stream #1

Cross Section	100-yr Q (cfs)	Ex. Channel Elev.	100-year WSE	E.G. WSE
0+00	197	426.5	428.5	429.49
2+00	197	433.3	435.46	437.00
2+50	197	435.2	437.02	440.57
3+00	197	439.0	441.65	443.02
3+50	197	441.9	443.46	445.69
4+00	197	443.3	446.62	447.42
4+50	197	444.9	447.03	448.87
5+00	197	447.1	449.43	451.18
5+50	197	449.7	451.82	453.83
6+00	197	453.5	454.90	457.70
6+50	197	455.7	458.82	459.61
7+00	197	457.4	459.53	461.03
7+50	197	460.0	462.09	463.91
8+00	197	462.0	464.62	465.66

Owings Lot 5
Stream #2

Cross Section	100-yr Q (cfs)	Ex. Channel Elev.	100-year WSE
A	322	419.0	422.73
B	322	425.1	428.22
C	322	428.6	431.27

HYDROLOGIC TABLE

INLET NUMBER	AREA, (Ac)	% IMP	C FACTOR	C x AREA	TC (Min)	I_{10}	DISCHARGE Q_{10}(cfs)
I-1.0	1.17	7.6	0.23	0.271	10.7	6.4	1.73
I-1.1	0.36	1.8	0.34	0.124	8.8	7.0	0.86
I-1.2	0.79	15.4	0.27	0.212	5.0	8.5	1.80
I-1.3	0.42	24.5	0.33	0.138	5.0	8.5	1.18
I-1.4	9.56	22.8	0.32	3.053	23.3	4.4	13.56
HW-1.5	0.79	10.8	0.33	0.259	5.0	8.5	2.21
I-2.1	1.34	8.4	0.25	0.329	5.0	8.5	2.79
I-2.2	0.67	9.3	0.25	0.168	5.0	8.5	1.43
I-2.3	0.63	40.2	0.46	0.288	5.0	8.5	2.44
I-2.4	1.25	9.9	0.26	0.321	5.0	8.5	2.73
I-2.5	0.44	28.2	0.36	0.157	5.0	8.5	1.33
I-3.0	1.40	8.7	0.22	0.309	15.1	5.43	1.68
I-3.1	0.42	52.5	0.53	0.220	5.0	8.5	1.87
HW-2.1	5.08	9.1	0.22	1.118	11.9	6.02	6.73
HW-2.6	1.17	10.6	0.23	0.274	5.0	8.5	2.33

SOILS LEGEND
HOWARD COUNTY

NON-HYDRIC SOILS LIST		HYDROLOGIC SOIL GROUP
CHB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATETLY ERODED	B
GLB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GLC2	GLENELG LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
EKC2	ELIOAK SILT LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
EKB2	ELIOAK SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GNB2	GLENVILLE SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
ELD3	ELIOAK SILTY CLAY LOAM 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C
HYDRIC SOILS LIST		
BA	BAILE SILT LOAM	D

DESCRIPTION PER HOWARD COUNTY SOIL SURVEY

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REENED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/3/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 7/2/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE. 301. 870. 5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

6/6/08

DALE THOMPSON
BUILDERS
6300 Woodside Court, Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT :
STORM DRAIN - DRAINAGE AREA MAP
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: 1"=100'
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 11 - 30

F-06-112

I:\OWINGS5\SDP\OWINGS5-10-29-07\FP11-SD STUDY.dwg, STORM DRAIN - STUDY, 6/6/2008 4:21:22 PM, guz

MATCH LINE B-B, SEE SHEET 14 OF 30

MATCH LINE A-A, SEE SHEET 13 OF 30

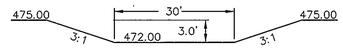
NOTE:

1. CONTRACTOR TO REMOVE ANY JUNK, TRASH, DEBRIS AND OTHER NON-NATURAL ITEMS FROM THE FLOODPLAIN, STREAMS, WETLANDS, AND BUFFERS.

NOTES:

2. TOPOGRAPHY FEATURES, CONTOURS AND ELEVATIONS SHOWN HERON ARE BASED ON AERIAL PHOTOGRAPHY BY AIR SURVEY PHOTOGRAMMETRIC SERVICES.
3. THE BOUNDARY LINES SHOWN HEREON ARE BASED ON A BOUNDARY SURVEY BY DEWBERRY & DAVIS LLC. JANUARY 2002.
4. ALL EXISTING WELLS AND SEPTIC AREAS WITHIN 100' OF THE SITE HAVE BEEN SHOWN TO THE BEST OF OUR KNOWLEDGE.
5. ALL WELLS TO BE DRILLED PRIOR TO SUBMITTAL OF RECORD PLAT FOR SIGNATURE.
6. EXISTING WELLS ON PRESERVATION PARCEL 1 AND 27 TO BE ABANDONDED BY A LICENSED WELL DRILLER.
7. PERCOLATION PLAT FOR OWING PROPERTY LOT 1 APPROVED ON SEPTEMBER 19, 2002.
8. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
9. LOT 3 SHOWN FOR REFERENCE ONLY.

2



SECTION A-A

NOTE:
CONTRACTOR TO STABILIZE ALL DISTURBED AREA WITH TYPE-B SOIL STABILIZED MATTING.

NOTE:

(1) EXISTING CONDITION DRAINAGE AREA PEAK DISCHARGE TO DP C.1
(2) GRADED/DEVELOPED CONDITION PEAK DISCHARGE FROM BASIN TO DP C.1
(3) GRADED/DEVELOPED CONDITION PEAK DISCHARGE FROM BASIN TO DP C.1 (WITH 6-INCH ORIFACE BLOCKED).

SEDIMENT BAFFLE ANALYSIS

AREA @ EL. 477.25
(PERM. POOL = 9,839 S.F.)

DISTANCE BETWEEN OUTFLOW AND INLET D = 130 L.F.

EFFECTIVE WIDTH, $We = \frac{A}{D} = \frac{9,839}{130} = 75.7'$

Le = L1 + L2 = 75' + 115' = 190 L.F.

FACTOR OF SAFETY

$\frac{Le}{We} = \frac{190}{76} = 2.50 > 2.0$

SEDIMENT BASIN NO. 1

	= 8.67 AC.
VOLUME REQUIRED	= 8.67 X 3,600 = 31,212 C.F
ACTUAL VOLUME	= 114,954 C.F @ EL. 483.50'
WET VOL. REQUIRED	= 1,800 X 8.67 = 15,606 C.F.
WET VOL. PROVIDED	= 15,805 C.F. @ EL. 477.25'
DRY VOL. REQUIRED	= 1,800 X 8.67 = 15,606 C.F.
DRY VOL. PROVIDED	= 17,500* C.F. @ EL. 478.80'
	*(33,306 - 15,806)
CLEAN OUT VOLUME	= 8.67 X 900 = 7,803 C.F.
RISER CREST ELEV.	= 478.80'
PERMANENT POOL ELEV.	= 477.25'
TOP ELEV.	= 483.50'
BOTTOM ELEV.	= 474.00'
DIST. FROM RISER CREST TO PERM. POOL ELEV.	= 1.55'
BASIN CLEAN OUT ELEV.	= 476.32'
DIST. FROM RISER CREST TO CLEAN OUT ELEV.	= 3.48'
Ex. Q_1 = 4.58 cfs, Q_2 = 7.59 cfs, Ex. Q_{10} = 18.83 cfs.	
Q_{g1} = 1.09 cfs, Q_{g2} = 1.27 cfs, Q_{g10} = 8.58 cfs	
Q_1 = 2.17 cfs, Q_2 = 3.64 cfs, Q_{10} = 18.87 cfs	

NOTE: DRIVEWAY & GATE TO BE CONSTRUCTED UNDER CONTR. No. 50-446-D

LEGEND:

- SCE — STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- AGIP — AT GRADE INLET PROTECTION
- DRAINAGE DIVIDE
- EROSION CONTROL MATTING

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW REVISED PROPOSED GRADE

THE DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DISTRICT HOWARD SOIL CONSERVATION — DATE 7/4/13

AS-BUILT CERTIFICATION

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

P.E.NO. _____

SIGNATURE _____ DATE _____

CERTIFY MEANS TO START OR DECLARE A PROFESSIONAL OPINION BASED UPON ON SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON SITE INSPECTIONS AND MATERIAL TEST ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEERS NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sanjay Patel — 04/25/2013
SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

William C. McElwee — 7/8/2013
SK HOMES AT HIGHLAND OWINGS, LLC — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-22-13 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 8/6/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 8/6/13 DATE

DATE	NO.	REVISION
04/11/12	1	• REVISE GRADES ON OWINGS OVERLOOK WAY. • WEIR GRADING AND PIPE REMOVAL/GROUT AT EXISTING POND.
04/25/13	2	REVISE GRADES ON OWINGS OVERLOOK WAY, PARCEL F AND LOT 17

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

MARYLAND REGISTERED PROFESSIONAL ENGINEER 31042 SANJAY PATEL

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092

CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

PROJECT

GRADING, EROSION & SEDIMENT CONTROL PLAN

OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO. 2011200
SCALE: 1"=40'
DATE: 06/27/12
DRAWN BY: HRP
CHECKED BY: SBP
SHEET: 12 OF 30

F-06-112

NOTES:

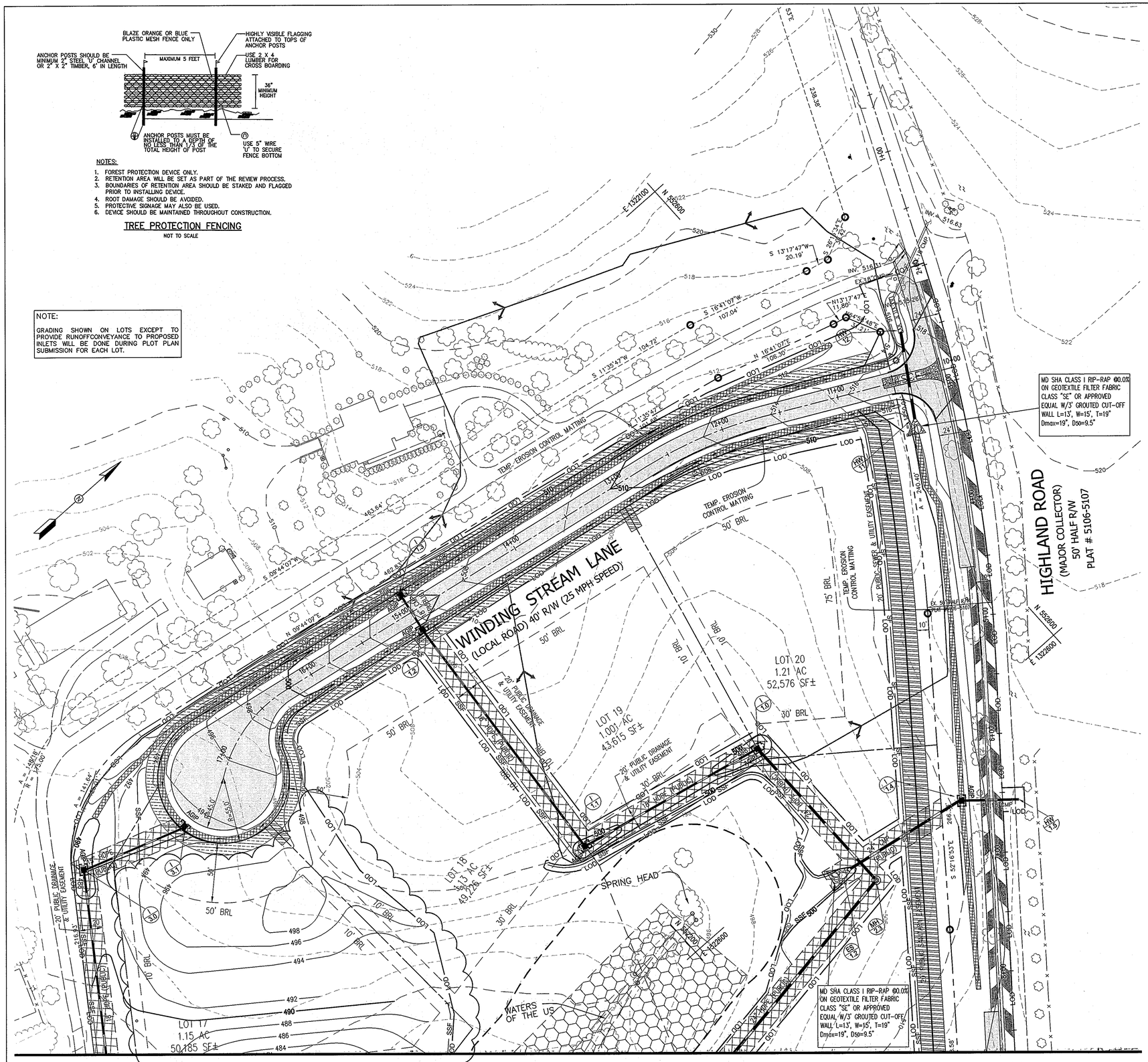
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCING

NOT TO SCALE

NOTE:

GRADING SHOWN ON LOTS EXCEPT TO PROVIDE RUNOFFCONVEYANCE TO PROPOSED INLETS WILL BE DONE DURING PLOT PLAN SUBMISSION FOR EACH LOT.



LEGEND:

- SCE — STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- AGIP — AT GRADE INLET PROTECTION
- DRAINAGE DIVIDE
- EROSION CONTROL MATTING

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW REVISED PROPOSED GRADE
2. REVISED LOCATION OF LOD AND SUPER SILT FENCE / SILT FENCE TO INCLUDE FORCE MAIN CONSTRUCTION AREA

THE DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DISTRICT HOWARD SOIL CONSERVATION — DATE 7/11/13

AS-BUILT CERTIFICATION

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

P.E.NO. _____

SIGNATURE _____ DATE _____

CERTIFY MEANS TO START OR DECLARE A PROFESSIONAL OPINION BASED UPON ON SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON SITE INSPECTIONS AND MATERIAL TEST ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEERS NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sanjay Patel — 04/25/2013

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SK HOMES AT HIGHLAND OWINGS, LLC — 7/8/2013 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-22-13 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 8/5/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 8/06/13 DATE

DATE	NO.	REVISION
04/11/12	1	REVISE GRADES ON WINDING STREAM LANE
04/25/13	2	REVISE GRADES ON LOTS 17 AND 18

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

STATE OF MARYLAND — 31042 — SANJAY PATEL — PROFESSIONAL ENGINEER

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092
CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

PROJECT

GRADING, EROSION & SEDIMENT CONTROL PLAN
OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.	2011200
SCALE:	1"=40'
DATE:	06/27/12
DRAWN BY:	HRP
CHECKED BY:	SBP
SHEET:	13-30

F-06-112

SEE SHEET 13 OF 30

OWINGS LOT 5 STREAM #1				
CROSS SECTION	100-YR Q (cfs)	EX.CHANNEL ELEV.	100-YR WSE	E.G. WSE
0+00	197	426.5	428.5	429.49
2+00	197	433.3	435.46	437.00
2+50	197	435.2	437.02	440.57
3+00	197	439.0	441.65	443.02
3+50	197	441.9	443.46	445.69
4+00	197	443.3	446.62	447.42
4+50	197	449.9	447.03	448.87
5+00	197	447.1	449.43	451.18
5+50	197	449.7	451.82	453.83
6+00	197	453.5	454.90	457.70
6+50	197	455.7	458.82	459.61
7+00	197	457.4	459.53	461.03
7+50	197	460.0	462.09	463.91
8+00	197	462.0	464.62	465.66

OWINGS LOT 5 STREAM #2			
CROSS SECTION	100-YR Q (cfs)	EX.CHANNEL ELEV.	100-YR WSE
A	322	419.0	422.73
B	322	425.1	428.22
C	322	428.6	431.27

LEGEND

- PROPOSED CONTOUR
- LOD — LIMIT OF DISTURBANCE
- SSF — SUPER SILT FENCE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- MP — MEDIAN INLET PROTECTION
- DRAINAGE DIVIDE
- FOREST CONSERVATION EASEMENT
- PROPOSED SHARED SEPTIC AREA
- EXISTING 15–24.9% SLOPES
- EXISTING 25% AND GREATER SLOPES
- SOILS LINE
- 1.5" MILL AND OVERLAY

NOTE :
GRADING SHOWN ON LOTS EXCEPT TO PROVIDE RUNOFF CONVEYANCE TO PROPOSED INLETS WILL BE DONE DURING PLOT PLAN SUBMISSION FOR EACH LOT.

HARWOOD W. OWINGS III & CAROL G. OWINGS
LIBER 1100 FOLIO 242
TAX MAP 40 PARCEL 44 LOT 4
HARWOOD W. OWINGS PROPERTY
LOTS 3,4 & 5 A RESUBDIVISION OF LOT 2"
PLATS 5669 & 5670
RRDEO – RESIDENTIAL

CARLTON C. KAMMERER & WIFE
LIBER 1719 FOLIO 39 LOT 4
TAX MAP 40 PARCEL 38
RRDEO – RESIDENTIAL

JEFFORY ALLEN TAYLOR
LIBER 6980 FOLIO 371 LOT 5
TAX MAP 40 PARCEL 278
RRDEO – RESIDENTIAL

JOHN S. BERNAS, JR.
& KATHRYN BERNAS
LIBER 5260 FOLIO 215
TAX MAP 40 PARCEL 278 LOT 25
"RESUBDIVISION HEMLOCK HILL"
PLAT BOOK 17 PLAT No. 28
RRDEO – RESIDENTIAL

MICHAEL W. & JAON M. HILL
LIBER 7681 FOLIO 688
TAX MAP 40 PARCEL 278 LOT 26
"RESUBDIVISION HEMLOCK HILL"
PLAT 17 PLAT No. 28
RRDEO – RESIDENTIAL

SHAANNON & PEMELA P. PRUITT
LIBER 4835 FOLIO 309
TAX MAP 40 PARCEL 47
RRDEO – RESIDENTIAL

PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT

MATCH LINE B-B, SEE SHEET 12 OF 30

SEPTIC AREA 10,150 S.F.
LOT 22
62,492 ± S.F.
P/O NON-BUILDABLE PRESERVATION PARCEL "F" 11,293 Ac.
P/O NON-BUILDABLE PRESERVATION PARCEL "G" 4.248 Ac.
SEPTIC AREA 97,286 S.F. FOR LOTS 17-23

THE DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
DISTRICT - HOWARD SOIL CONSERVATION — DATE 6/13/08

AS-BUILT CERTIFICATION

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

SIGNATURE — P.E.NO. — DATE

CERTIFY MEANS TO START OR DECLARE A PROFESSIONAL OPINION BASED UPON ON SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON SITE INSPECTIONS AND MATERIAL TEST ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEERS NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT. EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT 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 THE POND CONSTRUCTION AND PROVIDE THE HOWARD SOILS CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL BE 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 PROVIDED THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/2/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 7/2/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

6/6/08

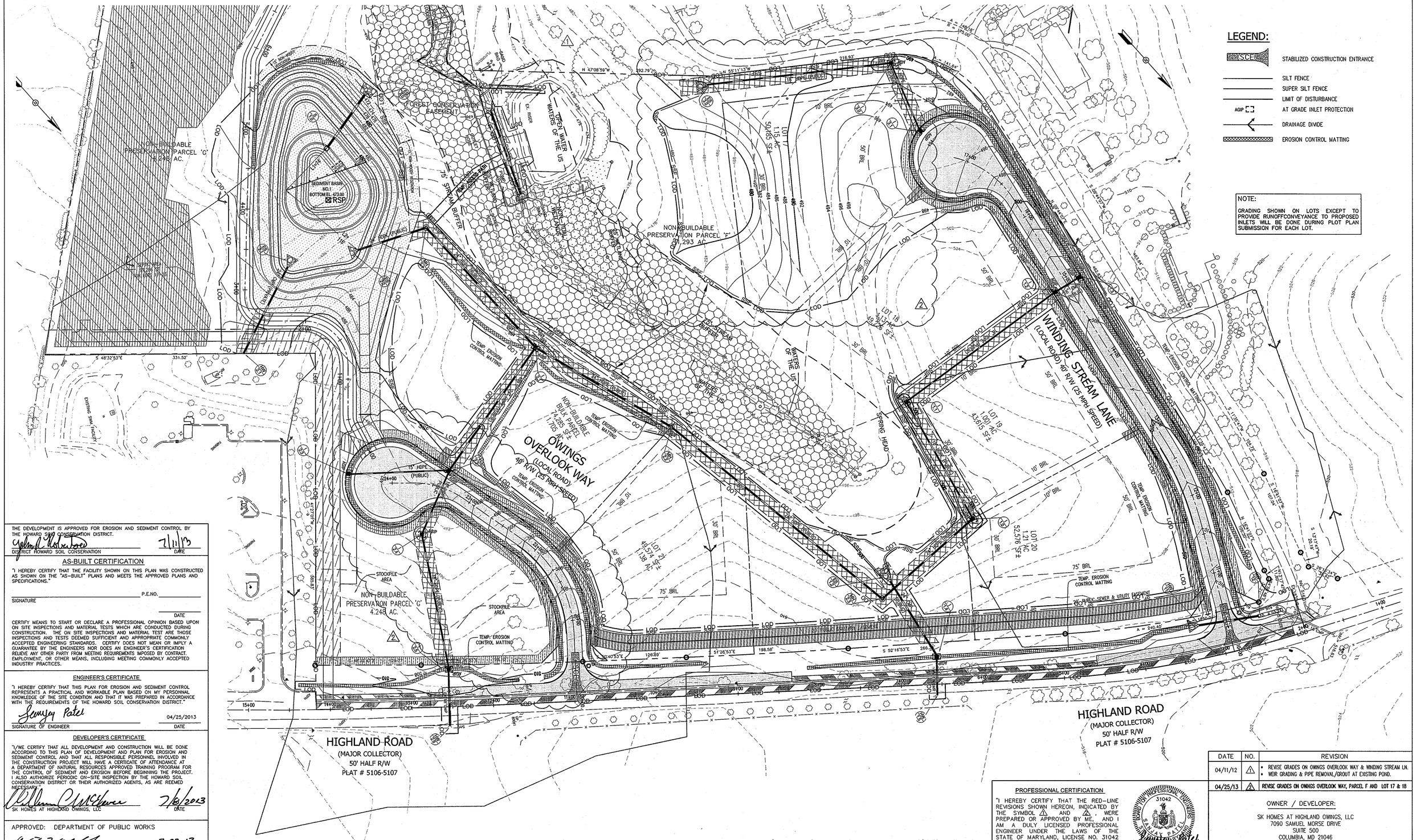
DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-5736
301-596-7380
Fax-410-381-8747

PROJECT :
GRADING, SEDIMENT & EROSION CONTROL PLAN
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: 1"=40'
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 14-30

F-06-112

I:\OWINGS\SDP\OWINGS-10-29-07\FP14-GRADING PLAN.dwg, GRADING - PLAN 9, 6/6/2008 4:32:03 PM, guz



THE DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DISTRICT HOWARD SOIL CONSERVATION — DATE 7/11/13

AS-BUILT CERTIFICATION

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

P.E.NO. _____

SIGNATURE

DATE

CERTIFY MEANS TO START OR DECLARE A PROFESSIONAL OPINION BASED UPON ON SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON SITE INSPECTIONS AND MATERIAL TEST ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEERS NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sanjay Patel — 04/25/2013

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY.

