

SHEET INDEX

SHEET NO.	TITLE
1	COVER SHEET
2	ROAD PLANS, PROFILES AND TYPICAL SECTIONS
3	ROAD PLANS, PROFILES AND TYPICAL SECTIONS
4	ROAD PLANS, PROFILES AND TYPICAL SECTIONS
5	GRADING, EROSION, AND SEDIMENT CONTROL PLAN
6	GRADING, EROSION, AND SEDIMENT CONTROL PLAN
7	GRADING, EROSION, AND SEDIMENT CONTROL PLAN
8	LANDSCAPE AND FOREST CONSERVATION PLAN
9	LANDSCAPE AND FOREST CONSERVATION PLAN
10	LANDSCAPE AND FOREST CONSERVATION PLAN
11	LANDSCAPE AND FOREST CONSERVATION NOTES AND DETAILS
12	STORM DRAIN AREA MAP
13	STORM DRAIN PROFILES
14	STORMWATER MANAGEMENT AND SITE DETAILS
15	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
16	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
17	EROSION CONTROL MEASURES DRAINAGE AREA MAP AND DETAILS
18	ROAD PLANS, PROFILES AND TYPICAL SECTIONS
19	GRADING AND SEDIMENT CONTROL PLAN - GP-15-081
2.0	GRADING AND SEDIMENT CONTROL PLAN - GP-15-081
2.1	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS - GP-15-081

GRADING SHOWN ON THESE PLANS DID NOT INCLUDE THE RESIDENTIAL LOTS; THEREFORE, THE STORMWATER DESIGN FOR THE LOTS IS CONCEPTUAL AND FINAL DESIGN WILL BE SHOWN WITH THE INDIVIDUAL LOT BUILDING PERMIT. DECLARATION OF COVENANTS WILL BE CORRECTED AS NEEDED AND MATCH THE ASSOCIATED PLOT PLAN.

ROAD CONSTRUCTION PLANS

GREENBERRY

LOTS 1 THRU 25, NON-BUILDABLE PRESERVATION PARCELS 'A', 'B' AND 'H', NON-BUILDABLE BULK PARCELS 'C', 'D', 'F' AND 'G', AND BUILDABLE PRESERVATION PARCEL 'E'

FIFTH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, /CONSTRUCTION INSPECTION DIVISION AT (410)313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES
 - THE R1-1 ("STOP") SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY, FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
 - THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
 - ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MMDMUTCD).
 - ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO ("QUICK PUNCH") HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006) SECTION 5.5.A. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY STREET TREE.
- TOPOGRAPHY WITHIN 200' OF SITE BOUNDARY SHOWN HEREON IS BASED ON AERIAL SURVEY FLOWN BY WINGS TOPOGRAPHY INC. DATED ON OR ABOUT MARCH 2007. OTHER TOPOGRAPHY SHOWN IS BASED ON HOWARD COUNTY GIS.
- COORDINATES BASED ON NAD '83 (HORIZONTAL) AND NAVD '88 (VERTICAL) MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS
 - STA. No. 28EA N 572,158.9552 E 1,319,400.6816 EL. 485.012
 - STA. No. 28EB N 569,357.3657 E 1,322,113.5747 EL. 536.733
- WATER IS PRIVATE.
- SEWER IS PRIVATE.
- STORMWATER MANAGEMENT IS PROVIDED BY THIRTEEN (13) M-6 MICRO-BIORETENTION FACILITIES (NINE (9) FOR PUBLIC ROADWAYS, WHICH WILL BE PRIVATELY OWNED AND JOINTLY MAINTAINED AND FOUR (4) FOR LOTS WHICH WILL BE PRIVATELY OWNED AND MAINTAINED) AND TWO (2) M-5 MODIFIED BAYWELLS, NON-ROOFTOP DISCONNECTION, A-2 PERVIOUS CONCRETE, AND M-5 MODIFIED BAYWELLS. PERVIOUS CONCRETE AND DRY WELLS WILL BE PRIVATELY OWNED AND MAINTAINED. COUNTY WILL ONLY MAINTAIN INLET STRUCTURES WITHIN EACH MICRO-BIORETENTION AREA AND THE HOA SHALL MAINTAIN STREET TREES, PERFORATED UNDERDRAINS, FEEDERS, PLATINGS, SWALES, AND DRIVEWAY COLLECTORS WITHIN THE EASEMENT.
- EXISTING UTILITIES SHOWN HEREON ARE BASED ON AERIAL SURVEY PREPARED BY WINGS INC. TOPOGRAPHY DATED MARCH 2007 AND VERIFIED IN THE FIELD BY MILDENBERG, BOENDER AND ASSOCIATES IN NOVEMBER 2012.
- THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY MILDENBERG, BOENDER AND ASSOCIATES, INC. DATED OCTOBER, 2012 AND UPDATED NOVEMBER, 2013. STUDY WAS APPROVED UNDER SP-13-010 ON JANUARY 2, 2014.
- FOREST STAND AND WETLANDS DELINEATION PREPARED BY ECO-SCIENCE, INC. DATED OCTOBER, 2012 AND APPROVED UNDER SP-13-010 ON JANUARY 2, 2014. THE SITE CONTAINS AREAS OF WETLANDS, STREAMS, AND THE 100-YEAR FLOODPLAIN. NO STEEP SLOPES (SLOPES OF 25% OR GREATER FOR MORE THAN 10 VERTICAL FEET) EXIST ON-SITE. NO DISTURBANCE TO THE WETLANDS, WETLAND BUFFER, STREAM, STREAM BUFFER, OR 100-YEAR FLOODPLAIN IS PROPOSED.
- PER SECTION 4.2.A. OF VOLUME III OF THE HOWARD COUNTY DESIGN MANUAL, AN APFO ROAD TEST IS NOT REQUIRED FOR THIS PROJECT SINCE THE SITE IS LOCATED MORE THAN TWO MILES FROM A MINOR COLLECTOR-MINOR COLLECTOR INTERSECTION.
- PROJECT BACKGROUND:
 - TAX MAP : 28, GRID : 9, PARCEL : 48
 - ELECTION DISTRICT : FIFTH
 - ZONING : RR-20
 - DEED REFERENCE : 5891 / 307
 - PREVIOUS PROJECT NUMBERS: ECP-13-026, SP-13-010
 - BA-05-046C - REQUEST FOR AGE RESTRICTED HOUSING - DENIED 4/20/06
 - HISTORIC SITE: HO #563
- SITE DATA TABULATION

GROSS AREA OF PROPERTY TRACT:	133.64 Ac ±
MINIMUM LOT SIZE PROPOSED:	40,000 SQ.FT.
NUMBER OF BUILDABLE LOTS PROPOSED:	25
NUMBER OF BUILDABLE PRESERVATION PARCELS PROPOSED:	1 (E)
TOTAL BUILDABLE LOTS / PARCELS PROPOSED:	26
NUMBER OF NON-BUILDABLE PRESERVATION PARCELS PROPOSED:	3 (A, B & H)
NUMBER OF NON-BUILDABLE BULK PARCELS PROPOSED:	2 (C, D, F, & G)
AREA OF PROPOSED BUILDABLE LOTS:	26.63 AC ±
AREA OF PRESERVATION PARCELS (BUILDABLE AND NON-BUILDABLE):	83.32 AC ± (A, B, E & H)
AREA OF BULK PARCELS (NON-BUILDABLE):	19.29 AC ± (C, D, F & G)
AREA TO BE DEDICATED FOR USE AS A PUBLIC ROAD:	0.71 AC ±
AREA OF PUBLIC ROADWAY:	3.69 AC ±
- DENSITY TABULATION (PROVIDED FOR LOTS, R/W, AND PRESERVATION PARCELS)

26.49 Ac + 80.68 Ac + 0.72 Ac + 2.80 Ac = 110.69 Ac	110.69 Ac / 4.25 DWELLING UNITS PER ACRE = 26 DWELLING UNITS PROVIDED
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- DENSITY TABULATION (FOR NON-BUILDABLE BULK PARCEL C)