SK HOMES AT HIGHLAND OWINGS, LLC — DATE 7/8/2013

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7-22-13

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/5/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/06/13

DATE	NO.	REVISION
04/11/12	1	• REVISE GRADES ON OWINGS OVERLOOK WAY & WINDING STREAM LN. • WEIR GRADING & PIPE REMOVAL/GROUT AT EXISTING POND.
04/25/13	2	REVISE GRADES ON OWINGS OVERLOOK WAY, PARCEL F AND LOT 17 & 18

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

STATE OF MARYLAND — 31042 — SANJAY PATEL — PROFESSIONAL ENGINEER

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW REVISED PROPOSED GRADING

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092

CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

PROJECT

GRADING, EROSION & SEDIMENT CONTROL SCHEMATIC

OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.	2011200
SCALE:	1"=50'
DATE:	06/27/12
DRAWN BY:	HRP
CHECKED BY:	SBP
SHEET:	15- 30

F-06-112

B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B.9

B-4-1 STANDARDS AND SPECIFICATIONS

FOR

INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B.1):
   a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
   b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
   c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
   d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

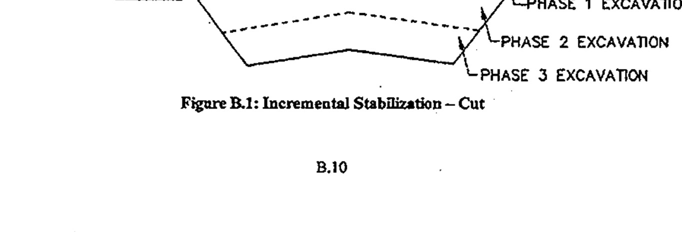


Figure B.1: Incremental Stabilization – Cut

B.10

B. Incremental Stabilization - Fill Slopes

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B.2):
   a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
   b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
   c. Place Phase 1 fill, prepare seedbed, and stabilize.
   d. Place Phase 2 fill, prepare seedbed, and stabilize.
   e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

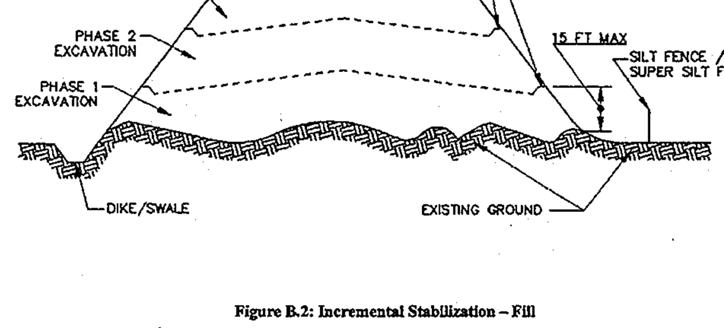


Figure B.2: Incremental Stabilization – Fill

B.11

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization
   a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
   b. Apply fertilizer and lime as prescribed on the plans.
   c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
   a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      i. Soil pH between 6.0 and 7.0.
      ii. Soluble salts less than 500 parts per million (ppm).
      iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      iv. Soil contains 1.5 percent minimum organic matter by weight.
      v. Soil contains sufficient pore space to permit adequate root penetration.
   b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
   c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

B.12

   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided 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-NRCS.
3. Topsoiling 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.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
   a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
   b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
   c. 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.
6. Topsoil Application
   a. Erosion and sediment control practices must be maintained when applying topsoil.
   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to 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 must be corrected in order to prevent the formation of depressions or water pockets.
   c. Topsoil must not be placed if 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

B.13

and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B.14

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications
   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
   b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
   d. Sod or seed must not 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.
2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

B.15

   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
      ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
   a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: **Use only sterile straw mulch in areas where one species of grass is desired.**
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

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2. Application
   a. Apply mulch to all seeded areas immediately after seeding.
   b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
   c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
3. Anchoring
   a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
      i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
      ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
      iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. **Use of asphalt binders is strictly prohibited.**
      iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B.17

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B.1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
	BARLEY	96	03/01 – 05/15 8/01 – 10/30	1 INCH	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	OATS	72	03/01 – 05/15 8/01 – 10/30	1 INCH		
	CEREAL RYE	112	03/01 – 05/15 8/01 – 10/30	1 INCH		

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B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use
   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where

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rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

   c. Ideal Times of Seeding for Turf Grass Mixtures

      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
   e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

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Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 6b Seed Mixture (from Table B.3):					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P_2O_5	K_2O	
11	CREEPING RED FESCUE	30	03/01 – 05/15 8/01 – 10/30	¼- ½ in	45 pounds per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)
	CHEWINGS FESCUE	30	03/01 – 05/15 8/01 – 10/30	¼- ½ in				
	KENTUCKY BLUEGRASS	20	03/01 – 05/15 8/01 – 10/30	¼- ½ in				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications
   a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
   c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
2. Sod Installation
   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
   c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
   d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

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3. Sod Maintenance
   a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days 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 2011 MARYLAND STANDARD SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding and mulching. 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:	25.63 Acres
Area Disturbed:	~~8.55~~ 10.05 Acres
Area to be roofed or paved:	2.30 Acres
Area to be vegetatively stabilized:	6.35 Acres
Total Cut :	4,000 Cu. Yards
Total Fill:	4,000 Cu. Yards
Off site waste/borrow area location:	0

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 shall be back-filled and stabilized by the end of each work day, whichever ill shorter.

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW REVISED SEQUENCE OF CONSTRUCTION & SITE ANALYSIS
2. REVISED EROSION AND SEDIMENT CONTROL NOTED BASED ON 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR E&S CONTROL

SEQUENCE OF CONSTRUCTION

1. OBTAIN A GRADING PERMIT.
2. NOTIFY "MISS UTILITY" AT 1-800-257-7777, AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION INSPECTION AT 410-313-1330 (24) HOURS BEFORE STARTING WORK.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, SUPER SILT FENCE, AND OTHER SEDIMENT CONTROL DEVICES. — (2 WEEKS)
4. CONSTRUCT SWALE EAST OF WINDING STREAM LANE, STORM DRAIN FROM HW-12 TO HW-11, AND HW-1.5 TO ES-1.2, INCLUDING OUTFALL PROTECTION. AFTER SWALE AND STORM DRAINS ARE CONTRACTED, STABILIZE DISTURBED AREA WITH PERMANENT SEEDING/MULCHING AND APPLY SEDIMENT EROSION" CONTROL MATTING TO THE SWALE AS REQUIRED.—(3 WEEKS)
5. CLEAR AND GRUB AREA OF BASIN 1 AND CONSTRUCT TO GRADE AS TEMPORARY SEDIMENT BASIN INCLUDING THE CONTROL STRUCTURES. — (6 WEEKS)
6. INSTALL PRESSURE SEWER PIPES ALONG WINDING STREAM LANE, AT HIGHLAND ROAD, AND OWINGS OVERLOOK WAY.
7. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS, CONSTRUCT STORM DRAIN SYSTEMS FROM INLET I-1.3 TO INLET I-2.1 HW-2.6 TO ES-2.2, AND HW-2.1 TO ES-2.1, AND I-3.1 to ES-3.0 --(5 WEEKS)

7.A START GRADING OF ROADWAY DITCH TO PROVIDE POSITIVE FLOW TO TEMP. BASIN VIA NEWLY CONSTRUCTIED STORM DRAIN SYSTEM AND START GRADING OF LOT 17 AND PARCEL "F" AS SHOWN ON THE PLAN. (1 WEEK) 2

8. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTORS, CONSTRUCT ROAD BASE COURSE, AND INSTALL INLET PROTECTIONS. — (4 WEEKS)
9. STABILIZE WITH PERMANENT SEEDING/MULCHING ALL AREAS DISTURBED DURING ROADWAY CONSTRUCTION. —(1 WEEK)
10. REMOVE INLET PROTECTIONS FLUSH EXCEPT FOR INLETS NOT DRAINING TO BASIN ALL STORM DRAIN SYSTEMS. ————————(2 DAYS)
11. INSTALL ROADWAY SURFACING MATERIALS. —(3 DAYS)
12. AFTER ALL CONTRIBUTING AREAS TO POND NO.1 HAVE BEEN STABILIZED WITH PERMANENT SEEDING AND MULCHING, AND WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR, CONVERT TEMPORARY BASIN NO.1 TO STORMWATER MANAGEMENT FACILITY AND STABILIZE ALL DISTURBED AREAS WITH PERMANENT SEEDING / MULCHING. ———— (2 WEEKS)
13. PROVIDE TEMPORARY ACCESS PATH TO ACCESS EXISTING FARM POND AND INSTALL SUPER SILT FENCE ALONG POND AS SHOWN ON THE PLAN.... (3 DAYS)
14. INSTALL SAND BAG AND PUMP AROUND AS SHOWN ON THE PLAN.—— (1 DAY)
15. REMOVE EXISTING RISER AT EXISTING POND. REMOVE EXISTING CIP OR GROUT BOTH ENDS OF PIPE BASED ON FIELD CONDITION, GRADE AROUND EMBANKMENT POND WITHIN LIMIT OF DISTURBED AS SHOWN ON PLAN. UPON STABILIZATION OF POND OUTFALL, REMOVE EXISTING CULVERT AND STABILIZE ALL DISTURBED AREA.— (3 DAYS)
16. AFTER ALL DISTURBED AREAS ARE STABILIZE WITH PERMANENT "SEEDING, AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT AND EROSION CONTROL DEVICES. - - - (2 WEEKS)
17. CONTRACTOR TO REMOVE ANY OLD .NEW JUNK, TRASH, DEBRIS AND OTHER NON-NATURAL ITEMS FROM THE FLOODPLAIN, STREAMS, WETLANDS, BUFFERS.
18. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE OF THE SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN ON THESE PLANS AFTER EACH RAINFALL ON A DAILY BASIS.

NOTE:
CONTRACTOR TO CUT AND BURY EXISTING CAST IRON PIPE OUTFALL

2

THE DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DISTRICT HOWARD SOIL CONSERVATION — 7/4/13 DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Sanjay Patel — 04/25/2013

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

SK HOMES AT HIGHLAND OWINGS, LLC — 7/8/2013 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-22-13 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 8/5/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 8/06/13 DATE

DATE	NO.	REVISION
08/16/12	1	REVISE SITE ANALYSIS QUANTITIES AND SEQUENCE OF CONSTRUCTION
04/25/13	2	REVISE NOTES BASED ON 2011 STANDARD.

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

BOARD FOR PROFESSIONAL ENGINEERS 31042 SANJAY PATEL STATE OF MARYLAND

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092

CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

PROJECT

EROSION AND SEDIMENT CONTROL NOTES
OWINGS PROPERTY, LOT 5

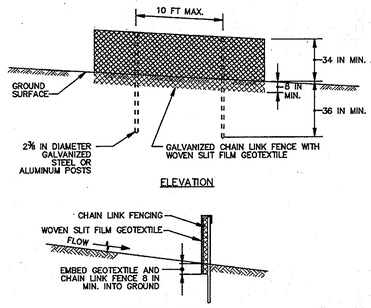
LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO. 2011200
SCALE: N/A
DATE: 06/27/12
DRAWN BY: HRP
CHECKED BY: SBP
SHEET: 16- 30

F-06-112

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

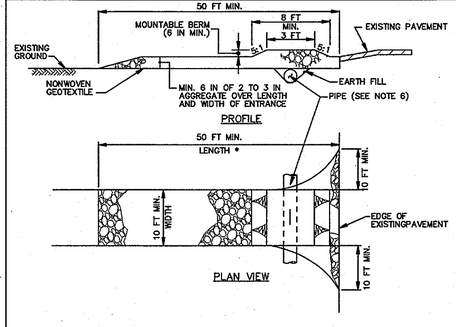
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.7

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

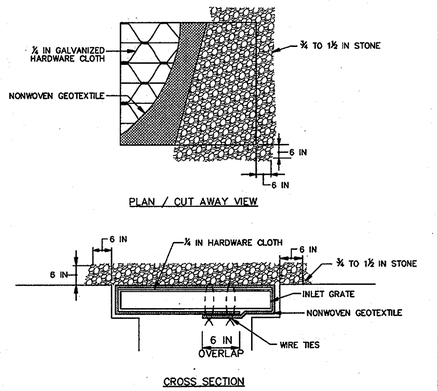
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B.2

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

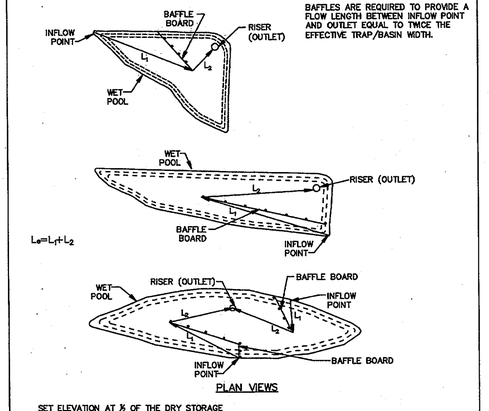
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

E.26

DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL: BB

BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.



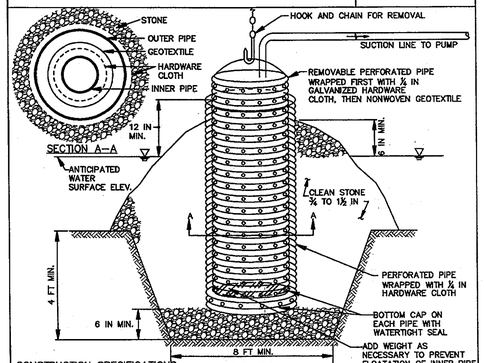
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

G.46

DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL: RPS



CONSTRUCTION SPECIFICATIONS

1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

F.3

MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

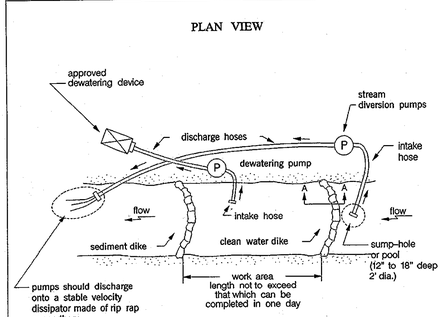
Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

MGWC 1.2: PUMP-AROUND PRACTICE

7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. *(See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).*
9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross- sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
11. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
14. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE



REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW REVISED SEQUENCE OF CONSTRUCTION & SITE ANALYSIS
2. REVISED EROSION AND SEDIMENT CONTROL NOTED BASED ON 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR E&S CONTROL

2

THE DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DISTRICT HOWARD SOIL CONSERVATION — DATE 7/2/13

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 04/25/2013

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

SK HOMES AT HIGHLAND OWINGS, LLC — DATE 7/8/2013

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7-22-13

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/5/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/06/13

DATE	NO.	REVISION
08/16/12	1	REVISE SITE ANALYSIS QUANTITIES AND SEQUENCE OF CONSTRUCTION
04/25/13	2	REVISED DETAILS BASED ON 2011 STANDARD.

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL 1 AND 2, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

PROFESSIONAL ENGINEER 31042 SANJAY PATEL

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

AB CONSULTANTS, INC.
9450 ANNAPOLIS ROAD
LANHAM, MARYLAND 20706
PHONE: (301) 306-3091
FAX: (301) 306-3092

CONTACT: SANJAY PATEL PHONE: (301)-306-3091 x21

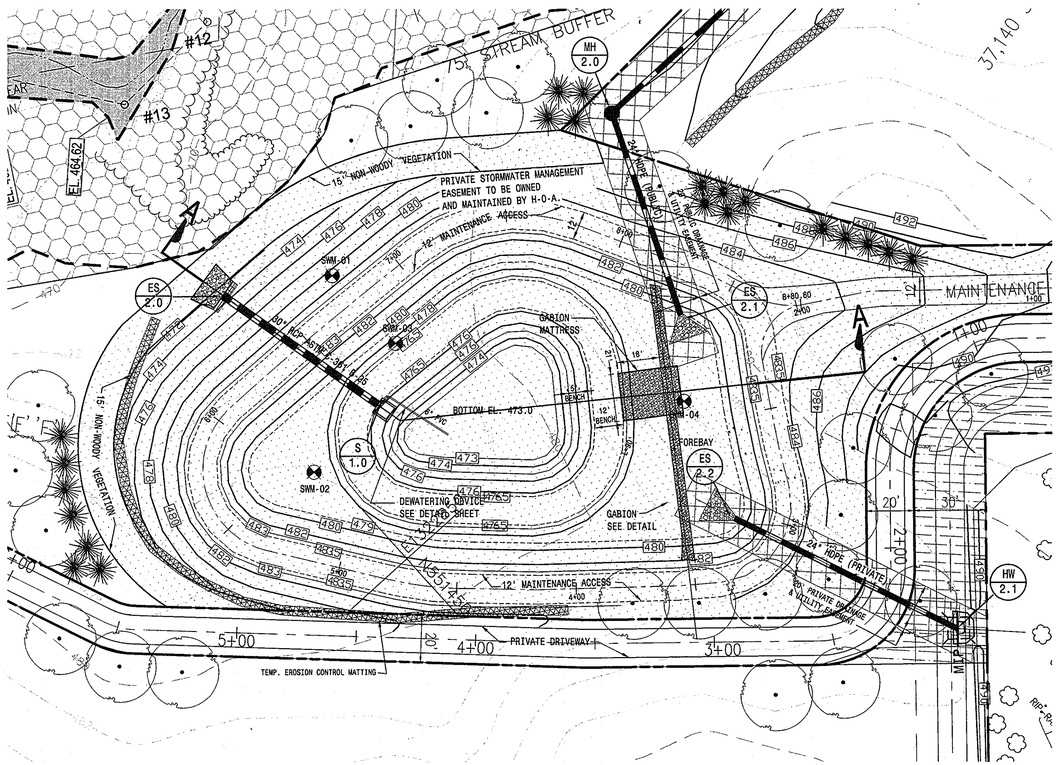
PROJECT

EROSION AND SEDIMENT CONTROL DETAILS
OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

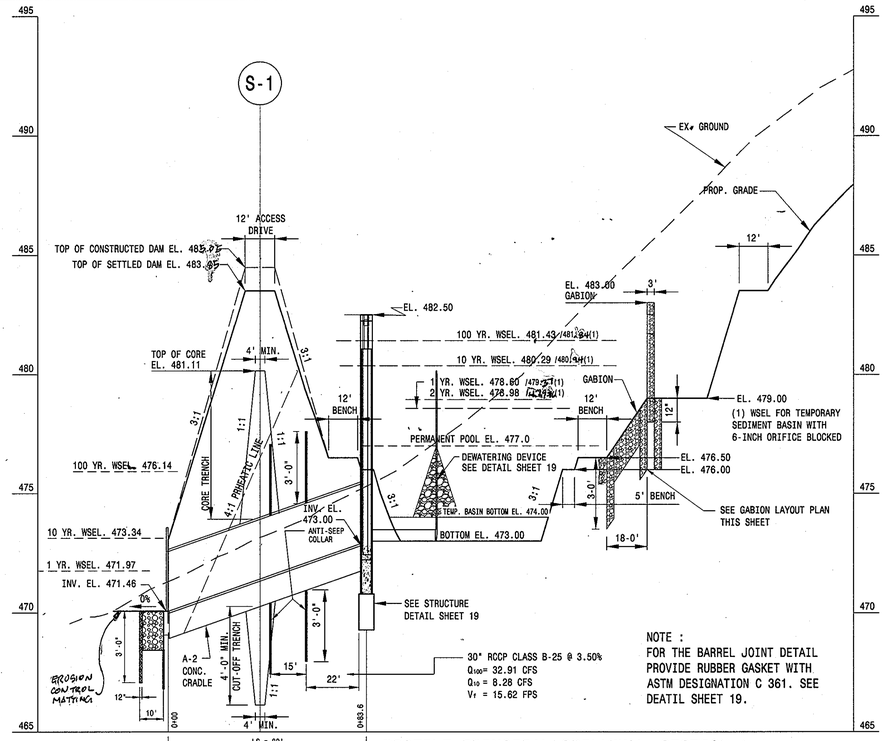
PROJECT NO.	2011200
SCALE:	N.T.S.
DATE:	06/27/12
DRAWN BY:	HRP
CHECKED BY:	SBP
SHEET:	17 - 30

F-06-112



MICRO POOL ED (P-1) STORMWATER MANAGEMENT - BMP No. 1

SCALE : 1" = 30' HOR.