22.95 Ac / 4.25 DWELLING UNITS / Ac = 5.2 (5 FUTURE POTENTIAL BUILDABLE LOTS)

- THE MAXIMUM DENSITY OF ONE DWELLING UNIT PER 4.25 GROSS ACRES CARETAKER TO PRINCIPAL DWELLING UNITS AND NOT TO ACCESSORY USES SUCH AS FARM TENANT HOUSES, CARETAKER DWELLINGS OR ACCESSORY APARTMENTS PER SECTION 104.F.1 OF THE ZONING REGULATIONS.
- BULK PARCELS C & D MAY BE RE-SUBDIVIDED FOR A FUTURE SECTION OF CLUSTERED LOTS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 104.F.1.G OF THE ZONING REGULATIONS.
- NOISE STUDY WAS PREPARED BY MILDENBERG, BOENDER AND ASSOC., INC. DATED FEBRUARY, 2013 AND APPROVED UNDER SP-13-010 ON JANUARY 2, 2014.
- FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION ACT FOR THIS SUBDIVISION WILL BE FULFILLED BY ON-SITE FOREST CONSERVATION (0.90 ACRE OF RETENTION AND 5.79 ACRES AFFORESTATION) FINANCIAL SURETY IN THE AMOUNT OF \$126,106.20 WILL BE PROVIDED WITH THE DEVELOPERS AGREEMENT. BULK PARCELS C & D HAVE BEEN EXCLUDED FROM THE FOREST CONSERVATION OBLIGATION CALCULATION IN ACCORDANCE WITH "OPTION A" OF APPENDIX L, GUIDELINES FOR RURAL CLUSTER SUBDIVISIONS AS OUTLINED IN THE FOREST CONSERVATION MANUAL. THE FOREST CONSERVATION OBLIGATION FOR BULK PARCELS C & D MUST BE ADDRESSED AT THE TIME OF RESUBDIVISION OF THESE PARCELS.
- THIS SUBDIVISION IS IN COMPLIANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED PERIMETER LANDSCAPING AND TRASH AND SCREENING WILL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR 42 SHADE TREES AND 52 EVERGREEN TREES IN THE AMOUNT OF \$20,400.00. A REPAIR AND REPAIR PLAN WAS APPROVED TO REVISE THE LANDSCAPE PLANTING FOR PERIMETERS 8, 9 AND 11. (SEE LANDSCAPE NOTES, SHT 11)
- LOTS 1 THRU 25 WILL BE SERVED BY A PRIVATE USE-IN-COMMON DRIVEWAY & UTILITY EASEMENT.
- THIS SITE CONTAINS HISTORIC STRUCTURE #40-563 ("THE WILLIAMS HOUSE"). NO CEMETERIES OR GRAVE SITES EXIST ON SITE. SITE IS NOT ADJACENT TO A DESIGNATED SCENIC ROAD. A PRE-SUBMISSION ADVISORY MEETING WITH THE HISTORIC DISTRICT COMMISSION WAS HELD FOR THIS PROJECT ON FEBRUARY 7, 2013. THE COMMISSION HAD NO OBJECTIONS TO THE PLAN.
- THE SUBJECT PROPERTY IS ZONED RR AND IS CONSIDERED TO BE "GRANDFATHERED TO THE 2/2/04 COMPREHENSIVE ZONING AMENDMENTS EFFECTIVE 7/1/05". THE GRANDFATHERING OF THIS MAJOR SUBDIVISION PLAN IS IN ACCORDANCE WITH SECTION 100.E.3.B OF THE NEW ZONING REGULATIONS (EFFECTIVE 10/6/13) SINCE THE INITIAL PLAN SUBMISSION OF THE "PRELIMINARY EQUIVALENT SKETCH PLAN (SP-13-010) WAS GRANTED A "TECHNICALLY COMPLETE" STATUS ON SEPTEMBER 19, 2013 AND PRIOR TO THE DATE OF THE NEW REGULATIONS. THIS SUBDIVISION IS NOT REQUIRED TO PROVIDE 10% MODERATE INCOME HOUSING UNITS (MIHU).
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- BOUNDARY SHOWN HEREON IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED ON OR ABOUT NOVEMBER 2012 BY MILDENBERG, BOENDER AND ASSOC.
- PER SECTION 16.121(c) OF THE HOWARD COUNTY SUBDIVISION AND LAND USE REGULATIONS, OPEN SPACE IS NOT REQUIRED FOR THIS PROJECT SINCE IT IS A RURAL RESIDENTIAL CLUSTER SUBDIVISION.
- A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY FOR EACH FLAG-LOT DRIVEWAY AND PRIVATE ROAD NAME SIGN FOR "ALTOGETHER WAY" SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S / OWNER'S EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- BA-05-046C DENIED 4/20/2006 TO ALLOW AGE-RESTRICTED HOUSING.
- A PRE-SUBMISSION COMMUNITY MEETING WAS HELD FOR THIS PROJECT ON DECEMBER 5, 2012.
- THIS PROJECT IS GRANDFATHERED TO STATE OF MARYLAND SENATE BILL SB-236 AS THE SOIL PERCOLATION TEST APPLICATION FOR THE PROPOSED SUBDIVISION WAS SUBMITTED PRIOR TO JULY 1, 2012.
- THIS DEVELOPMENT PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL 45-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL 75-2003. DEVELOPMENT OR CONSTRUCTION ON LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE BUILDING / GRADING PERMIT.
- THE DESIGN OF THIS CLUSTER SUBDIVISION IS THE INTENDED PROPOSED DESIGN OF THE PRESERVED AREAS: PRESERVATION PARCEL 'A' (A VISUAL AND LEGAL BUFFER TO THE EXISTING COLUMBIA GAS MAIN); PRESERVATION PARCEL 'B' (RETENTION OF EXISTING FOREST AND A VISUAL AND LEGAL BUFFER TO THE EXISTING BGE EASEMENT); BULK PARCEL 'C' (POTENTIAL SUBDIVISION) AND PRESERVATION OF PARCEL 'D' (FARMING OPERATIONS); THE PRESERVATION AREAS, AS DESIGNED, WILL FUNCTION FOR THEIR INTENDED USE, AND IMPACTS TO ADJACENT AREAS WILL BE MINIMIZED. IMPACTS TO PRESERVATION AREAS INCLUDING UNIQUE AND SENSITIVE ENVIRONMENTAL CONDITIONS AND ADJACENT FARM OPERATIONS.

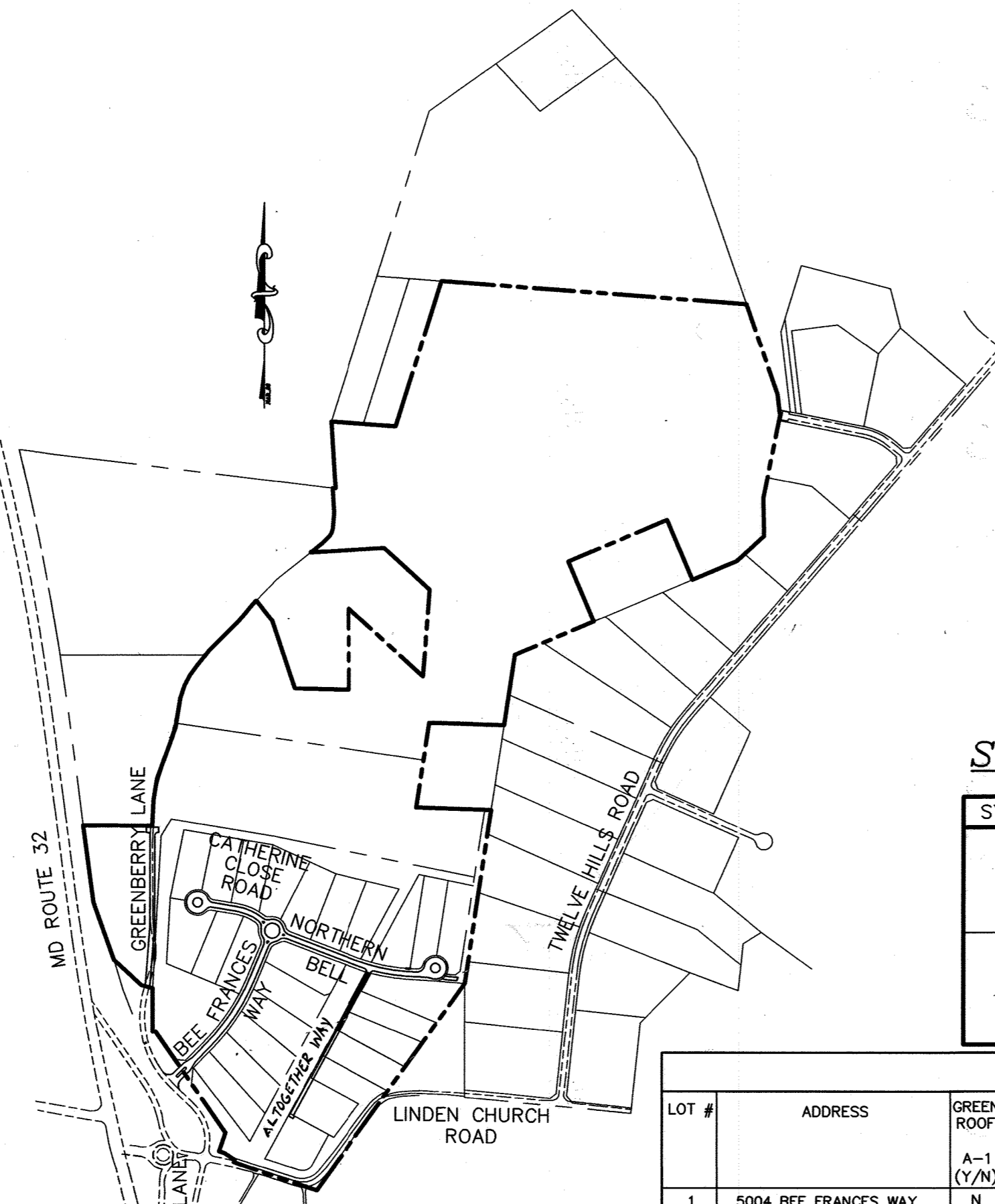
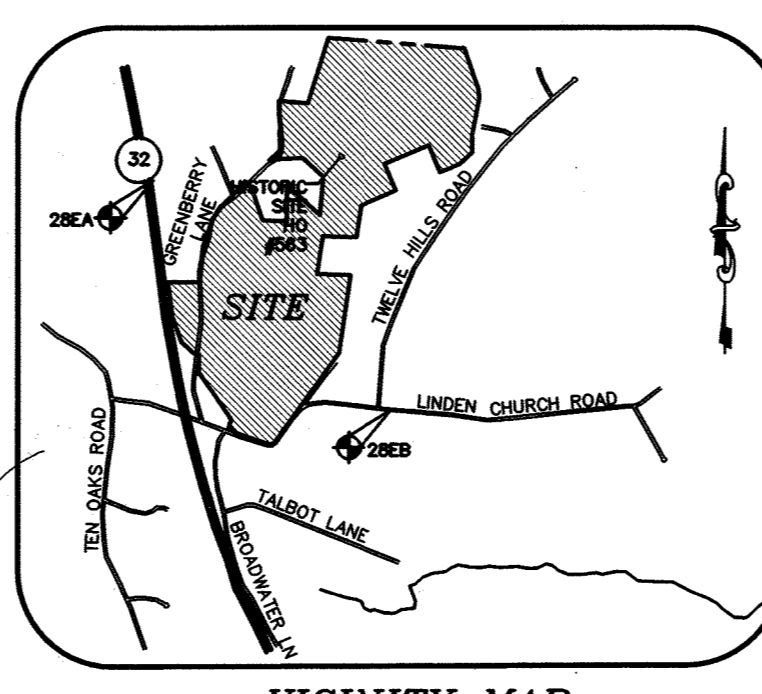
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illustration	JLS
scale	1" = 60'
approval	JLS
approval	MAN

date	OCT 2014
project	2-052
illustration	JLS
scale	1" = 60'
approval	JLS
approval	MAN

GREENBERRY LOTS 1 THRU 25
 AND NON-BUILDABLE PRESERVATION PARCELS 'A', 'B' AND 'H', NON-BUILDABLE BULK PARCELS 'C', 'D', 'F' AND 'G', AND BUILDABLE PRESERVATION PARCEL 'E'
 TAX MAP 28, PARCEL 48
 HOWARD COUNTY, MARYLAND
 FIFTH ELECTION DISTRICT
 COVER SHEET

DEVELOPER
 GREENBERRY, INC.
 7350-B GRACE DRIVE
 COLUMBIA, MARYLAND 21044
 (410)997-0296

OWNER
 ROBERT B. WILLIAMS
 JOANNA K. BENEDICT
 BARBARA B. CUSACK
 WILLIAM I. SLADE, JR.
 C/O MILDENBERG, BOENDER AND ASSOC.
 7350-B GRACE DRIVE
 COLUMBIA, MARYLAND 21044
 (410)997-0296



STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	STREET	LOCATION
☼	LED COLONIAL FIXTURE APPROVED BY BGE AND HOWARD COUNTY EQUIVALENT TO 100 WATT HPS ON A 14' BLACK FIBERGLASS POLE	NORTHERN BELL WAY	STA 4+52.0 OFFSET: 29.0' L
☼	LED COLONIAL FIXTURE APPROVED BY BGE AND HOWARD COUNTY EQUIVALENT TO 150 WATT HPS ON A 14' BLACK FIBERGLASS POLE	BEE FRANCES WAY BEE FRANCES WAY BEE FRANCES WAY LINEAR PROFILE #1 BEE FRANCES WAY LINEAR PROFILE #2	STA 0+10.7 OFFSET: 47.5' R STA 1+27.1 OFFSET: 20.6' R STA 0+70.1 OFFSET: 6.2' L STA 0+59.1 OFFSET: 6.6' R

See Sheet 17 for the [on-lot] locations of Dgg Wells (M-5) Bio-retention Facilities (M-6) and pervious concrete (A-2).