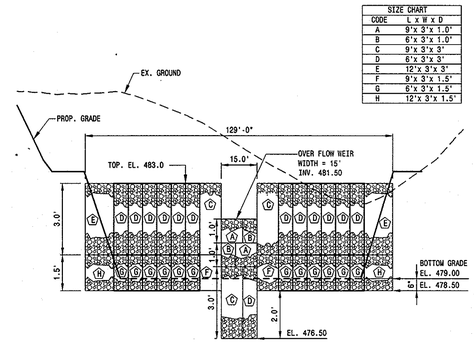


NOTE :
FOR THE BARREL JOINT DETAIL PROVIDE RUBBER GASKET WITH ASTM DESIGNATION C 361. SEE DEATIL SHEET 19.

PROFILE PRINCIPAL SPILLWAY, SECTION A-A

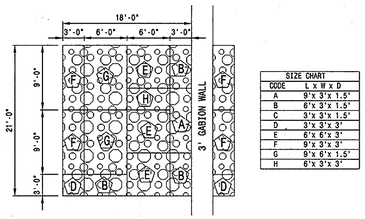
SCALE : 1" = 30' HOR.
1" = 3' VER.

SIZE CHART	
CODE	L x W x D
A	9'x 3'x 1.0"
B	6'x 3'x 1.0"
C	9'x 3'x 3"
D	6'x 3'x 3"
E	12'x 3'x 3"
F	9'x 3'x 1.5"
G	6'x 3'x 1.5"
H	12'x 3'x 1.5"



GABION FOREBAY PROFILE

SCALE : 1" = 30' HOR.
1" = 3' VER.

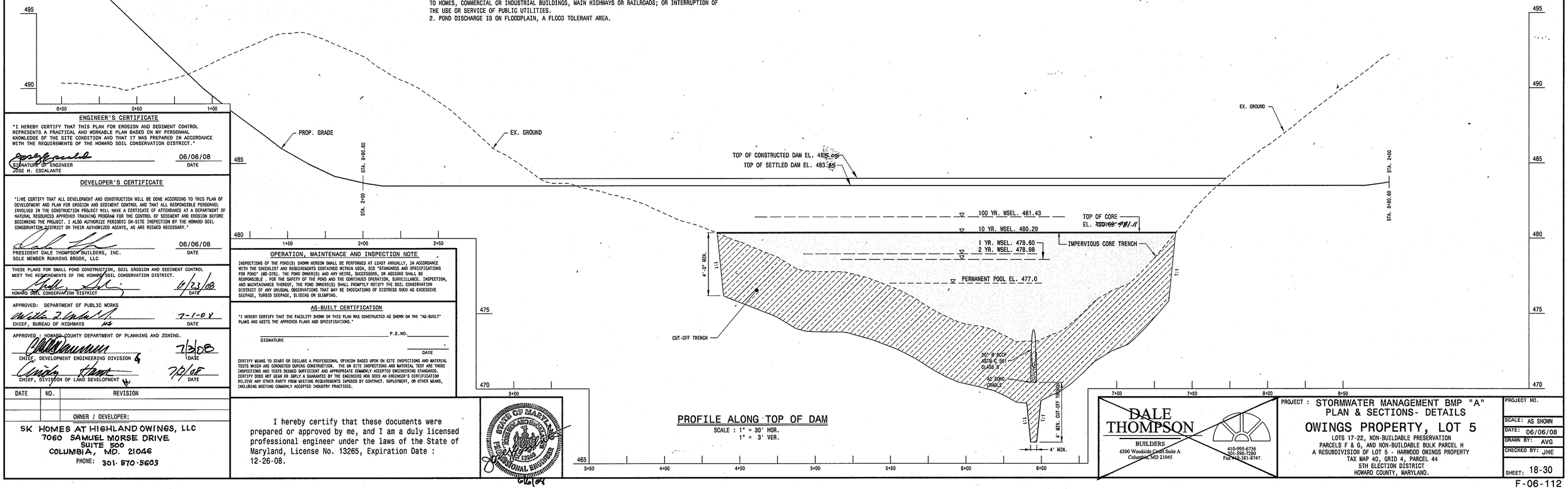


SIZE CHART	
CODE	L x W x D
A	9'x 3'x 1.5"
B	6'x 3'x 1.5"
C	3'x 3'x 1.5"
D	3'x 3'x 3"
E	6'x 6'x 3"
F	9'x 3'x 3"
G	9'x 6'x 1.5"
H	6'x 3'x 3"

GABION LAYOUT PLAN

SCALE : 1" = 10' HOR.

NOTE -:
1. POND IS CLASS "A" STRUCTURE. FAILURE OF THE DAM WILL NOT RESULT IN LOSS OF LIFE, IN DAMAGE TO HOMES, COMMERCIAL OR INDUSTRIAL BUILDINGS, MAIN HIGHWAYS OR RAILROADS; OR INTERRUPTION OF THE USE OR SERVICE OF PUBLIC UTILITIES.
2. POND DISCHARGE IS ON FLOODPLAIN, A FLOOD TOLERANT AREA.



PROFILE ALONG TOP OF DAM

SCALE : 1" = 30' HOR.
1" = 3' VER.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER
JOSE H. ESCALANTE — DATE 06/06/08

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC.
SOLE MEMBER RUNNING BROOK, LLC — DATE 06/06/08

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 6/23/08

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7-1-08

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/3/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/1/08

DATE	NO.	REVISION

OWNER / DEVELOPER:

SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTIONS 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 POND" (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 MAINTAINANCE 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.

AS-BUILT CERTIFICATION

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

SIGNATURE _____ P.E.NO._____

DATE _____

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

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRIQUE ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER

DALE THOMPSON BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT : STORMWATER MANAGEMENT BMP "A"
PLAN & SECTIONS- DETAILS
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.	
SCALE:	AS SHOWN
DATE:	06/06/08
DRAWN BY:	AVG
CHECKED BY:	JHE
SHEET:	18-30

F-06-112

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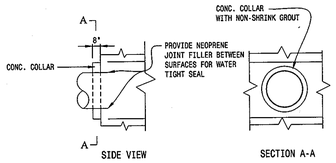
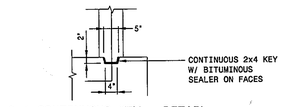


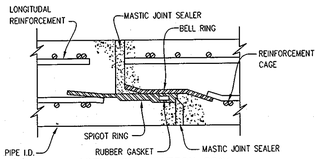
CONC. COLLAR DETAIL

NOT TO SCALE



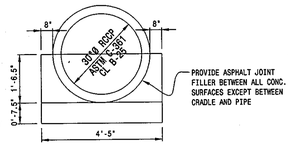
2x4 CONTINUOUS KEY - DETAIL

SCALE : 1" = 2'



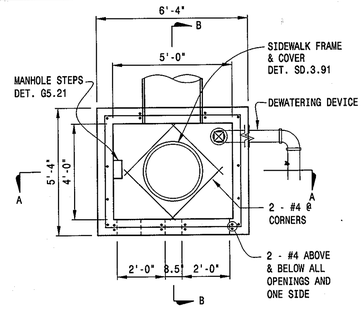
ASTM DESIGNATION C361 BARREL JOINT SEAL DETAIL

NOT TO SCALE

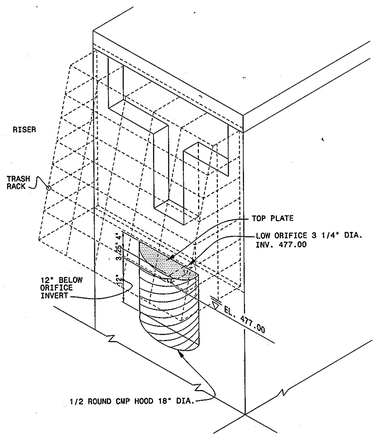


A2 CONCRETE CRADLE

SCALE : 1" = 2'

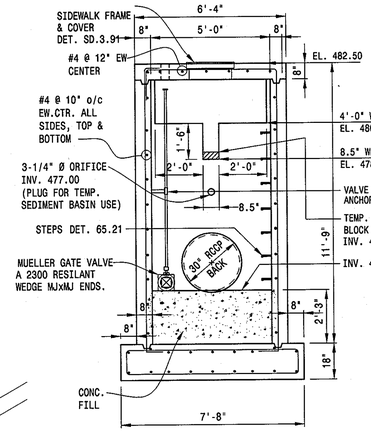


PLAN

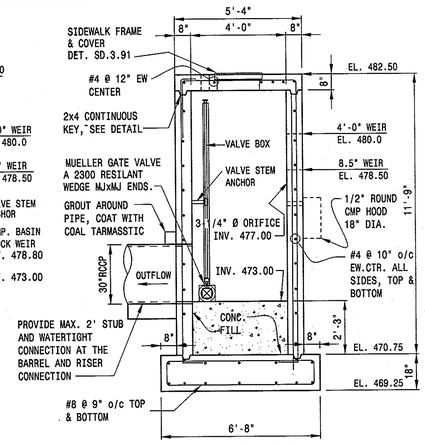


1/2 ROUND CMP PIPE HOOD - DETAIL

SCALE : 1" = 1'



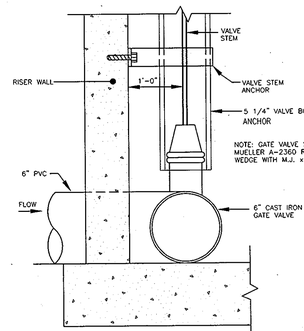
SECTION A-A



SECTION B-B

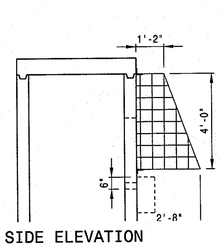
STRUCTURE S-1.0 DETAIL

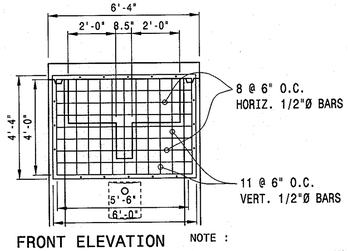
SCALE : 1" = 3'



ANCHOR DETAIL FOR VALVE STEM

NOT TO SCALE



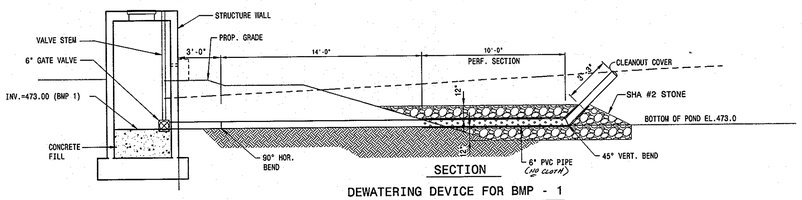


NOTE :

1. FIELD MEASURE THE STRUCTURE DIMENSIONS TO INSURE EXACT FIT OF TRASH RACK
2. GALVANIZE ENTIRE TRASH RACK AFTER FABRICATION.
3. PAINT 2 COATS OF BATTLESHIP GRAY PAINT.

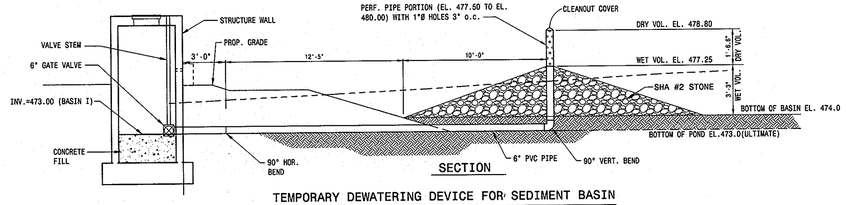
BMP TRASH RACK DETAIL

SCALE : 1" = 3'



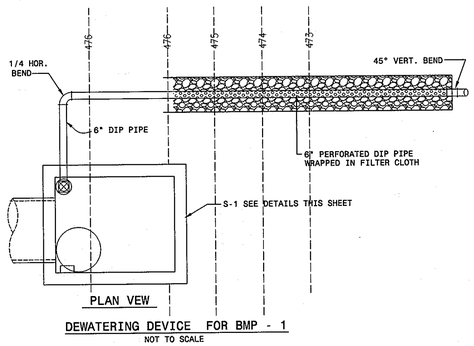
DEWATERING DEVICE FOR BMP - 1

SCALE 1" = 5'



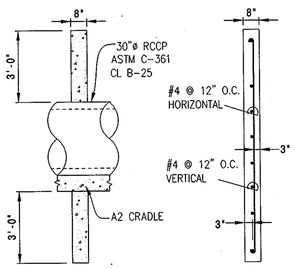
TEMPORARY DEWATERING DEVICE FOR SEDIMENT BASIN

SCALE 1" = 5'



DEWATERING DEVICE FOR BMP - 1

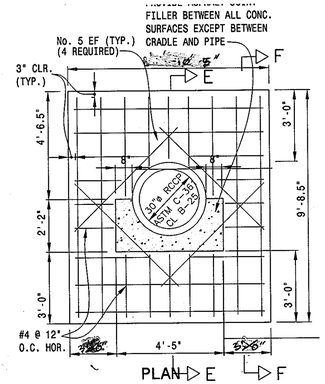
NOT TO SCALE



NOTE : ANTI-SEEP COLLAR TO BE PLACED A MIN. OF 2' FROM ANY PIPE JOINT.

ANTI- SEEP COLLAR DETAIL

SCALE : 1" = 3'



STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE SWM FACILITY NO. 2

(OWNED AND MAINTAINED BY H.O.A.)

ROUTINE MAINTENANCE (BY H.O.A.)

FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.

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, THE BOTTOM OF THE POND, AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.

DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.

VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIP-RAP OUTLET AREA SHALL BE RETAINED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE (BY H.O.A.)

STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, RISER STRUCTURE AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.

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, MAINTENACE AND INSPECTION NOTE

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ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER
JOSE H. ESCALANTE — 06/06/08 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REENED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC.
SOLE MEMBER RUNNING BROOK, LLC — 06/06/08 DATE

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

DISTRICT HOWARD SOIL CONSERVATION — 6/23/08 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/8/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/9/08 DATE

DATE	NO.	REVISION

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRIQUE ESCALANTE — 13265 — PROFESSIONAL ENGINEER

06/06/08

OWNER / DEVELOPER

SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-595-7280
Fax 410-381-8747

PROJECT :

STORMWATER MANAGEMENT - DETAILS
OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: AS SHOWN
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 19 - 30

F-06-112

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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 materials 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 a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand 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 material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

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 coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

   Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

   Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-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 in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, pre-punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 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 as shown on the drawings.

Plastic Pipe - The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM 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 and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

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

Stabilization

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

Erosion and Sediment Control

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

Basin Excavation and Embankment Construction

Based on boring data and review of the referenced plans, excavation of the basin to depths up to 15 feet can generally be accomplished by standard means, such as scraping and possibly ripping. Groundwater was observed in all of the Borings ranging from approximate elevations of 470.2 to 474.2 MSL, respectively. Depending on final design, groundwater may be encountered above the proposed basin bottom elevations. Dewatering of basin and of outfall structure subgrades may be required during the construction phase. The contractor should provide means for maintaining trafficability of the pond area during construction.

Bare slopes composed of the predominant, micaceous sandy soils are highly erodible. Proposed pond slopes subject to groundwater seepage will be susceptible to erosion and sloughing. Stabilization of the pond slopes may be required depending upon the actual conditions encountered. This determination should be made in the field by the geotechnical engineer during the pond construction phase. GRA can provide designs for erosion control and slope stabilization as needed.

Topsoil and very loose unstable materials are not considered suitable for support of the proposed embankment of structures. Prior to the placement of compacted fill or the construction of the outfall and structures, areas supporting the proposed embankment and structures should be stripped and grubbed to remove topsoil and any organic matter. An average stripping thickness of 12 inches should be used for earthwork estimates. The actual stripping thickness will be impacted by contractor methodology, season of construction, and localized topsoil development.

After stripping, the subgrade should be proof-rolled as directed by a geotechnical engineer of his qualified representative. Unstable soils identified by proof rolling should be removed from subgrade. No fills should be placed or foundations constructed until the subgrade is approved by the geotechnical engineer.

Fills for cutoff trench and embankment construction should be placed in eight-inch loose lifts, and compacted to at least 95 percent of the maximum dry density in accordance with the Standard Proctor, ASTIM D-698. Fills around the outfall works should be placed in 4-inch lifts and compacted to the same standard with hand equipment. Based on laboratory analysis, the fine-grained on-site soils are likely to be wet of the optimum moisture for compaction, and moisture conditioning may be required. Construction during a dry season is recommended to facilitate the drying of soils. Compactive effort should be monitored with in-place testing as performed by a qualified representative under the direction of a professional engineer.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

APPENDIX A

DAM INSPECTION CHECKLIST

To help the dam owner perform periodic safety inspections of the structure, a checklist is provided. Each item of the checklist should be completed. **Repair** is required when obvious problems are observed. **Monitoring** is recommended if there is potential for a problem to occur in the future. **Investigation** is necessary if the reason for the observed problem is not obvious.

A brief description should be made of any noted irregularities, needed maintenance, or problems. Abbreviations and short descriptions are recommended. Space at the bottom of the form should be used for any items not listed.

DAM ______________ DATE ______________
OWNER ______________ WEATHER ______________
INSPECTED BY ______________ POOL LEVEL ______________

Item	Comments	Y/N	MONITOR	REPAIR	INVESTIGATE
1. CREST					
a. Visual settlement?					
b. Misalignment?					
c. Cracking?					
2. UPSTREAM SLOPE					
a. Erosion?					
b. Ground cover in good condition?					
c. Trees, shrubs, or other woody vegetation?					
d. Longitudinal/Vertical cracks?					
e. Adequate riprap protection?					
f. Stone deterioration?					
g. Settlements, depressions, or bulges?					
3. DOWNSTREAM SLOPE					
a. Erosion?					
b. Ground cover in good condition?					
c. Trees, shrubs, or other woody vegetation?					
d. Longitudinal/Vertical cracks?					
e. Riprap protection adequate?					
f. Settlements, depressions, or bulges?					
g. Soft spots or boggy areas?					
h. Movement at or beyond toe?					
i. Boils at toe?					
4. DRAINAGE-SEEPAGE CONTROL					
a. Internal drains flowing?	Est. Left _____ gpm Est. Right _____ gpm				
b. Seepage at toe?	Estimated _____ gpm				
c. Does seepage contain fines?					