STORMWATER MANAGEMENT PRACTICES

LOT #	ADDRESS	GREEN ROOF (Y/N)	PERMEABLE PAVEMENTS (Y/N)	REINFORCED TURF (Y/N)	DISCONNECTION OF ROOFTOP RUNOFF (N-1) (NUMBER)	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) (Y/N)	SHEETFLOW TO CONSERVATION AREAS (N-3) (Y/N)	RAINFALL HARVESTING (NUMBER)	SUBMERGED GRAVEL WETLANDS (M-2) (NUMBER)	LANDSCAPE INFILTRATION (M-3) (NUMBER)	INFILTRATION BERMS (M-4) (NUMBER)	DRY WELLS (M-5) (NUMBER)	MICRO-BIORETENTION (M-6) (NUMBER)	RAIN GARDENS (M-7) (NUMBER)	SWALES (M-8) (NUMBER)	ENHANCED FILTERS (M-9) (NUMBER)
1	5004 BEE FRANCES WAY	N	N	N	0	Y	N	0	0	0	0	3	0	0	0	0
2	5008 BEE FRANCES WAY	N	N	N	0	Y	N	0	0	0	0	4	0	0	0	0
3	5012 BEE FRANCES WAY	N	Y	N	4	Y	N	0	0	0	0	0	0	0	0	0
4	5016 BEE FRANCES WAY	N	Y	N	4	Y	N	0	0	0	0	0	0	0	0	0
5	5020 BEE FRANCES WAY	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
6	11904 NORTHERN BELL WAY	N	Y	N	0	Y	N	0	0	0	0	3	0	0	0	0
7	5025 BEE FRANCES WAY	N	Y	N	0	N	N	0	0	0	0	4	0	0	0	0
8	12007 CATHERINE CLOSE ROAD	N	Y	N	0	N	N	0	0	0	0	0	1	0	0	0
9	12011 CATHERINE CLOSE ROAD	N	Y	N	0	N	N	0	0	0	0	0	0	0	0	0
10	12014 CATHERINE CLOSE ROAD	N	Y	N	0	N	N	0	0	0	0	3	0	0	0	0
11	12010 CATHERINE CLOSE ROAD	N	Y	N	0	Y	N	0	0	0	0	3	0	0	0	0
12	12006 CATHERINE CLOSE ROAD	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
13	12002 CATHERINE CLOSE ROAD	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
14	11901 NORTHERN BELL WAY	N	Y	N	2	Y	N	0	0	0	0	0	0	0	0	0
15	11905 NORTHERN BELL WAY	N	Y	N	0	N	N	0	0	0	0	4	0	0	0	0
16	11909 NORTHERN BELL WAY	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
17	11913 NORTHERN BELL WAY	N	Y	N	2	N	N	0	0	0	0	0	0	0	0	0
18	11917 NORTHERN BELL WAY	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
19	11921 NORTHERN BELL WAY	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
20	11914 NORTHERN BELL WAY	N	Y	N	0	Y	N	0	0	0	0	3	0	0	0	0
21	5007 ALTOGETHER WAY	N	Y	N	0	Y	N	0	0	0	0	1	0	0	0	0
22	5011 ALTOGETHER WAY	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
23	5015 ALTOGETHER WAY	N	Y	N	0	Y	N	0	0	0	0	4	0	0	0	0
24	5023 ALTOGETHER WAY	N	Y	N	0	Y	N	0	0	0	0	1	0	0	0	0
25	5027 ALTOGETHER WAY	N	Y	N	0	Y	N	0	0	0	0	0	1	0	0	0
	GREENBERRY LANE R/W	N	N	N	0	N	N	0	0	0	0	0	2	0	0	0
	BEE FRANCES WAY R/W	N	N	N	0	N	N	0	0	0	0	0	3	0	0	0
	CATHERINE CLOSE R/W	N	N	N	0	N	N	0	0	0	0	0	2	0	0	0
	NORTHERN BELL R/W	N	N	N	0	N	N	0	0	0	0	0	2	0	0	0
	ALTOGETHER WAY (PRIVATE)	N	N	N	0	N	N	0	0	0	0	0	0	0	0	0

ENGINEER'S CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.
 SIGNATURE OF ENGINEER: [Signature] DATE: 10/7/14
 JEFFREY SLOMAN, PE
 PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE
 I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.
 SIGNATURE OF DEVELOPER: [Signature] DATE: 10/8/14
 R. JACOB HIKMAT, PRES. IDOWS
 PRINTED NAME OF DEVELOPER

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 SIGNATURE: [Signature] DATE: 10/16/14
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PUBLIC WORKS
 SIGNATURE: [Signature] DATE: 10-27-2014
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 SIGNATURE: [Signature] DATE: 11-10-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 SIGNATURE: [Signature] DATE: 11-20-14
 CHIEF, DIVISION OF LAND DEVELOPMENT