INSPECTION CHECKLIST - PAGE 2

INSPECTED BY ______________ DATE ______________

Item	Comments	Y/N	MONITOR	REPAIR	INVESTIGATE
5. ABUTMENT CONTACTS					
a. Erosion?					
b. Differential movement?					
c. Cracks?					
d. Seepage?	Estimated _____ gpm				
e. Adequate erosion protection for ditches?					
6. INLET STRUCTURE	Concrete or Metal Pipe (circle one)				
a. Seepage into structure?					
b. Debris or obstructions?					
c. If concrete, do surfaces show:					
1. Spalling?					
2. Cracking?					
3. Erosion?					
4. Scaling?					
5. Exposed reinforcement?					
6. Other?					
d. If metal, do surfaces show:					
1. Corrosion?					
2. Protective Coating deficient?					
3. Misalignment or split seams?					
e. Do the joints show:					
1. Displacement or offset?					
2. Loss of joint material?					
3. Leakage?					
f. Are the trash racks:					
1. Broken or bent?					
2. Corroded or rusted?					
3. Obstructed?					
4. Operational?					
g. Sluice/Drain gates:					
1. Broken or bent?					
2. Corroded or rusted?					
3. Leaking?					
4. Not seated correctly?					
4. Periodically maintained?					
5. Operational?					

INSPECTION CHECKLIST - PAGE 3

INSPECTED BY ______________ DATE ______________

Item	Comments	Y/N	MONITOR	REPAIR	INVESTIGATE
7. PRINCIPAL SPILLWAY PIPE	Concrete or Metal Pipe (circle one)				
a. Seepage into conduit?					
b. Debris present?					
c. Do concrete surfaces show:					
1. Spalling?					
2. Cracking?					
3. Erosion?					
4. Scaling?					
5. Exposed reinforcement?					
6. Other?					
d. Do the joints show:					
1. Displacement or offset?					
2. Loss of joint material?					
3. Leakage?					
8. STILLING BASIN/POOL	Riprap or Concrete (circle one)				
a. If concrete, condition of surfaces?					
b. Deterioration or displacement of joints?					
c. Outlet channel obstructed?					
d. Is released water:					
1. Undercutting the outlet?					
2. Eroding the embankment?					
3. Displacing riprap?					
4. Scouring the plunge pool?					
e. Tailwater elevation and flow condition:					
9. EMERGENCY SPILLWAY					
a. Is the channel:					
1. Eroding or backcutting?					
2. Obstructed?					
b. Trees or shrubs in the channel?					
c. Seepage present?					
d. Soft spots or boggy areas?					
e. Channel slopes eroding or sloughing?					
10. RESERVOIR					
a. High water marks?					
b. Erosion/Slides into pool area?					
c. Sediment accumulation?					
d. Floating debris present?					
e. Adequate riprap protection for ditches?					

AS-BUILT CERTIFICATION

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

______________ P.E.NO. ______________
SIGNATURE

____
DATE

CERTIFY MEANS TO START OR DECLARE A PROFESSIONAL OPINION BASED UPON ON SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON SITE INSPECTIONS AND MATERIAL TEST ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEERS NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT. EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER 06/06/08
JOSE H. ESCALANTE DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE REEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. 06/06/08
SOLE MEMBER RUNNING BROOK, LLC DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS 7-1-08
DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION 7/3/08
DATE
CHIEF, DIVISION OF LAND DEVELOPMENT 7/3/08
DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND JOSE ROLAZO ESCALANTE 13265 PROFESSIONAL ENGINEER
6/6/08

DALE THOMPSON BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT :
STORMWATER MANAGEMENT POND SPECIFICATION AND NOTES

OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: NTS
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 20 - 30

F-06-112

\OWINGS5\SDP\OWINGS5-10-29-07\FP21-MD378-SPEC.dwg, CONS. SPECIFICATION OF POND 20, 6/6/2008 7:19:33 PM, guz

LEGEND:

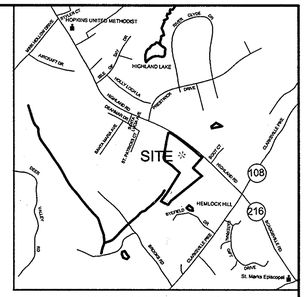
EXISTING 2 FOOT CONTOURS

EXISTING 10 FOOT CONTOURS

SOIL LINE

GIB2 SOIL TYPE

DRAINAGE DIVIDE



VICINITY MAP
SCALE: 1"=2000'

STUDY POINT D

STUDY POINT C

STUDY POINT B

STUDY POINT C.1

SUB-AREA D
AREA = 2.94 Ac.
CN = 71.0
Tc = 0.30 hrs.
NO OFFSITE AREA

SUB-AREA C.1
AREA = 7.03 Ac.
CN = 73.0
Tc = 0.27 hrs.
SITE & OFFSITE AREA

SUB-AREA C
AREA = 35.50 Ac.
CN = 68.0
Tc = 0.49 hrs.
OFFSITE AREA = 19.81 Ac.
ON-SITE AREA = 15.69 Ac'
"B" TYPE SOILS = 18.60 Ac., % = 52.4
"C" TYPE SOILS = 16.75 Ac., % = 47.2
"D" TYPE SOILS = 0.15 Ac., % = 0.4

SUB-AREA C.2
AREA = 5.83 Ac.
CN = 63.0
Tc = 0.29 hrs.
OFFSITE AREA = 1.05 Ac.
ON-SITE AREA = 4.78 Ac'
"B" TYPE SOILS = 4.12 Ac., % = 70.73
"C" TYPE SOILS = 1.71 Ac., % = 29.36

SOILS LEGEND
HOWARD COUNTY

NON-HYDRIC SOILS LIST		HYDROLOGIC SOIL GROUP
CHB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GLB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GLC2	GLENELG LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
EKC2	ELIOAK SILT LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
EKB2	ELIOAK SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GNB2	GLENVILLE SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
ELD3	ELIOAK SILTY CLAY LOAM 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C
HYDRIC SOILS LIST		
BA	BAILE SILT LOAM	D

DESCRIPTION PER HOWARD COUNTY SOIL SURVEY

SUMMARY TABLE
EXISTING CONDITON, SITE AND OFFSITE AREAS ONLY

STUDY POINT	AREA (ACRE)	CN	Tc (Hrs)	DISCHARGES, CFS 1YR	2YR	10 YR	100 YR
B	5.83	63.0	0.29	1.00	2.62	9.68	19.43
C	35.50	68.0	0.49	9.38	18.58	56.11	105.35
D	2.94	71.0	0.30	1.50	2.63	6.98	12.41

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER JOSE H. ESCALANTE — DATE 06/06/08

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC.
SOLE MEMBER RUNNING BROOK, LLC — DATE 06/06/08

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 7-1-08

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/2/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/9/08

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE H. ESCALANTE — ENGINEER

6/6/08

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT : EXISTING SWM DRAINAGE AREA MAP
SITE AND OFFSITE AREAS
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: 1"=100'
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 21 - 30

F-06-112

I:\OWINGS\SDP\OWINGS-10-29-07\FP22-23-24-25-SWM-DAM.dwg, EX.SWM DAM-SITEAREA+OFFSITE-21, 6/6/2008 6:11:59 PM, guz

LEGEND:

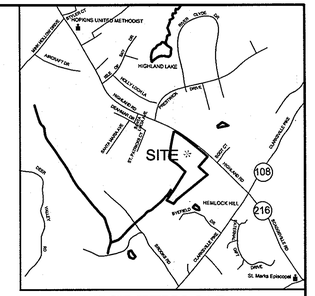
EXISTING 2 FOOT CONTOURS

EXISTING 10 FOOT CONTOURS

SOIL LINE

GIB2 SOIL TYPE

DRAINAGE DIVIDE



VICINITY MAP
SCALE: 1"=2000'

STUDY POINT D

STUDY POINT C

STUDY POINT B

452 L.F. SHALLOW CONC. FLOW @ 10%

100 L.F. SHEET FLOW @ 1.4%

1061 L.F. CHANNEL FLOW @ 4.33%

484 L.F. SHALLOW CONC. FLOW @ 2.5%

100 LF SHEET FLOW @ 2.5%

430 L.F. SHALLOW CONC. FLOW @ 3.26%

100 LF SHEET FLOW @ 5.0%

SUB-AREA D
AREA = 2.94 Ac.
CN = 71.0 (1)
Tc = 0.30 hrs.
"C" TYPE SOILS = 2.94 Ac.,
% = 100

SUB-AREA C
AREA = 15.69 Ac.
CN = 70.0
Tc = 0.25 hrs.
"B" TYPE SOILS = 1.77 Ac.,
% = 11.3
"C" TYPE SOILS = 13.92 Ac.,
% = 88.7

SUB-AREA B
AREA = 4.78 Ac.
CN = 62.0
Tc = 0.29 hrs.
"B" TYPE SOILS = 3.45 Ac.,
% = 72.2
"C" TYPE SOILS = 1.33 Ac.,
% = 27.8

SUMMARY TABLE
EXISTING CONDITON, SITE AREA ONLY

STUDY POINT	AREA (ACRE)	CN	Tc (Hrs)	DISCHARGES, CFS 1YR	2YR	10 YR	100 YR
B	4.78	62.0	0.29	0.66	1.92	7.56	15.44
C	15.69	70.0	0.25	8.02	14.23	38.30	68.80
D	2.94	71.0	0.30	1.50	2.63	6.96	12.41

SOILS LEGEND
HOWARD COUNTY

NON-HYDRIC SOILS LIST		HYDROLOGIC SOIL GROUP
CHB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GLB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GLC2	GLENELG LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
EKC2	ELIOAK SILT LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
EKB2	ELIOAK SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GNB2	GLENVILLE SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
ELD3	ELIOAK SILTY CLAY LOAM 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C
HYDRIC SOILS LIST		
BA	BAILE SILT LOAM	D

DESCRIPTION PER HOWARD COUNTY SOIL SURVEY

ENGINEER'S CERTIFICATE

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SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

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PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/2/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/1/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA MD. 21046
PHONE: 301 870 5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRY ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER — 6/6/08

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
FAX 410-381-8747

PROJECT : EXISTING SWM DRAINAGE AREA MAP
SITE AREA ONLY

OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: 1"=100'
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 22 - 30

F-06-112

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LEGEND:

EXISTING 2 FOOT CONTOURS
EXISTING 10 FOOT CONTOURS
SOIL LINE
GlB2 SOIL TYPE
DRAINAGE DIVIDE

(WITHOUT CREDITS)
SUBAREA D
AREA = 2.94 Ac.
CN = 74
Tc = 0.30 HRS.
"C" TYPE SOILS - 2.94 Ac., % - 100

(WITH CREDITS)
SUBAREA D
AREA = 2.94 Ac.
CN = 71
Tc = 0.30 HRS.
CREDITS USED:
(1) ROOF TOP AND NON - ROOFTOP DISCONNECT = 0.20 Ac.
(2) SHEET FLOW TO BUFFER = 0.25 Ac.
(3) NATURAL AREA OF CONSERVATION = 1.96 Ac.
MEADOW = 0.98 Ac.
WOODS = 0.98 Ac.
"C" TYPE SOILS = 2.94 Ac., % - 100

(WITHOUT CREDITS)
SUBAREA B
AREA = 5.03 Ac.
CN = 68
Tc = 0.35 HRS.
OFFSITE AREA = 1.25 Ac.
ONSITE AREA = 3.78 Ac.
"B" TYPE SOILS = 4.12 Ac., % - 70.7
"C" TYPE SOILS = 1.71 Ac., % - 29.3

(WITH CREDITS)
SUBAREA B
AREA = 5.33 Ac.
CN = 64
Tc = 0.28 HRS.
OFFSITE AREA = 1.25 Ac.
ONSITE AREA = 4.78 Ac.
CREDITS USED:
(1) ROOFTOP DISCONNECT = 0.19 Ac.
(2) NON-ROOFTOP DISCONNECT = 0.42 Ac.
(3) SHEET FLOW TO BUFFER AREA = 0.56 Ac.
(4) OPEN SECTION ADDED = 558 L.F.
(5) NATURAL AREA OF CONSERVATION = 1.77Ac
"B" TYPE SOILS = 4.12 Ac., % - 70.7
"C" TYPE SOILS = 1.71 Ac., % - 29.3

SUBAREA A2
AREA = 3.05 Ac.
CN = 72
Tc = 0.16 HRS.
OFFSITE AREA = 0.31 Ac.
ONSITE AREA = 2.74 Ac.
"B" TYPE SOILS = 2.40 Ac., % - 78.7
"C" TYPE SOILS = 0.65 Ac., % - 21.3

SUBAREA A1
AREA = 11.01 Ac.
CN = 76
Tc = 0.28 HRS
OFFSITE AREA = 5.03 Ac.
ONSITE AREA = 5.98 Ac.
"B" TYPE SOILS - 2.10 Ac., % = 19.1
"C" TYPE SOILS - 8.91 Ac., % = 80.9

SUBAREA C
AREA = 26.64 Ac.
CN = 68
Tc = 0.49 HRS.
OFFSITE AREA = 19.81 Ac.
SITE AREA = 6.83 Ac.
CREDITS USED:
1. AREA OF CONSERVATION (AREA = 4.28 Ac.)
"B" TYPE SOILS = 17.66 Ac., % = 66.2
"C" TYPE SOILS = 8.83 Ac., % = 33.2
"D" TYPE SOILS = 0.15 Ac., % = 0.6

VICINITY MAP
SCALE: 1"=2000'

SUMMARY - WATER QUALITY REQUIRED / PROVIDED
SITE AREA ONLY TABLE

SUBAREA	CATEGORY				
	WATER QUALITY	RECHARGE	CHANNEL PROTECTION	OVERBANK FLOOD PROTECTION	EXTREME FLOOD
1. Subarea A1 & A2					
Required	6,294 CF	926 CF	15,429 CF	Not Required	Not Required
Provided	14,058 CF(1)	Included in the Water Quality Volume	75,087 CF (2)	N/A	N/A
2. Subarea B			Q < 2.0 cfs Exempt		
Required	3,470 CF	737 CF OR 7,283 SF		Not Required	Not Required
Provided	Rooftop & Non-Rooftop Disconnect used RCN REDUCED TO EQUAL WOODS BECAUSE OF DISCONNECTION. PRE & POST RCN VALUES BECOME SAME	Sheet Flow to Buffer Credit = 24,394 SF		N/A	N/A
3. Subarea D					
Required	2,134 CF	1,133 SF	Q<2.0 cfs Exempt	Not Required	Not Required
Provided	Non-rooftop & rooftop disconnected (4) RCN REDUCED TO EQUAL WOODS BECAUSE OF DISCONNECTION. PRE & POST RCN VALUE BECOME SAME	10,890 S.F. Sheet Flow To Buffer	Please see above	N/A	N/A

NOTES:
(1) WQv AND 1/2 OF CPV VOLUMES EQUAL TO 14,009 CF (6,294 + 7715) ARE PROVIDED IN THE MICROPOOL (PERMANENT POOL) AT ELEVATION = 477 = 14,058 CF.
(2) THE OTHER 1/2 OF CPV, AND WQv VOLUMES ARE PROVIDED ABOVE THE MICRO POOL TO ELEVATION 481.50 = 75,087 CF

SOILS LEGEND
HOWARD COUNTY

NON-HYDRIC SOILS LIST		HYDROLOGIC SOIL GROUP
CHB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GLB2	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	B
GLC2	GLENELG LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
EKC2	ELIOAK SILT LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	C
EKB2	ELIOAK SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GNB2	GLENVILLE SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
ELD3	ELIOAK SILTY CLAY LOAM 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C
HYDRIC SOILS LIST		
BA	BAILE SILT LOAM	D

DESCRIPTION PER HOWARD COUNTY SOIL SURVEY

SUMMARY TABLE
DEVELOPED CONDITION, SITE AND OFFSITE AREAS

STUDY POINT	AREA (Acre)	CN	TC (hrs.)	COMPARATIVE DISCHARGES, CFS							
				1 Year Storm		2 Year Storm		10 Year Storm		100 Year Storm	
				Exist.	Dev.	Exist.	Dev.	Exist.	Dev.	Exist.	Dev.
B (a)											
W/O Credits	5.83	68	0.28		1.56		4.29		12.48		23.10
W/ Credits	5.83	64	0.28	1.00	0.93	2.62	2.97	9.68	10.34	19.43	20.32
C (b)											
W/O Credits	32.47										
W/ Credits	32.47			9.38	8.35	18.58	16.74	56.11	58.86	105.35	132.34
D											
W/O Credits	2.94	74	0.30		1.57		3.20		7.79		13.40
W/ Credits	2.94	71	0.30	1.50	1.04	2.63	2.63	6.96	6.96	12.41	12.41

(a) Peak runoff discharge from Subarea B at Study Point B only.
(b) Combined peak runoff discharges of Subareas B and C at Study Point C as it leaves site.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/3/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 7/3/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HERNANDO ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER
6/6/08

DALE THOMPSON BUILDERS
6300 Woodside Court Suite A, Columbia, MD 21045
410-995-6736, 301-596-7280, FAX 410-381-8747

PROJECT : DEVELOPED DRAINAGE AREA MAP
SITE AND OFFSITE AREA
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

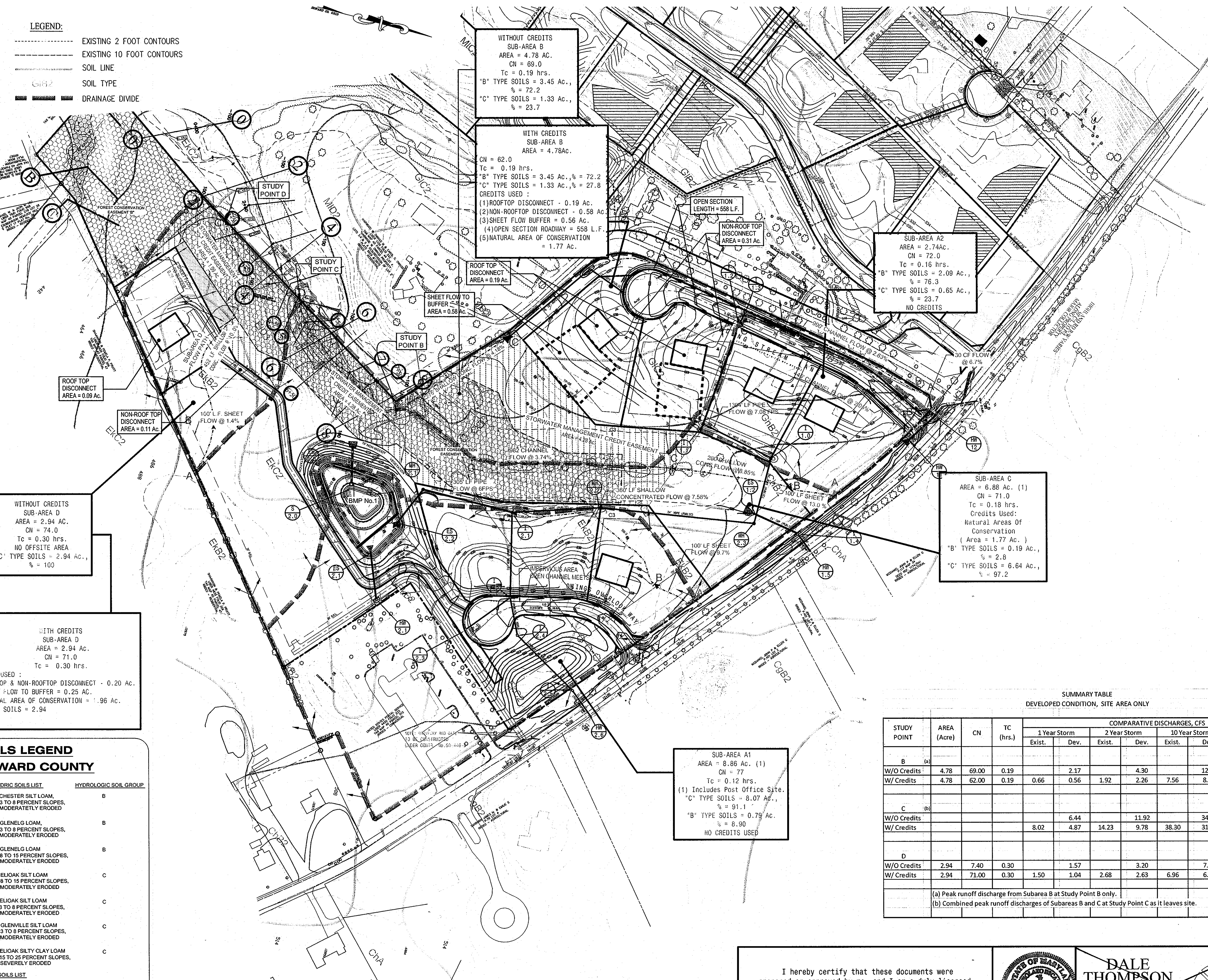
PROJECT NO.
SCALE: 1"=100'
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 23 - 30

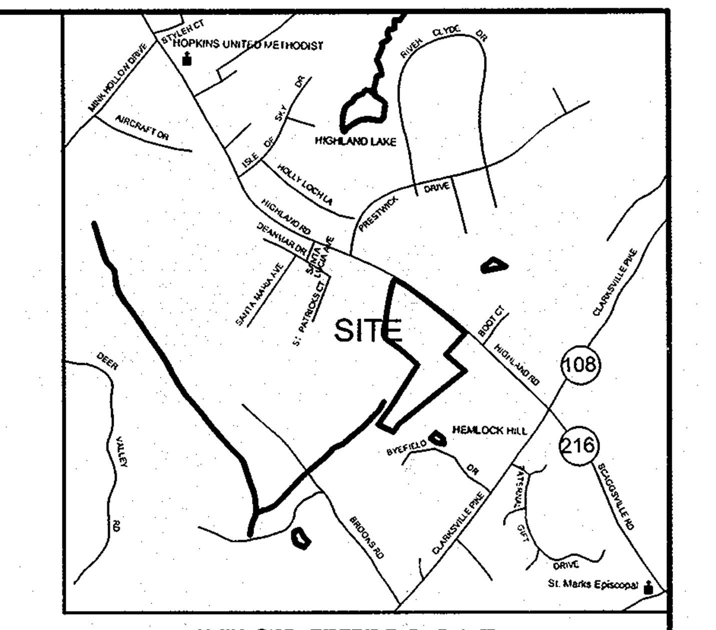
F-06-112

I:\OWINGS\SDP\OWINGS-10-29-07\FP22-23-24-25-SWM-DAM.dwg, SITEOFFSITE AREAS-23, 6/6/2008 1:28:28 PM, DWG

LEGEND:

- EXISTING 2 FOOT CONTOURS
- EXISTING 10 FOOT CONTOURS
- SOIL LINE
- GlB2 — SOIL TYPE
- DRAINAGE DIVIDE





VICINITY MAP
SCALE: 1"=2000'

SUMMARY - WATER QUALITY REQUIRED / PROVIDED
SITE AREA ONLY TABLE

SUBAREA	WATER QUALITY	RECHARGE	CHANNEL PROTECTION	OVERBANK FLOOD PROTECTION	EXTREME FLOOD
1. Subarea A1 & A2					
Required	6,294 CF	926 CF	15,429 CF	Not Required	Not Required
Provided	14,058 CF(1)	Included in the Water Quality Volume	75,087 CF (2)	N/A	N/A
2. Subarea B			Q_1 < 2.0 cfs Exempt		
Required	3,470 CF	737 CF OR 7,283 SF		Not Required	Not Required
Provided	Rooftop & Non-Rooftop Disconnect used RCN REDUCED TO EQUAL WOODS BECAUSE OF DISCONNECTION. PRE & POST RCN VALUES BECOME SAME	Sheet Flow to Buffer Credit = 24,394 SF		N/A	N/A
3. Subarea D					
Required	2,134 CF	1,133 SF	Q_1<2.0 cfs Exempt	Not Required	Not Required
Provided	Non-rooftop & rooftop disconnected (4) RCN REDUCED TO EQUAL WOODS BECAUSE OF DISCONNECTION. PRE & POST RCN VALUE BECOME SAME	10,890 S.F. Sheet Flow To Buffer	Please see above	N/A	N/A

NOTES:
(1) WQv AND 1/2 OF CPV VOLUMES EQUAL TO 14,009 CF (6,294 + 7715) ARE PROVIDED IN THE MICROPOOL (PERMANENT POOL) AT ELEVATION = 477 = 14,058 CF.
(2) THE OTHER 1/2 OF CPV, AND WQv VOLUMES ARE PROVIDED ABOVE THE MICRO POOL TO ELEVATION 481.50 = 75,087 CF

SOILS LEGEND
HOWARD COUNTY

NON-HYDRIC SOILS LIST		HYDROLOGIC SOIL GROUP
CHB2	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATETLY ERODED	B
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GLC2	GLENELG LOAM 8 TO 15 PERCENT SLOPES, MODERATELY ERODED	B
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EKB2	ELIOAK SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
GNB2	GLENVILLE SILT LOAM 3 TO 8 PERCENT SLOPES, MODERATELY ERODED	C
ELD3	ELIOAK SILTY CLAY LOAM 15 TO 25 PERCENT SLOPES, SEVERELY ERODED	C
HYDRIC SOILS LIST		
BA	BAILE SILT LOAM	D

DESCRIPTION PER HOWARD COUNTY SOIL SURVEY

SUMMARY TABLE
DEVELOPED CONDITION, SITE AREA ONLY

STUDY POINT	AREA (Acre)	CN	TC (hrs.)	1 Year Storm Exist.	1 Year Storm Dev.	2 Year Storm Exist.	2 Year Storm Dev.	10 Year Storm Exist.	10 Year Storm Dev.	100 Year Storm Exist.	100 Year Storm Dev.
B (a)											
W/O Credits	4.78	69.00	0.19		2.17		4.30		12.04		21.98
W/ Credits	4.78	62.00	0.19	0.66	0.56	1.92	2.26	7.56	8.59	15.44	17.52
C (b)											
W/O Credits					6.44		11.92		34.89		81.21
W/ Credits				8.02	4.87	14.23	9.78	38.30	31.50	68.80	77.00
D											
W/O Credits	2.94	7.40	0.30		1.57		3.20		7.79		13.40
W/ Credits	2.94	71.00	0.30	1.50	1.04	2.68	2.63	6.96	6.96	12.43	12.41

COMPARATIVE DISCHARGES, CFS

(a) Peak runoff discharge from Subarea B at Study Point B only.
(b) Combined peak runoff discharges of Subareas B and C at Study Point C as it leaves site.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

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PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/03/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 7/3/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS , LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA , MD. 21046
PHONE: 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE ESCALANTE — 13265 — PROFESSIONAL ENGINEER
6/6/08

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT :
DEVELOPED SWM DRAINAGE AREA MAP
SITE AREA ONLY
OWINGS PROPERTY , LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.	
SCALE:	1"=100'
DATE:	06/06/08
DRAWN BY:	AVG
CHECKED BY:	JHE
SHEET:	24 - 30

F-06-112

I:\OWINGS5\SDP\OWINGS5-10-29-07\FP22-23-24-25-SWM-DAM.dwg, SITEAREA-ONLY-24, 6/6/2008 6:33:56 PM, guz

MAR-13-06 01:33PM FROM-GTA/ARA Laurel 2 T-941 P.003/006 F-537

LOG OF BORING NO. SWM-01

PROJECT: Owings Property
PROJECT NO: 051423.1
PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: ▽ 6.8 ▼ ▽
DATE: 03/09/06
CAVED (ft): 6.5

DATE STARTED: March 9, 2006
DATE COMPLETED: March 9, 2006
DRILLING CONTRACTOR: GTA
DRILLER: J. Balk
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon

GROUND SURFACE ELEVATION:
DATUM: Survey
EQUIPMENT: 550-2
LOGGED BY: J. Balk
CHECKED BY: J. Risso

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	6	3-3-3	6		0				Top soil: 6 in.
2	2.5	14	3-4-4	8						Water encountered at 8.0 feet ▽
3	5.0	10	3-4-5	9		5				
4	8.5	12	3-3-3	6		10				
5	13.5	18	2-2-2	4		15			Bottom of Hole at 15.0 Feet.	

NOTES:

GTA GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. SWM-01

Sheet 1 of 1

MAR-13-06 01:33PM FROM-GTA/ARA Laurel 2 T-941 P.004/006 F-537

LOG OF BORING NO. SWM-02

PROJECT: Owings Property
PROJECT NO: 051423.1
PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: ▽ 6.0 ▼ ▽
DATE: 03/09/06
CAVED (ft): 5.5

DATE STARTED: March 9, 2006
DATE COMPLETED: March 9, 2006
DRILLING CONTRACTOR: GTA
DRILLER: J. Balk
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon

GROUND SURFACE ELEVATION:
DATUM: Survey
EQUIPMENT: 550-2
LOGGED BY: J. Balk
CHECKED BY: J. Risso

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	12	3-3-3	6		0				Top soil: in.
2	2.5	10	3-4-6	10						Water encountered at 7.0 feet ▽
3	5.0	12	4-5-5	10		5				
4	8.5	18	2-2-2	4		10				
5	13.5	6	7-13-10	23		15			Bottom of Hole at 15.0 Feet.	

NOTES:

GTA GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. SWM-02

Sheet 1 of 1

MAR-13-06 01:33PM FROM-GTA/ARA Laurel 2 T-941 P.005/006 F-537

LOG OF BORING NO. SWM-03

PROJECT: Owings Property
PROJECT NO: 051423.1
PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: ▽ 6.5 ▼ ▽
DATE: 03/09/06
CAVED (ft): 6.2

DATE STARTED: March 9, 2006
DATE COMPLETED: March 9, 2006
DRILLING CONTRACTOR: GTA
DRILLER: J. Balk
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon

GROUND SURFACE ELEVATION:
DATUM: Survey
EQUIPMENT: 550-2
LOGGED BY: J. Balk
CHECKED BY: J. Risso

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	14	2-3-2	5		0				Top soil: 6 in.
2	2.5	12	3-5-6	11						Water encountered at 6.0 feet ▽
3	5.0	14	6-5-5	10		5				
4	8.5	16	4-4-5	9		10				
5	14.0	14	7-8-9	17		15			Bottom of Hole at 16.0 Feet.	

NOTES:

GTA GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. SWM-03

Sheet 1 of 1

MAR-13-06 01:33PM FROM-GTA/ARA Laurel 2 T-941 P.006/006 F-537

LOG OF BORING NO. SWM-04

PROJECT: Owings Property
PROJECT NO: 051423.1
PROJECT LOCATION: Howard County, Maryland

WATER LEVEL: ▽ 12.7 ▼ ▽
DATE: 03/09/06
CAVED (ft): 18.6

DATE STARTED: March 9, 2006
DATE COMPLETED: March 9, 2006
DRILLING CONTRACTOR: GTA
DRILLER: J. Balk
DRILLING METHOD: HSA
SAMPLING METHOD: Split Spoon

GROUND SURFACE ELEVATION:
DATUM: Survey
EQUIPMENT: 550-2
LOGGED BY: J. Balk
CHECKED BY: J. Risso

SAMPLE NUMBER	SAMPLE DEPTH (ft)	SAMPLE RECOVERY (in)	SAMPLE BLOWS/6 inches	N (blows/ft)	ELEVATION (ft)	DEPTH (ft)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
1	0.0	8	2-3-8	11		0				Top soil: 6 in.
2	2.5	18	7-8-9	17						Well encountered at 11.0 feet.
3	5.0	18	7-7-7	14		5				
4	8.5	12	22-41-50/5"	50/5"		10				
5	13.5	3	9-11-12	23		15				
6	18.5	14	9-9-13	22		20				
7	24.5	14	5-9-13	22		25			Bottom of Hole at 26.0 Feet.	

NOTES:

GTA GEO-TECHNOLOGY ASSOCIATES, INC.
14280 Park Center Drive Suite A
Laurel, MD 20707

LOG OF BORING NO. SWM-04

Sheet 1 of 1

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 06/06/08 DATE
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

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PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/3/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 7/2/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE 301-870-5603

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STATE OF MARYLAND — JOSE HERNAN ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER

DALE THOMPSON
BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7230
Fax 410-381-8747

PROJECT :

SOIL BORING LOG

OWINGS PROPERTY, LOT 5

LOTS 17-22, NON-BUILDABLE PRESERVATION
PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: NTS
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 25 - 30

F-06-112

I:\OWINGS\SDP(OWINGS-10-29-07\FP28-SOIL BORING.dwg, SOIL BORING LOG 25, 6/6/2008 5:54:09 PM, guz

PLANTING SPECIFICATIONS

1. Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.

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

3. Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.

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

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

6. Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.

7. Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or XCupressocyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.

8. Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.

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

10. Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.

11. All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.

12. Positive drainage shall be maintained on planting beds (minimum 2 percent slope).

13. Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.): top dress after planting with iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yews): Top dress after planting with 1/4 to 1/2 cup lime each.

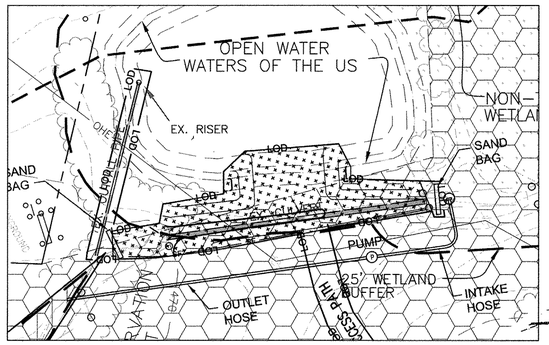
14. Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50 hole to use as backfill, see tree planting detail.

15. Weed & insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the labe For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For ...ees to be planted with a ground cover, be sure to carefully check the chemical used to assure i...compatability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.

16. Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid dessication.

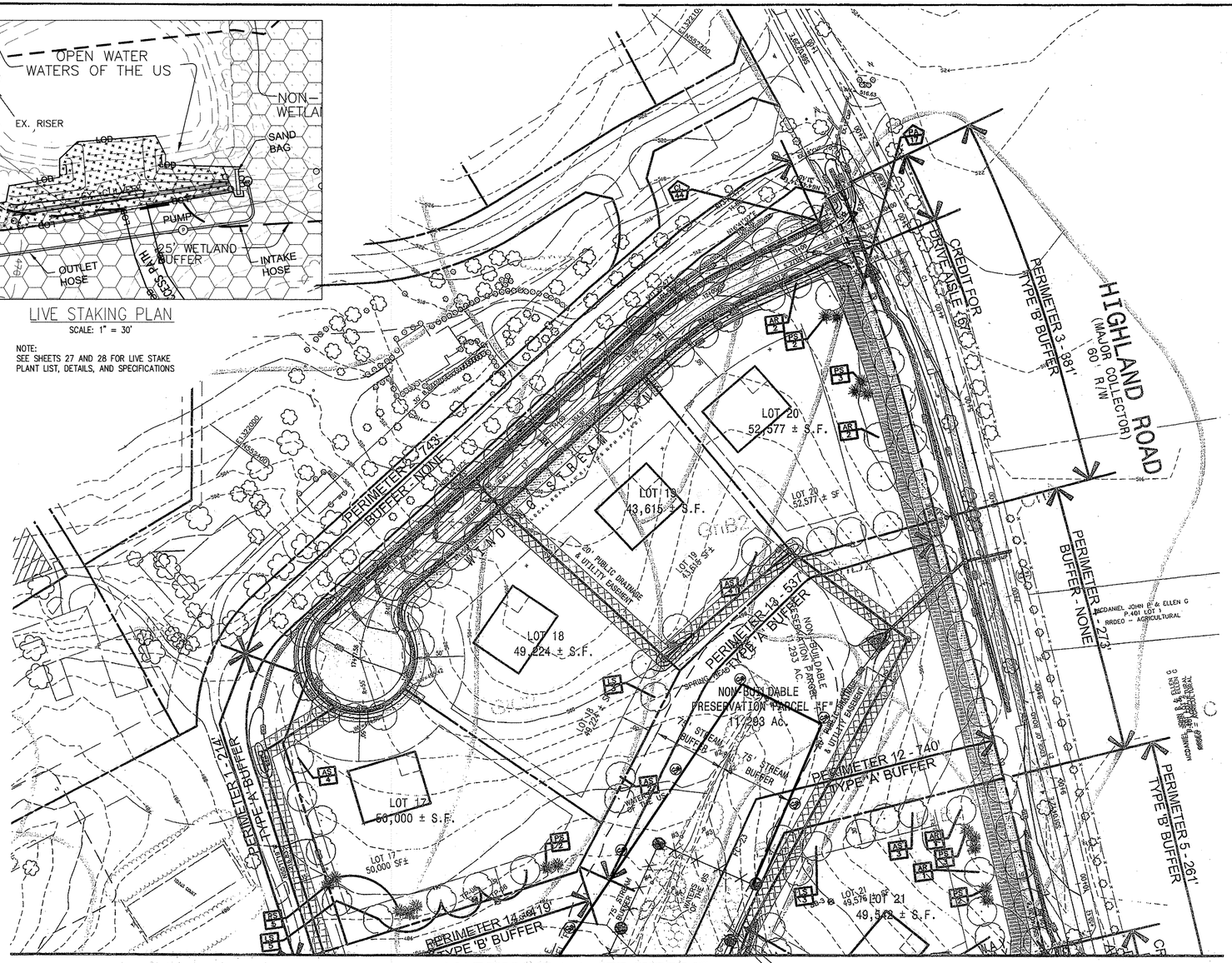
17. Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.

18. All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.



LIVE STAKING PLAN
SCALE: 1" = 30'

NOTE:
SEE SHEETS 27 AND 28 FOR LIVE STAKE PLANT LIST, DETAILS, AND SPECIFICATIONS



MATCH LINE A-A, SEE SHEET 27

LEGEND

- CRZ — CRITICAL ROOT ZONE (CRZ) (ESTIMATED RADIUS = 1.5' X DBH)
- AREAS WITH 15-25% SLOPES
- AREAS WITH 25% & GREATER SLOPES
- EXIST. TREE LINE
- PROP. TREE LINE
- EXIST. TREE
- PROP. TREE
- AR 1 — STREET TREE REQUIREMENT
- AR 1 — PERIMETER LANDSCAPE REQUIREMENT
- 10' PUBLIC TREE MAINTENANCE EASEMENT

GENERAL NOTES:

1. ONE (1) FOREST STAND EXISTS ON-SITE.
2. 100-YEAR FLOODPLAIN EXISTS ON-SITE AS SHOWN.
3. NO CRITICAL HABITATS OF RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
4. NO TREES, SHRUBS, OR PLANTS IDENTIFIED AS RARE, THREATENED OR ENDANGERED WERE OBSERVED.
5. THERE ARE NO KNOWN CEMETERY OR BURIAL PLOTS LOCATED ON THE SITE, ACCORDING TO THE HOWARD COUNTY CEMETERY SITE MAP.
6. THERE ARE NO KNOWN HISTORIC STRUCTURES OR SITES LOCATED ON THE SITE, ACCORDING TO THE HOWARD COUNTY HISTORIC PROPERTIES MAP.
7. THE SITE CONTAINS Ba, WHICH IS ON HOWARD COUNTY HYDRIC SOIL LIST.
8. THE HOWARD COUNTY FOREST CONSERVATION MANUAL SUPERSEDES ANY DISCREPANCIES BETWEEN THE MANUAL AND THESE PLANS.
9. SEE FOREST STAND DELINEATION REPORT D...TED DECEMBER 27, 2001 FOR FIELD INVESTIGATION NARRATIVE.
10. THE ON-SITE REFORESTATION CONSERVATION SURETY IS $73,398.60 (3.37 Ac x $0.50/SF). ON-SITE FOREST RETENTION BOND AMOUNT IS $14,636.16 (1.68 AC x $0.20/SF). TOTAL FOREST CONSERVATION SURETY AMOUNT IS $88,034.76.
11. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $32,850 FOR REQUIRED PLANTS ONLY.
    89 SHADE TREES @ $300 = $26,700
    41 EVERGREEN TREES @ $150 = $6,150
12. FINANCIAL SURETY FOR THE REQUIRED STREET TREE PLANTING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF ~~$30,400~~ FOR REQUIRED PLANTS ONLY.
    98 ...DE TREES @ $300 = ~~$29,400~~.