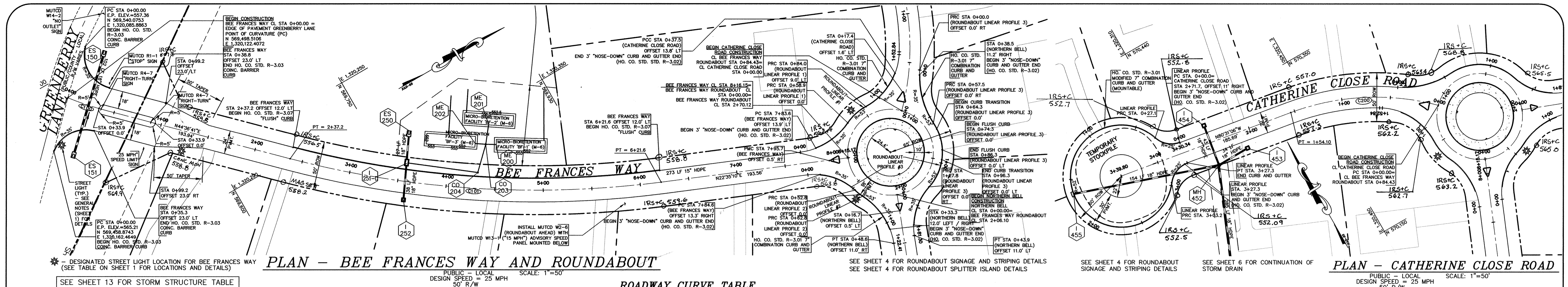
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.
 SIGNATURE: [Signature] DATE: 10/7/14
 JEFFREY SLOMAN, P.E.



THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

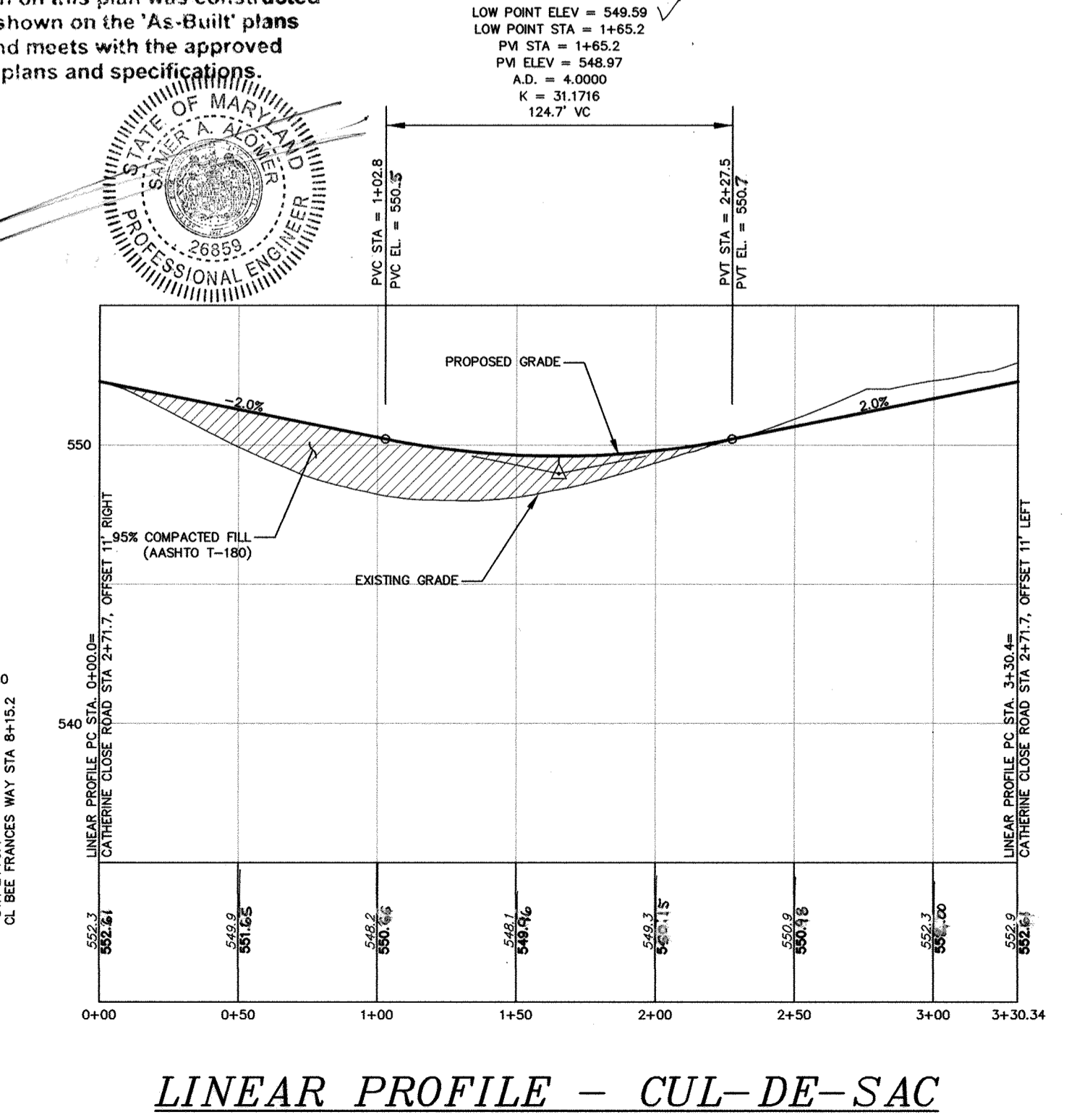
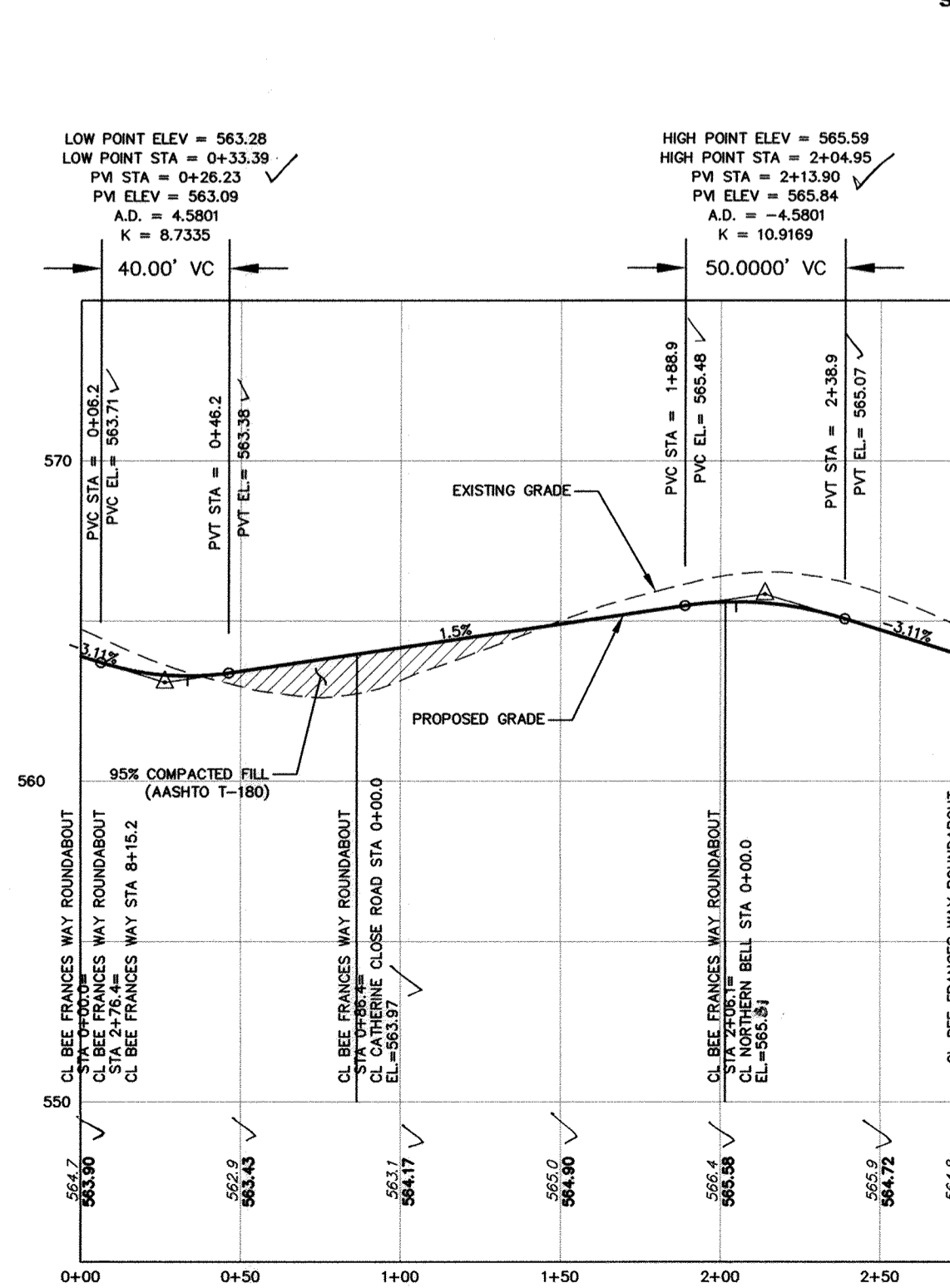