LEGEND

- LOD — LIMIT OF DISTURBANCE
- (S) FOREST RETENTION SIGN
- (SR) REFORESTATION SIGN
- EXIST. TREE >24" D.B.H. TO BE SAVED
- TREE >24" D.B.H. TO BE REMOVED
- SPECIMEN TREE
- FOREST CONSERVATION EASEMENTS
- FOREST TO BE REMOVED
- FP — FLOODPLAIN

FOREST CONSERVATION EASEMENT 'B'	
GROSS FOREST: 0 ACRE	
(FLOODPLAIN: ~~0.87~~ ACRE)	0.29
FOREST PLANTED: ~~3.37~~ ACRE	3.40 ⚠
EASEMENT AREA: ~~0.64~~ ACRE	3.69

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 YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

SIGNATURE — DATE: June 11, 2008

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW NEW FOREST CONSERVATION EASEMENT
2. TO SHOW BLOW UP OF THE AREA AROUND EXISTING FARM POND

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — DALE THOMPSON — 13265 — PROFESSIONAL ENGINEER
6/6/08

DALE THOMPSON
BUILDERS
6300 Woodacre Court
Columbia, MD 21045
410-995-6236
301-596-7280
Fax 410-381-8747

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL ⚠, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3608 EXPIRATION DATE: 12/21/12"

STATE OF MARYLAND — STEPHANIE T. HUBER — 3608 — LANDSCAPE ARCHITECT

LANDSCAPE ARCHITECT'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF LANDSCAPE ARCHITECT — DATE: 09/04/12

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SK HOMES AT HIGHLAND OWINGS, LLC — DATE: 9/4/12

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — Diane Schwarz, Acting — DATE: 10/2/12

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 10/4/12

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 10/08/12

DATE	NO.	REVISION
06/26/12	⚠	REVISE FOREST CONSERVATION EASEMENTS

OWNER / DEVELOPER:
SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

PROJECT: LANDSCAPE & FOREST CONSERVATION PLAN
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY "AX MAP 40, GRID 4, PARCEL 44
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: 1"=60'
DATE: 02/01/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 26 - 30

F-06-112

I:\OWINGS\SDP\07\NOS5.10-29-07\P27 & 28-LSCP_FOREONS200.dwg, LANDSCAPING PLAN: 28, 6/6/2008 6:46:38 PM, guz

LEGEND

- CRZ — CRITICAL ROOT ZONE (CRZ) (ESTIMATED RADIUS = 1.5' X DBH)
- AREAS WITH 15-25% SLOPES
- AREAS WITH 25% & GREATER SLOPES
- EXIST. TREE LINE
- PROP. TREE LINE
- EXIST. TREE
- PROP. TREE
- AR 1 — STREET TREE REQUIREMENT
- AR 1 — PERIMETER LANDSCAPE REQUIREMENT
- 10' PUBLIC TREE MAINTENANCE EASEMENT

LEGEND

- LOD — LIMIT OF DISTURBANCE
- PROPOSED FOREST RETENTION AREA SIGN (TO BE INSTALLED PRIOR TO CONSTRUCTION)
- (S) FOREST RETENTION SIGN
- (SR) REFORESTATION SIGN
- EXIST. TREE >24" D.B.H. TO BE SAVED
- TREE >24" D.B.H. TO BE REMOVED
- SPECIMEN TREE
- FOREST CONSERVATION EASEMENTS
- FOREST TO BE REMOVED
- FP — FLOODPLAIN

Plant List		
Quantity	Abbreviation	Proper Name
41	PS	Pinus strobus
25	LS	Liquidambar staryciflua
23	AS	Acer saccharum
39	AR	Acer rubrum

RESTORATION PLANT LIST

SEE SHEET 26 FOR PLAN VIEW

QTY.	COMMON NAME	BOTANICAL NAME	SIZE
10	Red Maple	*Acer rubrum*	*2 gal. or larger containers*
10	Black Willow	*Salix nigra*	*2 gal. or larger containers*
10	Silky Dogwood	*Cornus amomum*	*2 gal. or larger containers*
10	Arrowwood	*Viburnum dentatum*	*2 gal. or larger containers*

Total 40

Specifications: 2 gallon or larger containers = 24" or greater in height

Plant list (To be planted on average 2 to 3 feet apart)

QTY.	Scientific Name	Common Name	Size
240	*Cornus sericea*	Red Osier Dogwood	Whips or Live Stake 18-24"
240	*Salix nigra*	Black Willow	Whips or Live Stake 18-24"
240	*Viburnum dentatum*	Arrowwood Viburnum	Whips or Live Stake 18-24"
240	*Sabucus canadensis*	American Elderberry	Whips or Live Stake 18-24"

Total 960 Plants

PLANTING SPECIFICATIONS:

A. Plant Materials

1. Plant material will be inspected by an authorized representative prior to planting. All plant material deemed unacceptable due to damage or poor health will be required to be replaced with acceptable plant material by the

B. Planting Schedule.

1. All plants shall be installed between March 1 to May 30 or September 1 to October 30.
2. The representative retains the right to inspect the storage site, and plants prior to delivery to the site.

C. Bed Preparation

Bed preparation will include the seeding and stabilization of the graded areas prior to planting of bare root or live stake plant material.

1. The contractor shall mark the locations of each planting areas. The locations shall be field verified by an authorized representative prior to planting.
2. Live stakes shall be planted on 2-3-foot centers across the stabilized stream banks.
3. Container grown material shall be planted on 8-10-foot centers across gradient within the designated stabilization area.
4. Final cleanup shall be the responsibility of the contractor and consist of removing all trash and materials incidental to the project and the proper disposal of the material off-site.
5. Cleanup procedure activities shall not damage existing plants.

D. Plant Maintenance and Management

Vegetation demonstrating immediate stress or dieback will be replaced.
In addition, soil and climatic factors will be analyzed in relation to plant growth.
The following management technique will be utilized.

1. Replace dead or dying plant species with same species or approved alternative.
2. Remove debris that impairs plant growth quarterly, during the growing season.
3. All excessive noxious and invasive plant growth shall be eradicated using an acceptable method.

STREET TREE PLANT SCHEDULE

QTY	KEY	NAME	SIZE/TYPE	ROOT CONDITION	REMARKS
		SHADE TREES			
72	CL	CLADRASTIS LUTEA YELLOW WOOD	1 1/2"- 2" CAL	B & B	40' O.C. OR AS SHOWN WITHIN 10' TREE EASEMENT EXCEPT WHERE NOTED ON PLAN
26	PA	PLANTINUS X ACERIFOLIA BLOODGOOD LONDON PLANE	2 1/2"-3" CAL	B & B	

GRAND TOTAL OF ONSITE LANDSCAPING REQUIREMENTS (PERIMETER LANDSCAPING AND STREET TREES)

GRAND TOTAL OF PLANTINGS REQUIRED:	179 SHADE TREES 41 EVERGREEN TREES
GRAND TOTAL OF PLANTINGS PROVIDED:	187 SHADE TREES 41 EVERGREEN TREES

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW REVISED FCP EASEMENT & RESTORATION PLANT LIST

SPECIMEN TREE IDENTIFICATION LIST

BOTANICAL NAME/ COMMON NAME	TRUNK ø (d.b.h.)	TREE HEIGHT	TREE CANOPY	TREE CONDITION	TREE PROTECTION MEASURES
1. LIRIODENDRON TULIPIFERA TULIP POPLAR	31"	65'	40'	FAIR	REMOVE
2. LIRIODENDRON TULIPIFERA TULIP POPLAR	31"	60	30'	FAIR	SAVE, ROOT PRUNE
3. CATALPA BIGNONIOIDES SOUTHERN CATALPA	32"	65'	20'	POOR	REMOVE

STREET TREE REQUIREMENT/ PROVIDED TABLE	
NUMBER OF SHADE TREES REQUIRED	
HIGHLAND ROAD – 1,011' @ 1 LARGE TREE @ 40' O.C. (AVG.)	26 STREET TREES
WINDING STREAM LANE – 1,540' @ 1 LARGE TREE @ 40' O.C. (AVG.)	39 STREET TREES
OWINGS OVERLOOK –,999' @ 1 LARGE TREE @ 40' O.C. (AVG.)	25 STREET TREES
TOTAL NUMBER OF SHADE TREES REQUIRED	90 STREET TREES
TOTAL NUMBER OF SHADE TREES PROVIDED	98 STREET TREES

LANDSCAPE ARCHITECT'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Graham T Hubbard — 09/04/12
SIGNATURE OF LANDSCAPE ARCHITECT — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

9/4/12
SK HOMES AT HIGHLAND OWINGS, LLC — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Diane Schwarz, Acting — 10/2/12
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
10/4/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
Kent Sheubrooks — 10/08/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DATE	NO.	REVISION
06/26/12	1	REVISE FOREST CONSERVATION EASEMENTS

OWNER / DEVELOPER:
SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL ⚠, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3608 EXPIRATION DATE: 12/21/12"

STATE OF MARYLAND GRAHAM T. HUBBARD LANDSCAPE ARCHITECT 3608

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

6/6/08

DALE THOMPSON BUILDERS
6300 Woodside Court Columbia, MD 21045
410-995-6736 301-596-7280 Fax 410-381-8747

PROJECT: LANDSCAPE & FOREST CONSERVATION PLAN
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.	
SCALE:	1"=60'
DATE:	02/01/08
DRAWN BY:	AVG
CHECKED BY:	JHE
SHEET:	27 - 30

F-06-112

SCHEDULE "A" PERIMETER LANDSCAPE EDGE (FOR EACH PERIMETER)

PERIMETER	CATEGORY (PROPERTIES/ ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED: SHADE TREES	EVERGREEN TREES	SHRUBS	NUMBER OF PLANTS PROVIDED: SHADE TREES	EVERGREEN TREES	SHRUBS
1	SFD TO SFD	A	214'	NO	NO	4	--	--	4	--	--
2	SFD TO ROAD	NONE**	743'	NO	NO	--	--	--	--	--	--
3	SFD TO ROAD	B	268' 278'-67' = 201	NO	YES CREDIT FOR DRIVE AISLE – 67'	4	5	--	4	5	--
4	PRESERVATION PARCEL TO ROAD	NONE***	354'	NO	NO	--	--	--	--	--	--
5	SFD TO ROAD	B	261' 261' – 81' = 180'	NO	YES CREDIT FOR DRIVE AISLE – 81'	4	5	--	4	5	--
6	PRESERVATION PARCEL TO A ROAD & PROPERTIES	NONE***	1,370'	NO	NO	--	--	--	--	--	--
7	SFD TO FSD	A	254'	NO	NO	5	--	--	5	--	--
8	SFD TO PERSERVATION PARCEL	A	712'	YES – 160' OF FOREST TO BE RETAINED IN EASEMENT	NO	9	--	--	9	--	--
9	SFD TO SWM	B	836'	NO	NO	17	21	--	17	21	--
10	SFD TO PERSERVATION PARCEL	A	992'	NO	NO	17	--	--	17	--	--
11	SFD TO ROAD	NONE**	411'	NO	NO	--	--	--	--	--	--
12	SFD TO PERSERVATION PARCEL	A	740'	NO	NO	12	--	--	12	--	--
13	SFD TO PRESERVATION PARCEL	A	525'	NO	NO	9	--	--	9	--	--
14	SFD TO SWM	B	419'	NO	NO	8	10	--	8	10	--
					TOTAL TABULATION FOR LOT 5:	89	41	--	89	41	--

* A = 1 SHADE TREE/ 60 LF
B = 1 SHADE TREE/ 50 LF; 1 EVERGREEN/ 40 LF

** PER HO.CO. LANDSCAPE MANUAL, NO PERIMETER IS REQUIRED FOR SINGLE FAMILY DETACHED UNITS FACING THE ROAD.

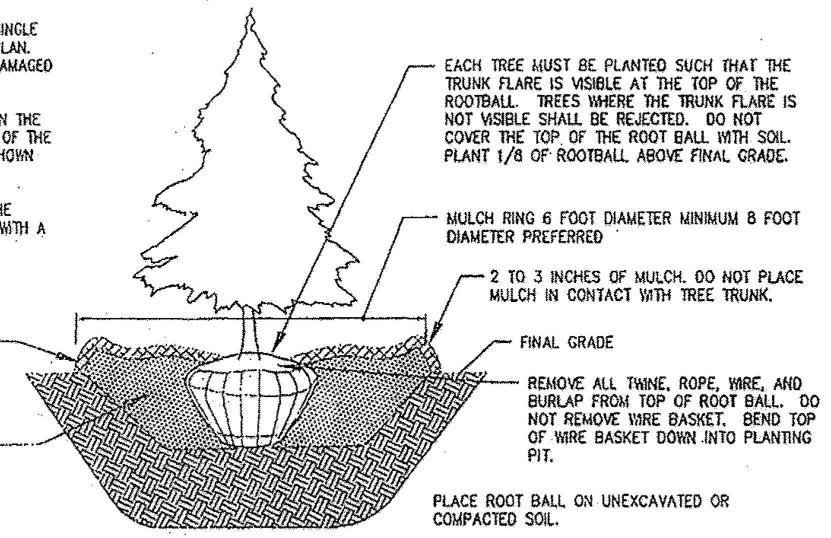
*** PER HO.CO. LANDSCAPE MANUAL, NO BUFFER OR SCREEN IS REQUIRED BETWEEN PRESERVATION PARCELS AND ADJACENT PROPERTIES.

SUMMARY PLANTING SCHEDULE

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE/TYPE ROOT CONDITION REMARKS
		SHADE TREES		
72	CL	CLADRASTIS LUTEA	YELLOW WOOD	2 1/2"-3" CAL B & B
39	AR	ACER RUBRUM "OCTOBER GLORY"	RED MAPLE (OCTOBER GLORY)	2 1/2"-3" CAL B & B
26	PA	PLANTINUS X ACERIFOLIA	BLOODGOOD LONDON PLANE	2 1/2"-3" CAL B & B
21	AS	ACER SACCHARUM	SUGAR MAPLE	2 1/2"-3" CAL B & B
29	LS	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	2 1/2"-3" CAL B & B
		EVERGREEN TREES		
41	PS	PINUS STROBUS	WHITE PINE	6' – 8' HEIGHT B & B

NOTES:

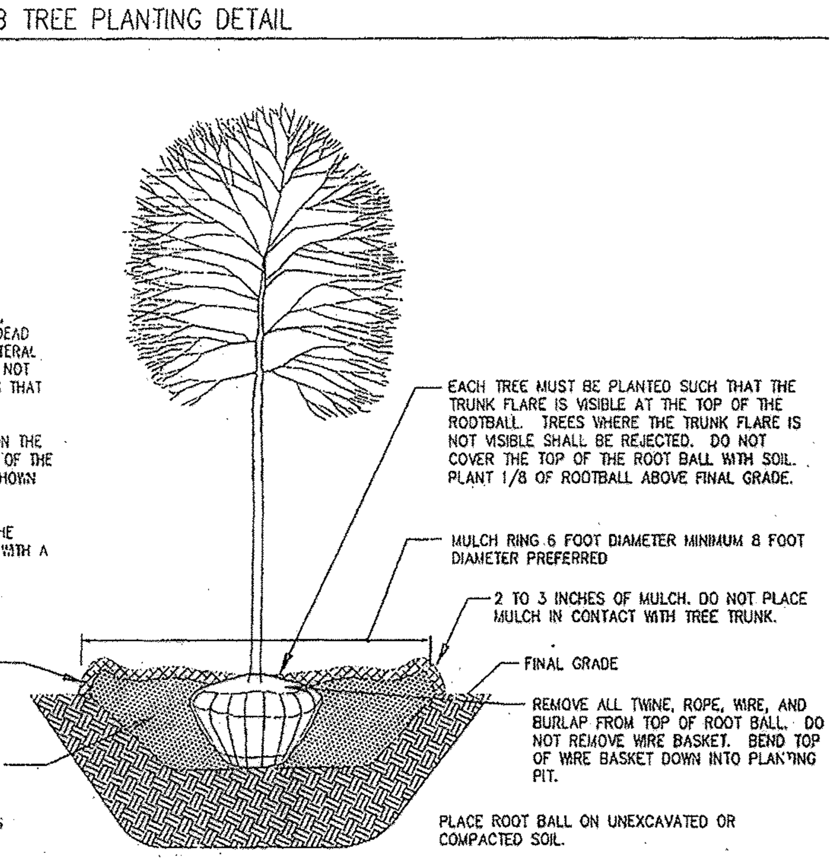
1. SELECT ONLY NURSERY STOCK WITH A SINGLE LEADER UNLESS OTHERWISE SPECIFIED ON PLAN. PLANTS WITH CO-DOMINANT, MISSING, OR DAMAGED LEADERS SHALL BE REJECTED.
2. STAKE TREES ONLY IF RECOMMENDED ON THE PLANT SCHEDULE OR UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. STAKING DETAIL SHOWN ONLY IF RECOMMENDED.
3. DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5'.



EVERGREEN B&B TREE PLANTING DETAIL
NOT TO SCALE

NOTES:

1. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
2. STAKE TREES ONLY IF RECOMMENDED ON THE PLANT SCHEDULE OR UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. STAKING DETAIL SHOWN ONLY IF RECOMMENDED.
3. DIG PLANTING PIT TWICE AS WIDE AS THE DIAMETER OF THE TOP OF THE ROOT BALL WITH A MINIMUM PLANTING PIT DIAMETER OF 5'.



DECIDUOUS B&B TREE PLANTING DETAIL
NOT TO SCALE

FOREST PROTECTION PROCEDURES–CONSTRUCTION PHASE
FOREST AND TREE CONDITIONS SHOULD BE MONITORED DURING CONSTRUCTION AND CORRECTIVE MEASURES TAKEN WHEN APPROPRIATE.

THE FOLLOWING SHALL BE MONITORED:

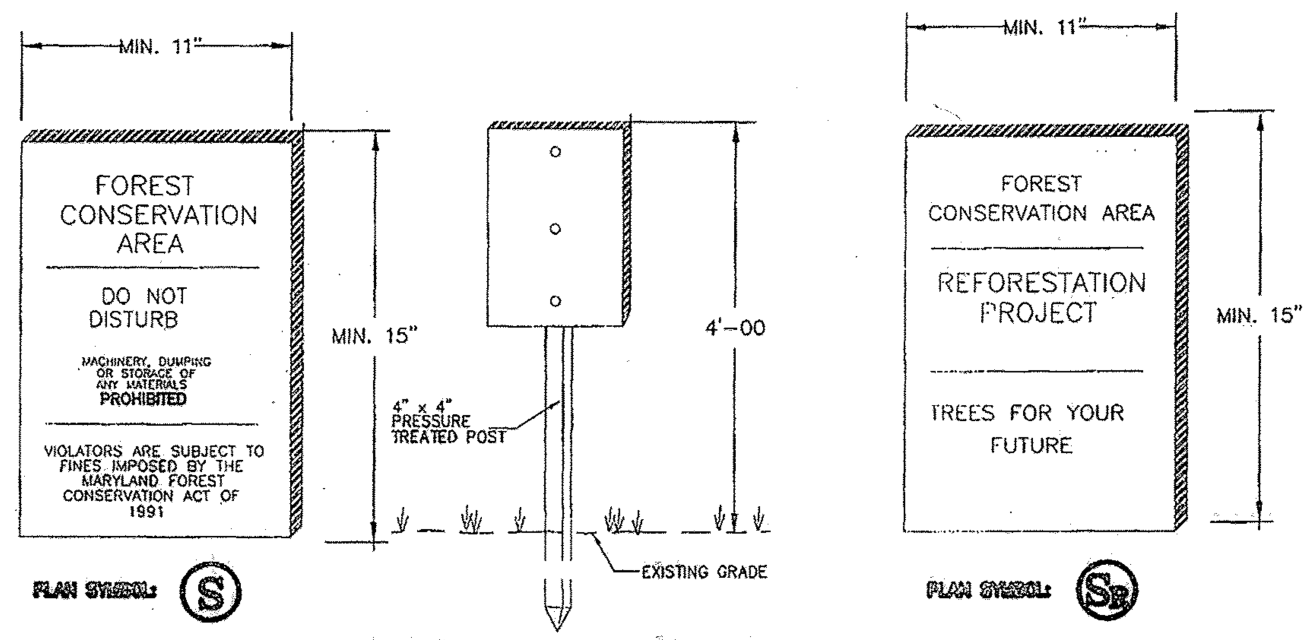
A) SOIL COMPACTION
B) ROOT INJURY–PRUNE AND MONITOR; CONSIDER CROWN REDUCTION
C) LIMB INJURY–PRUNE AND MONITOR
D) FLOODED CONDITION–DRAIN AND MONITOR; CORRECT PROBLEM
E) DROUGHT CONDITIONS–WATER AND MONITOR; CORRECT PROBLEM
F) OTHER STRESS SIGNS–DETERMINE REASON, CORRECT, AND MONITOR

FOREST PROTECTION PROCEDURES–POST–CONSTRUCTION PHASE

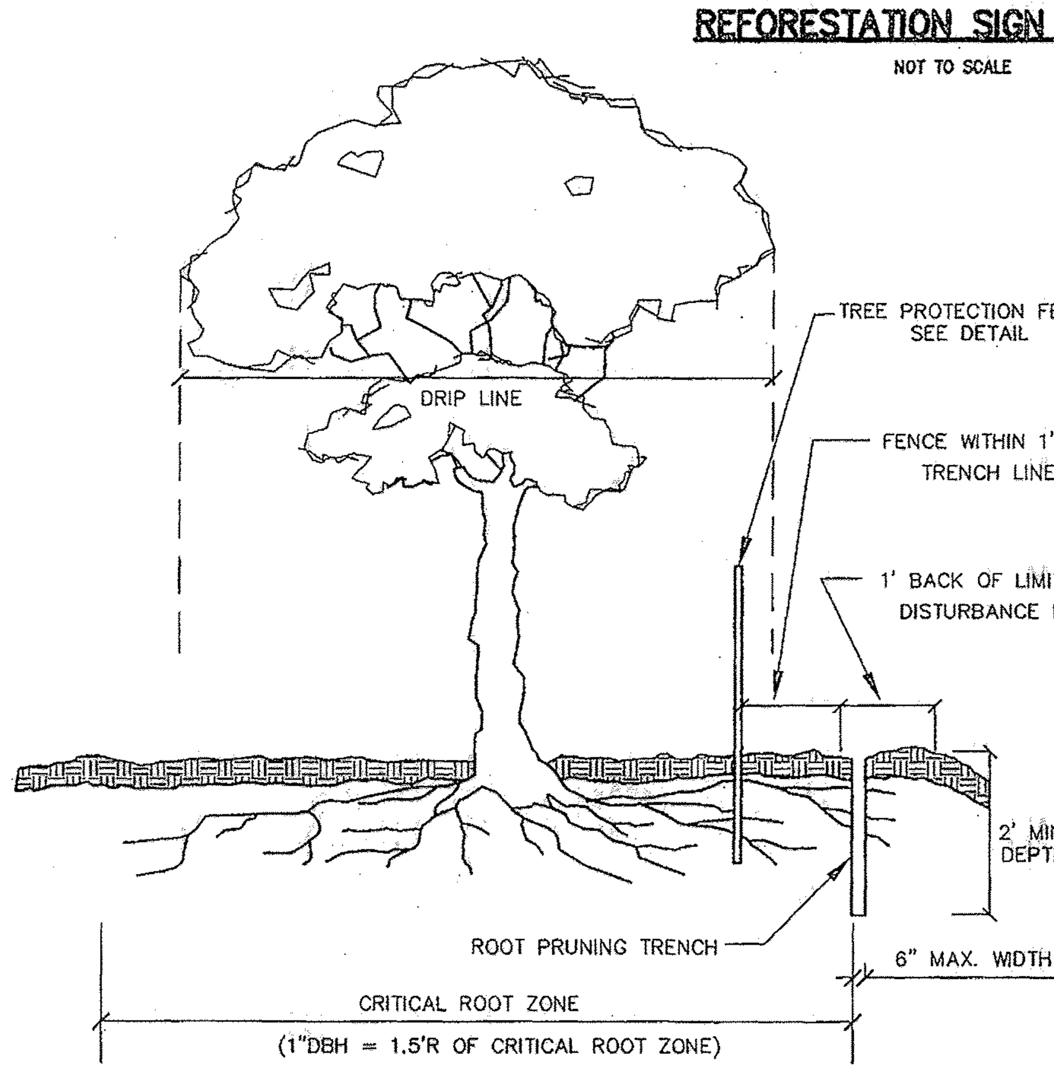
THE FOLLOWING MEASURES SHALL BE TAKEN:

1) CORRECTIVE MEASURES IF DAMAGES WERE INCURRED DUE TO NEGLIGENCE:
   a. STRESS REDUCTION
   b. REMOVAL OF DEAD OR DYING TREES. THIS MAY BE DONE ONLY IF TREES POSE AN IMMEDIATE SAFETY HAZARD.

2) REMOVAL OF TEMPORARY STRUCTURES:
   a. NO BURIAL OF DISCARDED MATERIALS WILL OCCUR ON-SITE WITHIN THE CONSERVATION AREA.
   b. NO OPEN BURNING WITHIN 100 FEET OF A WOODED AREA.
   c. ALL TEMPORARY FOREST PROTECTION STRUCTURES WILL BE REMOVED AFTER CONSTRUCTION.
   d. REMOVE TEMPORARY ROADS BY REMOVING STONE OR BROADCASTING MULCH; PRE-CONSTRUCTION ELEVATION SHOULD BE MAINTAINED.
   e. AERATE COMPACTED SOIL.
   f. REPLANT DISTURBED SITES WITH TREES, SHRUBS AND/OR HERBACEOUS PLANTS.
   g. RETAIN SIGNS FOR RETENTION AREAS OR SPECIMEN TREES.
   h. A COUNTY OFFICIAL SHALL INSPECT THE ENTIRE SITE.



FOREST CONSERVATION & REFORESTATION SIGN DETAIL
NOT TO SCALE



ROOT PRUNING DETAIL
NOT TO SCALE

NOTE:

1. RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS.
2. BOUNDARIES OF RETENTION AREAS SHOULD BE STAKED AND FLAGGED PRIOR TO TRENCHING.
3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.
5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.
6. ALL TREES LESS THAN 10' FROM TRAIL REQUIRE ROOT PRUNING.

REVISED FINAL ROAD CONSTRUCTION PLAN

PURPOSE OF REVISION TO THIS SHEET

1. TO SHOW NEW FORESET CONSERVATION WORKSHEET DUE TO ELIMINATION OF GRADING AT EXISTING FARM POND

Howard County Forest Conservation Worksheet

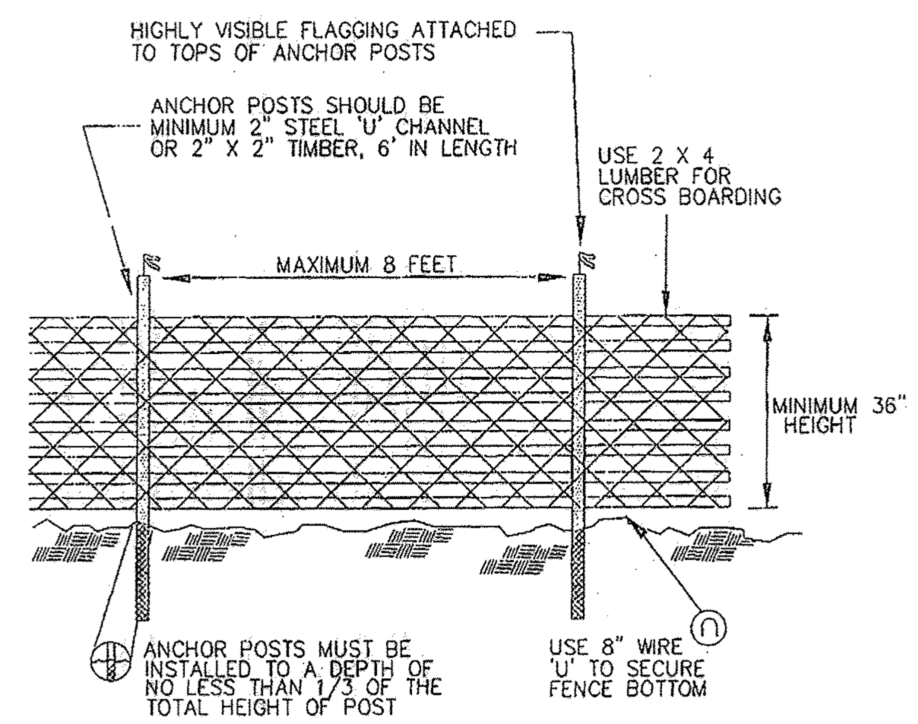
Project Name: Owings Property
State File #:
Date: ~~November 14, 2006~~ June 21, 2012

			Acres	
Net Tract Area				
A.	*Total Tract Area*	A =	25.64	
B.	*Other Deductions* FLOODPLAIN	B =	~~0.48~~	0.51 ⚠1
C.	*Net Tract Area* Net Tract Area = (A-B-C)	C =	~~25.16~~	25.13
Land Use Category: Residential - Suburban				
D.	*Afforestation Threshold* (Net Tract Area X 20%	D =	5.03	
E.	*Conservation Threshold* (Net Tract Area X 25%	E =	~~6.29~~	6.28
Existing Forest Cover				
F.	***Existing Forest Cover within the Net Tract Area***	F =	~~1.70~~	1.67
G.	*Area of Forest Above Conservation Threshold*	G =	0.00	
	If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then G = Existing Forest Cover (F) - Conservation Threshold (E); Otherwise G = 0			
Break Even Point				
H.	*Break Even* (Amount of forest that must be retained so that no mitigation is required)	H =	FALSE	
	(1) If the area of forest above the Conservation Threshold (G) is greater than zero, then H = (0.2 X the area of forest above Conservation Threshold (G)) + the Conservation Threshold (E)			
	(2) If the area of forest above the Conservation Threshold (G) is equal to zero, then H = Existing Forest Cover (F)			
I.	*Forest Clearing Permitted Without Mitigation*	I =	~~1.70~~	1.67
	I = Existing Forest Cover (F) - Break Even Point (H)			
Proposed Forest Clearing				
J.	***Total Area of Forest to be Cleared***	J =	0.02	
K.	*Total Area of Forest to be Retained*	K =	~~1.68~~	1.65
	K = Existing Forest Cover (F) - forest to be cleared (J)			
Planting Requirements				
	If the Total Area of Forest to be Cleared (K) is at or above the Breakeven Point (H), no planting is required and no further calculations are necessary (L=0, M=0, N=0, P=0); If not, calculate the planting requirement below:			
L.	*Reforestation for Clearing Above the Conservation Threshold*	L =	0.00	
	(1) if the total area of forest to be retained (K) is greater than the Conservation Threshold (E), then L = the area of forest to be cleared (J) X 0.25; or			
	(2) If the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then L = area of forest above Conservation Threshold (G) X 0.25			
M.	*Reforestation for Clearing Below the Conservation Threshold*	M =	0.04	
	(1) if Existing Forest Cover (F) is greater than Conservation Threshold (E) and the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then M = 2.0 X (the Conservation Threshold (E) - the forest to be retained (K))			
	(2) if Existing Forest (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 X Forest to be cleared (J).			
N.	*Credit for Retention Above the Conservation Threshold*	N =	0.00	
	If the area of forest to be retained (K) is greater than the Conservation Threshold (E), then N = K - E			
P.	*Total Reforestation Required* P = L + M - N	P =	0.04	
Q.	*Total Afforestation Required*	Q =	~~3.33~~	3.36
	(1) If Existing Forest Cover (F) is less than the Afforestation Threshold (D) then Q = the Afforestation Threshold (D) - the Existing Forest Cover (F)			
R.	*Total Planting Requirement* R = P + Q	R =	~~3.37~~	3.40

INSTALLATION GUIDELINES

Live stake installation should proceed as follows (refer to Detail 2.4):

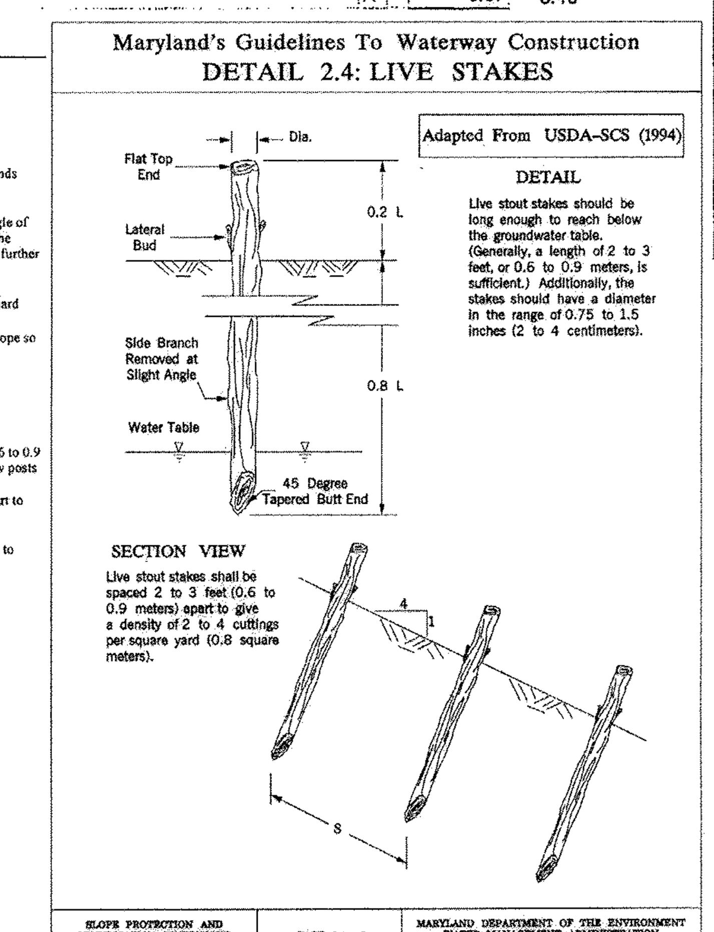
1. Live stake rooting areas should be soaked in barrels of water for 24 to 48 hours just prior to installation.
2. While keeping the bark of the live stakes intact, the side branches should be cleanly removed, the basal ends angled for easy insertion, and the tops cut square.
3. The cuttings should be implanted with the angled basal end down and buds oriented up at a minimum angle of 10 degrees to the horizontal so that rooting will not be restricted. All stakes should be positioned above the normal baseflow level. Project planners may need to study an aptly chosen vegotated reference reach for further guidance when installing live stakes.
   - In soft soils, the stakes can be inserted perpendicularly into the slope using a dead blow hammer; in hard soils, however, a steel rod should be employed to create a pilot hole before the stakes are planted.
   - Twenty percent of the live stake, and a minimum of two lateral buds, should be exposed above the slope so that green, leafy shoots will readily grow.
   - Split or otherwise damaged stakes should be discarded.
4. After the stakes have been inserted into the ground, soil should be tamped firmly around their bases to encourage root growth.
5. Successive stakes should be arranged in a triangular configuration and spaced a distance of 2 to 3 feet (0.6 to 0.9 meters) apart, allowing for a typical density of 2 to 4 cuttings per square yard (0.8 square meters). Willow posts require additional room for growth and propagation and should be planted at 3 to 5-foot (1 to 1.5-meter) intervals. When inserted in arrays, the stakes should be spaced 12 to 18 inches (30 to 46 centimeters) apart to form chevron-like rows that point downstream.
6. Unstable slope toes should be reinforced against scouring and undercutting using live fascines or rock fill to give the live stakes the best opportunity to root and grow.



NOTES:

1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE, ONLY.
2. SUPER SILT FENCE MAY BE SUBSTITUTED FOR TREE PROTECTION FENCING.
3. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
4. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
5. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
6. PROTECTION SIGNS ARE REQUIRED, SEE SIGN DETAIL.
7. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCING
NOT TO SCALE



REFORESTATION REQUIREMENT VS. PROVIDED PLANTING TABULATION

FOREST CONSERVATION EASEMENT 'B'

TOTAL REFORESTATION AREA	3.37 AC.
# OF 1" CALIPER REQUIRED:	
* 3.37 AC. X 350 WHIPS PER AC =	1,180 WHIPS
# OF WHIPS PROVIDED:	1,180 WHIPS

* DENSITY: 350 WHIPS PER ACRE

FOREST CONSERVATION EASEMENT STANDARD NOTES:

THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.12000 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

PLANTING PLAN

PLANTING PLAN

The tree species selected are consistent with the mixed upland oak association native to the upland soils, and the river birch association in the riparian areas (i.e. hydric soils). The County Manual recommends a planting density of 350 per acre with tree shelters, and the schedule below meets the recommendation. Species will be randomly mixed and planted approximately 11' apart from other plantings. Straight rows should be avoided to simulate a more natural arrangement. The total number of plants will be 1180 trees based on 3.37 ac at 350 whips/ac.

UPLAND SPECIES		SIZE	QUANTITY/ACRE
Pioneer species			
Red Maple	Acer Rubrum	WHIPS	148
Sweet Gum	Liquidambar Styraciflua	WHIPS	148
Sycamore	Platanus Occidentalis	WHIPS	148
Eastern RedBud	Cercis Canadensis	WHIPS	148
Climax species			
White Oak	Quercus Alba	WHIPS	148
Pin Oak	Quercus Palustris	WHIPS	148
Service Berry	Amelanchier Canadensis	WHIPS	148
White Pine	Pinus Strobus	WHIPS	148
		WHIPS	144
		Total Provided =	1,180

OTHER PLANTING INSTRUCTIONS

Plant material should be obtained from a reputable nursery and ordered 3 to 6 months before desired delivery. Delivery should be arranged to occur as close to planting time possible, and stock should be protected from direct sun and drying until planting. Planting dates are October through May, with spring months preferred.

Stock should be inspected before planting for signs of damage, disease, or insect infestation, vigor, and size. Damaged or inferior plants should be replaced.

Upon planting container grown stock, plants should be removed from the container and the soil gently loosened from the roots. If roots encircle the root ball, or are J-shaped or kinked, consider replacement. Do not trim roots on-site.

The planting field should be dug and backfilled with the native soil. Rake the surface and cover the disturbed area with approximately 4 inches of mulch, but avoid burying the base of the stem to prevent fungal rot. Water immediately to settle the soil around the roots.

MAINTENANCE AND PROTECTION OF PLANTED AREA

Soils should be tested to determine the need for fertilizer. If fertilizer is needed, it should be applied at the testing lab's recommended rates after the first growing season (late fall or early spring). Organic or slow-release fertilizers are preferred.

Watering should be planned to compensate for deficient rainfall. New plantings need water once a week for the first growing season. The second year, watering may only be necessary in July and August, and in subsequent years only water during drought periods. Watering should be done slowly enough to permit deep soaking of the root zone.

Monitor the young trees for several years for health, insect damage, and invasive vines. Replace dead manually, or by careful and selective use of appropriate herbicide.

Post protective signage that states that this area is a Forest Conservation Area and trees have been planted for reforestation. An effort should be made to inform and gain the cooperation of the adjacent residents to monitor and protect the plantings.

FOREST PROTECTION PLAN

The forest conservation and reforestation areas will need to be protected from injury during the land clearing and construction process, and from any future land use changes. Long-term protection will require placing the forest in a permanent, recorded, non-developable open space or conservation easement. The legal document establishing this protection will be required for final FCP approval.

CONSTRUCTION PHASE

Protective measures during the construction stage will focus on protecting the critical root zone of the retained trees along the new forest edge. The final LOD line will be staked in the field by a qualified professional who will determine which individual trees will be saved, and the extent of the critical root zone based on trees species and size. The resulting boundary will be fenced with approved fencing and posted as a tree preservation area, and no disturbance to the vegetation within the retention area will be allowed, except that which may be necessary to manage the health of the trees, such as thinning, pruning, or vine control. Any grading and construction that will occur uphill from the forest will require sediment control measures such as a silt fence or other device that will prevent siltation in the critical root zone of retained trees.

TWO-YEAR POST-CONSTRUCTION MANAGEMENT PROGRAM

Howard County requires the developer to commit to a minimum of two years of responsibility for the management of the Forest Conservation Area. The program must be supervised by a qualified professional. The obligations include: periodic (beginning and end of growing season) inspection of the condition of the forest; necessary management such as maintenance of fencing and signage, treatment or removal of damaged or dying trees, or invasive plant control; education of new land owners or occupants about allowable activities and future responsibilities for the forest; and a final inspection and certification that the forest is intact and the conditions of FCP have been met submitted to the County. Upon review of the final certification, the County will notify the developer of release from all future obligations, and their transferral to the owner.

Prepared by.

LANDSCAPE ARCHITECT'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONNAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Graham T Hubbard — 09/04/12
SIGNATURE OF LANDSCAPE ARCHITECT — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SK HOMES AT HIGHLAND OWINGS, LLC — 9/4/12
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Diane Schwarz, Acting — 10/2/12
CHIEF, BUREAU OF HIGHWAYS — DATE

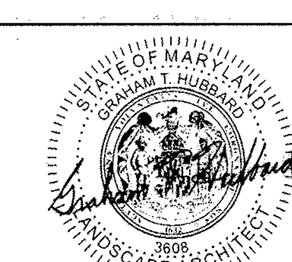
APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
10/4/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE
Kent Sheubrooks — 10/08/12
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

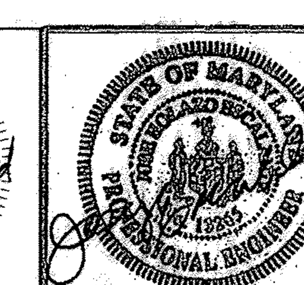
DATE	NO.	REVISION.
06/26/12	⚠1	REVISE WORKSHEET PER NEW FLOODPLAIN EASEMENT AREA

OWNER / DEVELOPER:
SK HOMES AT HIGHLAND OWINGS, LLC
7090 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
301-870-5603

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL ⚠, WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3608 EXPIRATION DATE: 12/21/12"





DALE THOMPSON
BUILDERS
6300 Woodside Court
Columbia, MD 21045
410-995-6736
301-596-7280
Fax 410-381-8747

PROJECT : LANDSCAPE AND FOREST CONSERVATION NOTES & DETAILS
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.:
SCALE: AS SHOWN
DATE:
DRAWN BY:
CHECKED BY:
SHEET: 28 - 30

F-06-112

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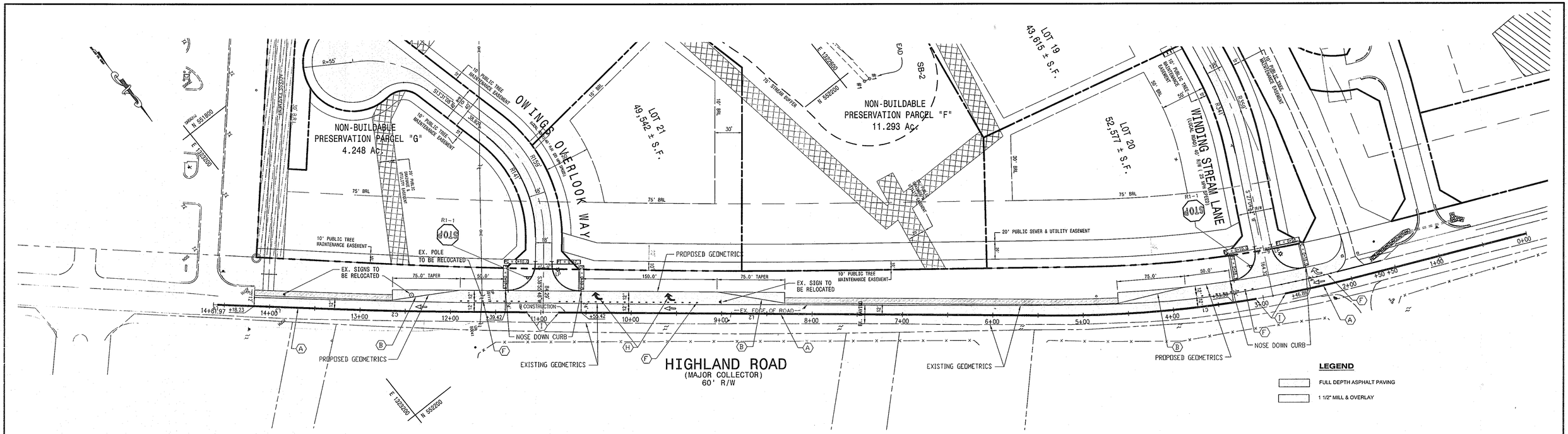


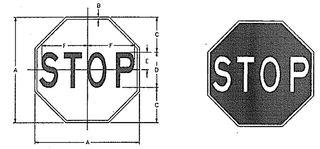
GENERAL NOTES

1. THE ROAD MUST BE PRE-MARKED AND APPROVED BY TRAFFIC DIVISION PRIOR TO INSTALLING PAVEMENT MARKINGS.
2. SPECIFICATIONS FOR MATERIALS MUST BE SUBMITTED TO THE COUNTY FOR APPROVAL.
3. THE CONTRACTOR SHALL PROVIDE STOPPING SIGHT DISTANCE (FOR 40 MPH) FOR THEIR TRAFFIC CONTROL DUE TO THE VERTICAL AND HORIZONTAL ALIGNMENT OF THE ROAD.

PAVEMENT MARKING LEGEND

A. INSTALL 5 IN. DOUBLE YELLOW PAVEMENT MARKING LINE
B. INSTALL 5 IN. WHITE PAVEMENT MARKING LINE
C. REMOVE EXISTING PAVEMENT MARKINGS STA. 2+75 TO 3+10, AND STA. 10+80 TO STA. 11+15 HIGHLAND ROAD BY GRINDING (AS DIRECTED BY TRAFFIC ENGINEER)
D. INSTALL 5 IN. WHITE PUPPY TRACKS (2' / 6' SPACE / 2' / ....)
E. INSTALL SOLID DIRECTION ARROWS. THERMOPLASTIC HEAT APPLIED TAPE.

R1-1



SIGN SIZE	DIMENSIONS (INCHES) A	B	C	D	E	F
MIN	24	1/2	8	8C	4	10
STD	30	3/4	10	10C	5	12-1/2
EXPWY	36	1	12	12C	6	15
SPECIAL	48	1	16	16C	8	20
BIKE	18	3/8	6	6C	3	7-3/4

REFERENCES
MUTCD SECTION - 2B-4, 2B-5, 2B-6, 2B-9
MUTCD SUPPLEMENT - 2B-5, 2B-5.1, 2B-6.1, 2B-9

COLORS
LEGEND - WHITE
BACKGROUND - RED

APPROVED _____ DIRECTOR - TRAFFIC & SAFETY 11/1/07 DATE

REVISIONS DATE	APPROVAL	FEDERAL HIGHWAY ADMINISTRATION

MARYLAND DEPARTMENT OF TRANSPORTATION
State Highway Administration
OFFICE OF TRAFFIC & SAFETY
STOP
Section: SIGNING Standard No. R1-1
Drawn By: FIGRA Date:

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 06/06/08
JOSE H. ESCALANTE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — DATE 06/06/08
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 7-1-08

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7/2/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/2/08

DATE	NO.	REVISION

OWNER / DEVELOPER
SK HOMES AT HIGHLAND OWINGS, LLC
7060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD 21046
PHONE 301-870-5603

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, TRAFFIC ENGINEERING DIVISION — CHIEF, BUREAU OF HIGHWAYS — DATE

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRY ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER — 6/6/08

DALE THOMPSON BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-[illegible]
301-596-7280
FAX 410-[illegible]

PROJECT : PAVEMENT MARKING PLAN
HIGHLAND ROAD
OWINGS PROPERTY, LOT 5
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F & G, AND NON-BUILDABLE BULK PARCEL H
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY
TAX MAP 40, GRID 4, PARCEL 44
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND.

PROJECT NO.
SCALE: 1" = 50'
DATE: 06/06/08
DRAWN BY: AVG
CHECKED BY: JHE
SHEET: 29 - 30
F-06-112

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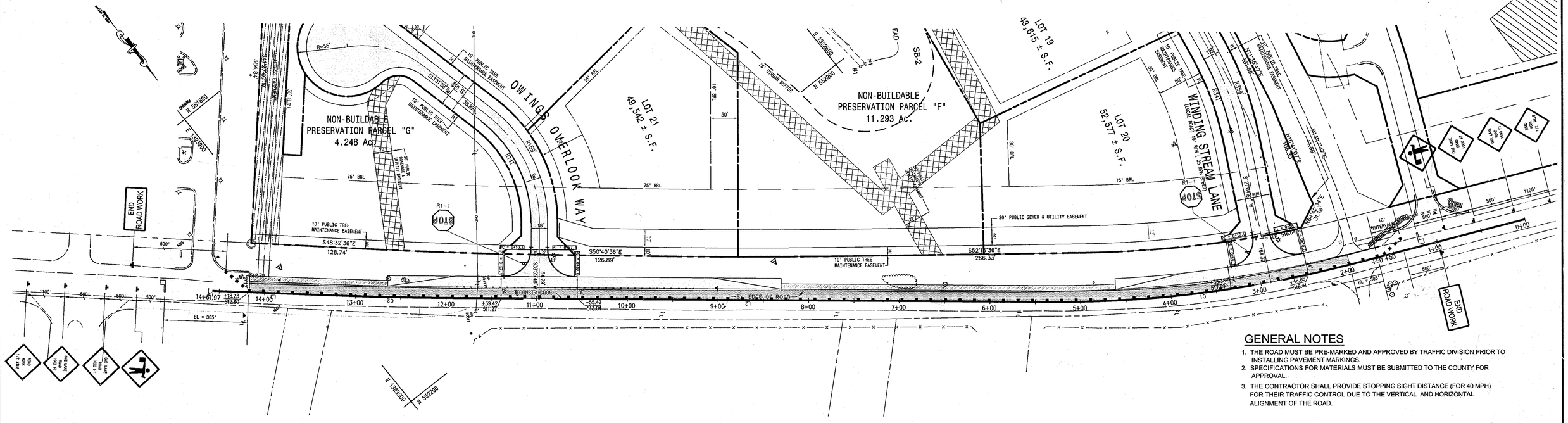


GENERAL NOTES

1. THE ROAD MUST BE PRE-MARKED AND APPROVED BY TRAFFIC DIVISION PRIOR TO INSTALLING PAVEMENT MARKINGS.
2. SPECIFICATIONS FOR MATERIALS MUST BE SUBMITTED TO THE COUNTY FOR APPROVAL.
3. THE CONTRACTOR SHALL PROVIDE STOPPING SIGHT DISTANCE (FOR 40 MPH) FOR THEIR TRAFFIC CONTROL DUE TO THE VERTICAL AND HORIZONTAL ALIGNMENT OF THE ROAD.

I. GENERAL REQUIREMENTS

Each phase of construction, including the follow up restoration operation shall be provided with appropriate zone traffic controls.

The contractor will be solely responsible for all accidents and/or damage to parsons and/or property damage resulting from his operation.

The contractor shall refer to the attached Traffic Control Plan (TCP) drawings to select the Appropriate work zone traffic control for each phase soon TCP shall conform to the guidelines set forth in Section 6 of the MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAY (MUTCD), Most recent edition.

The Inspector has the authority to modify the TCP as deemed necessary.
The Inspector has the authority to order the contractor to stop work and vacate the public right-of-way if the TCP is not complied with.

Road closures of any duration shall require the submittal of a written request to the inspector with justification as to why work activity cannot occur while traffic is being maintained. Road closure shall require additional traffic including advance notification approached and detour signage as approved by the inspector.

All sidewalk closures shall require the approval of the inspector. Any sidewalk closure greater the two (2) weeks shall require the submittal of a written request to the inspector and may require additional traffic controls. Sidewalk closures shall be limited to occur only during the actual work activity. During closure sidewalk shall be barricaded to physically prevent pedestrian passage and appropriate pedestrian access through the work area via a temporary walkway shall be provided.

Any work within the travel portion of the roadways shall be restricted to the hours of 9:00 AM to 4:00 PM Monday through Friday.

Construction activity, loading or unloading of equipment shall not block any traffic lane other than those delineated with in the work zone.

Exclusive of emergency work, the permittee shall contact occupants of all adjoining properties and inform them of the scope and the timing of construction. A minimum of 24 hours notification shall be required prior to the commencement of any activity on the site.

Access shall be maintained to all driveways unless permission for closure is granted by the property owner/manager. However, accessibility for emergency vehicles shall be maintained at all times.

Pavement excavation shall be limited to a maximum of one travel lane at any time unless otherwise specified on the TCP.

Hazardous materials shall not be stored within public right-of-way.

Mater ials or equipment shall not be stored on the roadway surface or sidewalk during non-work periods. All stored r aterials and equipment shall be set back at least six (6) feet behind the curb along a closed section roadway and at least thirty (30) feet from the edge of open section roadway.

Any excavation(s) in the roadway shall be paved to level grade or plated with cold patch along all four sides and the roadway reopened to its full cross-section prior to the end of each workday. "STEEL PLATES AHEAD" (W21-9) signs shall be placed approximately 250 feet in advance to any steel plate.

Any excavation in the sidewalk shall be backfilled or plated prior to the end of each workday and sidewalk reopened to its full cross section.

Traffic shall not be permitted with in ten (10) feet of any excavation that results in a vertical drop-off of than five (5) inches in the level of pavement during non-working hours unless protected by temporary concrete barrier or ramped with aggregated material at a 3:1 or flatter slope from the edge of pavement. When ramping it utilized, traffic drums shall be position adjacent to the edge of the work area on the traffic side of the slope.

Traffic shall not be permitted with in two (2) feet of any excavation that results in a vertical drop-off of than two (2) inches but no more than five (5) inches in the level of pavement during non-working hours unless either ramped aggregate material at a 3:1 or flatter slope, provided with an abutting wedge of bituminous material at a 3:1 of flatter slope or protected by traffic drums.

In areas where a drop-off in the level of pavement is two (2) inches or less, traffic may be allowed to freely cross under the following conditions.

Where longitudinal paving joints of two (2) inches or less are exposed to traffic warning signs shall be posted indicating "UNEVEN PAVEMENT" (W8-11 modified). These signs should be placed 250 feet in advance of the uneven joints and be spaced at appropriate intervals throughout the area of the uneven joint.

Where lateral paving joints of two (2) inches or less are exposed to traffic, a "BUMP" (W8-1) sign shall be posted 100 feet in advance of the joint.

When milled pavement is left exposed to traffic a "ROUGH ROAD" (W8-8) or "GROOVED PAVEMENT" (W8-8a) sign shall be placed 250 feet in advance of the milled area.

All existing traffic control devices (i.e. signs, marking, etc.) that must be removed shall be replaced in their proper location prior to the completion of the project. Cost for the replacement and/or repair of devices damaged as a result of the project shall be assessed to the contractor.

All traffic control devices shall conform to the most recent edition of the MUTCD.

The implementation date and continuance of work activities may be altered at the discretion of the inspector in the event of conflicts with previously approved or emergency activities.

At the completion of work activities, conditions within the public space shall be fully restored to those that existed prior to the work activity.

TRAFFIC CONTROL REQUIREMENTS

II. Specific Requirements:

Begin installing sewer as shown on the approved plans. Sewer excavation to be backfilled as the construction commences with no more than 100 l.f. of excavation open at one time. All excavation will be backfilled at the end of the work day.

When possible, Two-way traffic shall be maintained. Otherwise, flaggers shall be used to control traffic with appropriate signage.
At least one 10-foot travel lane shall be available for traffic at all times in each direction.

Provisions shall be made for safe maintenance of pedestrian and bicycle traffic, subject to approval of the inspector.

Installation of Traffic Control Devices

Signage, traffic drums and cones, and arrow panels shall be placed in accordance with the appropriate typical and spacing chart.

All signs, traffic drums and cones shall be fully reflectorized with high intensity, reflective sheeting as per the MUTCD.

Appropriate distance for sign legends are "AHEAD", "500 FT.", "1000 FT.", or "1/2 MILE". For distances less than 500 feet, "AHEAD" shall be used.

All warning signs, unless otherwise specified, shall be a minimum of 48"X48", block symbol or legend on orange background and diamond shaped.

All portable signs shall be mounted a minimum of one (1) foot above the level of the roadway, with higher mounting heights desirable.

All warning signs not applicable to the actual situation shall be removed or covered during non-applicable periods.

Work Area Ahead (w20-1 modified) signs must be installed at the end of each workday when temporary aggregate ramping in implemented.

Reflectorized traffic drums or cones shall be used to delineate the work zone. These channelizing devices shall be placed in accordance with the typical and spacing chart. Additionally, channelizing devices shall be placed along excavations at ten (10) intervals.

During nighttime operation reflectorized traffic drums should be used. However, for emergency work activities where traffic drums are not readily available, reflectorized traffic cones that are a minimum of twenty eight (28) inches in height and having six (6) inch and four (4) inch reflective collars within the top sixteen (16) inches of the cone maybe used. All work areas left unattended at night shall be delineated with reflectorized traffic drums.

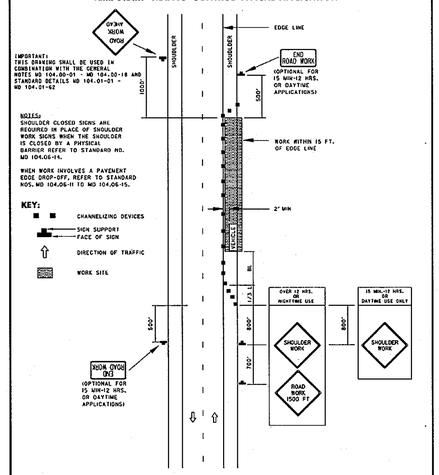
Flashing Arrow Panels shall be used at the beginning of any lane closure on a multi-lane roadway.

When temporary concrete barrier (TCB) is used, reflectorized markers are required as per TCP 109.02. Also, a 12"X36" object marker (vertical panel as per (TCP 109.01) shall be installed.

When pavement markings have been obliterated by the work activity, the contractor shall install any critical Interim pavement markings prior to the end of the workday as specified by the Inspector.

On road sections that are not schedule to be overlaid, all temporary pavement markings shall be (removable) detour grade marking tape. Any conflicting markings, which need to be temporarily removed, are to be masked using "3M removable Block Lane Mask" or an approved equal.
On road sections that are to be overload, temporary markings can be either tape or paint. Any conflicting marking should be removed with a pavement grinder.

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



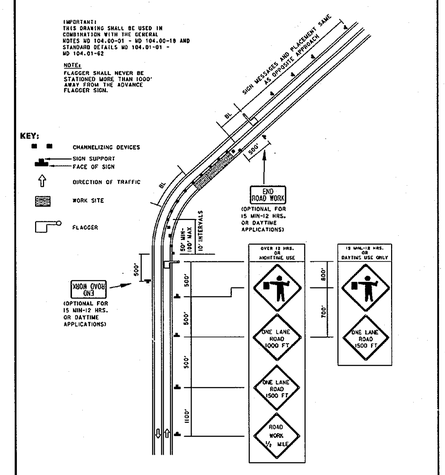
SPECIFICATION	CATEGORY CODE ITEMS
104	

APPROVED
DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
APPROVED: 9-29-03	APPROVAL: 9-23-03
REVISED:	REVISED:
REVISED:	REVISED:
REVISED:	REVISED:

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/2-LANE, 2-WAY
EQ/LESS THAN 40 MPH
STANDARD NO. MD 104.02-02

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION	CATEGORY CODE ITEMS
104	

APPROVED
DIRECTOR — OFFICE OF TRAFFIC AND SAFETY

APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
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REVISED:	REVISED:
REVISED:	REVISED:

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION/2-LANE, 2-WAY
EQ/LESS THAN 40 MPH
STANDARD NO. MD 104.02-10

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITION AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT"

SIGNATURE OF ENGINEER
JOSE H. ESCALANTE — 06/06/08 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

PRESIDENT DALE THOMPSON BUILDERS, INC. — 06/06/08 DATE
SOLE MEMBER RUNNING BROOK, LLC

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 7-1-08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 7/3/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT — 7/1/08 DATE

DATE	NO.	REVISION

OWNER / DEVELOPER:
SK HOMES AT HIGHLAND OWINGS, LLC
1060 SAMUEL MORSE DRIVE
SUITE 500
COLUMBIA, MD. 21046
PHONE: 301-870-5603

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, TRAFFIC ENGINEERING DIVISION — DATE
CHIEF, BUREAU OF HIGHWAYS — DATE

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.

STATE OF MARYLAND — JOSE HENRIQUE ESCALANTE — No. 13265 — PROFESSIONAL ENGINEER

DALE THOMPSON BUILDERS
6300 Woodside Court Suite A
Columbia, MD 21045
410-995-6736
301-596-7380
Fax 410-381-8747

PROJECT : MAINTENANCE [illegible] HIGHLAND
OWINGS PROPER[illegible] LOT 5
LOTS 1/ 22, NON-[illegible]ION
PARCELS F & G, AND [illegible] PARCEL H
A RESUBDIVISION OF L[illegible] PROPERTY
TAX MAP 40
5TH ELEC[illegible] PLAT
HOWARD COUNTY, MARY[illegible]

PROJECT NO.	
SCALE:	1" = 50'
DATE:	06/06/08
DRAWN BY:	AVG
CHECKED BY:	JHE
SHEET:	30 - 30

F-06-112

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