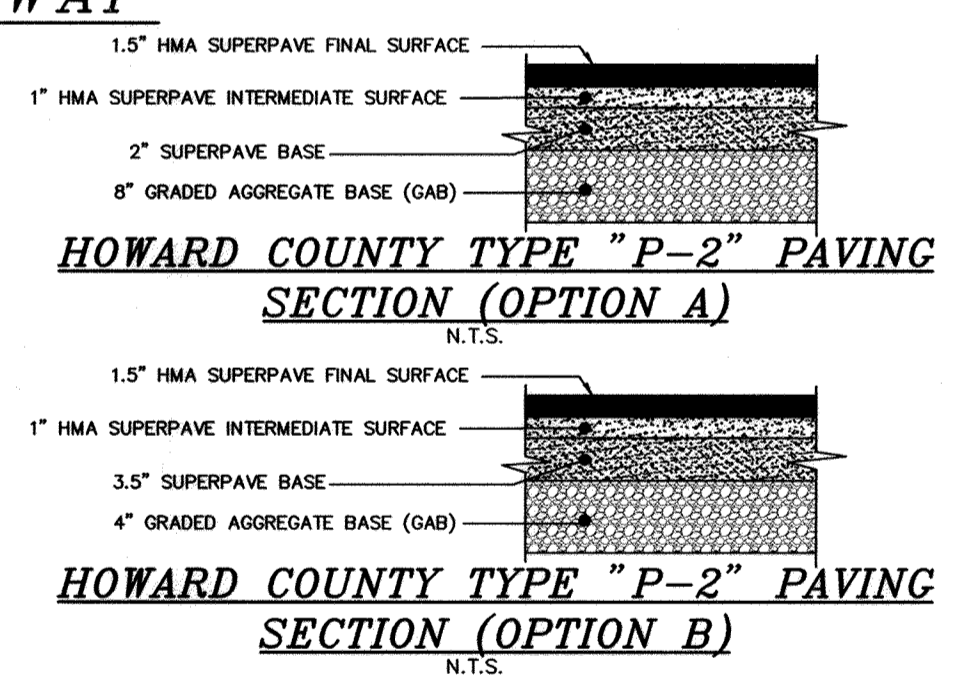
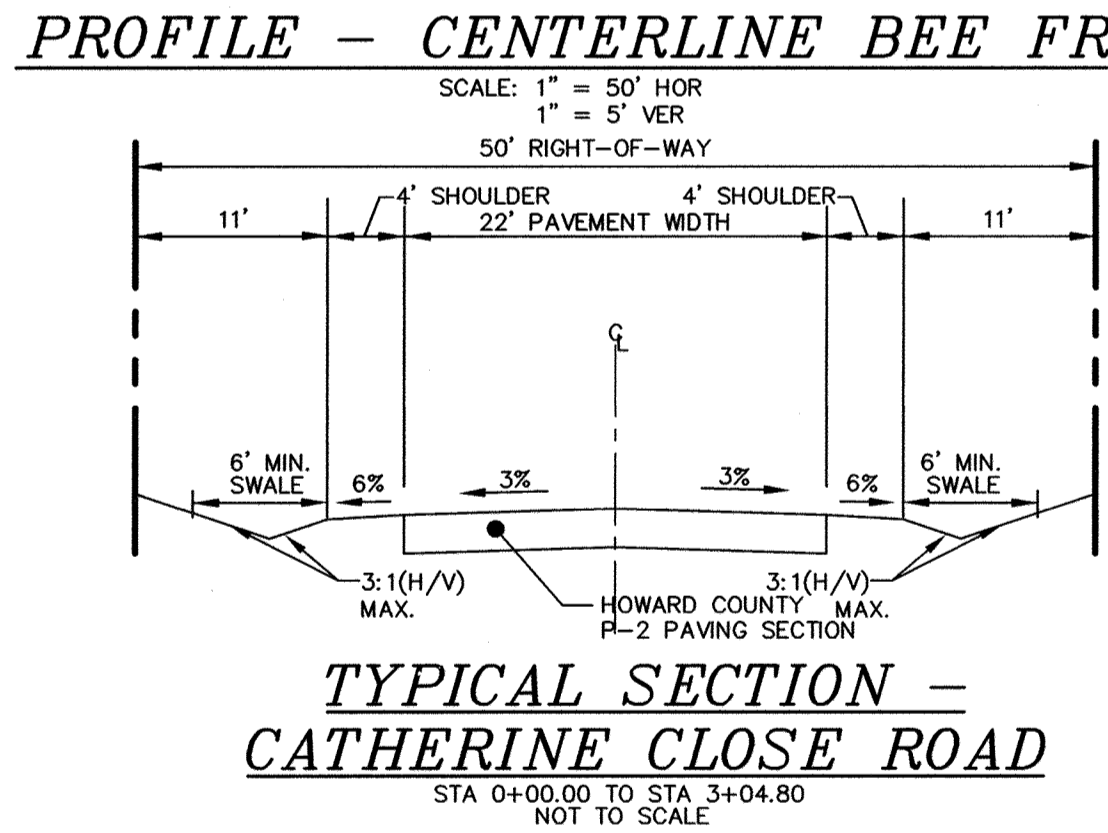
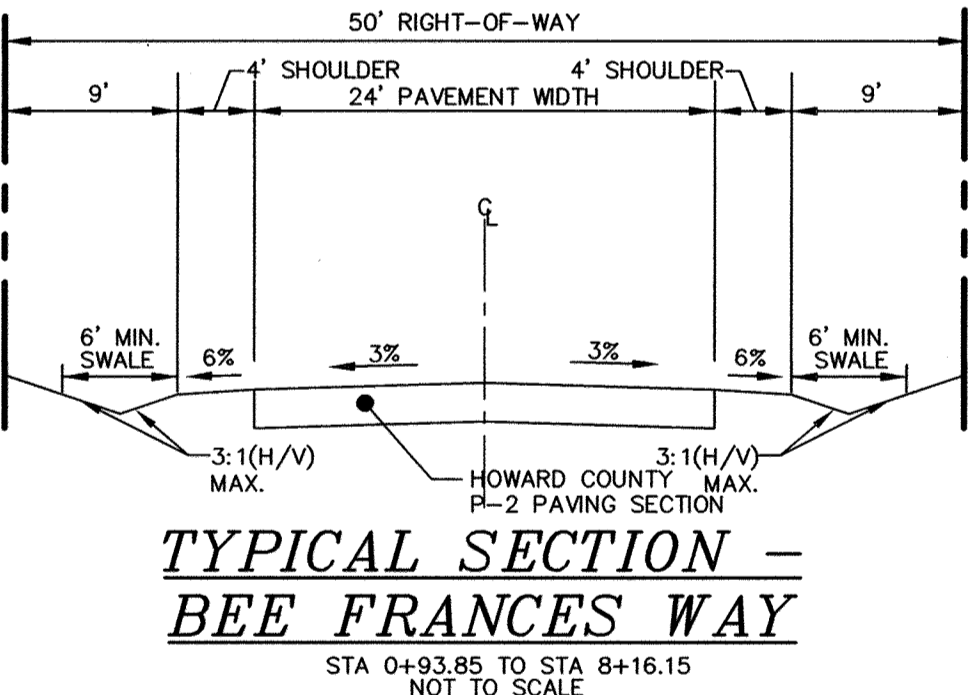
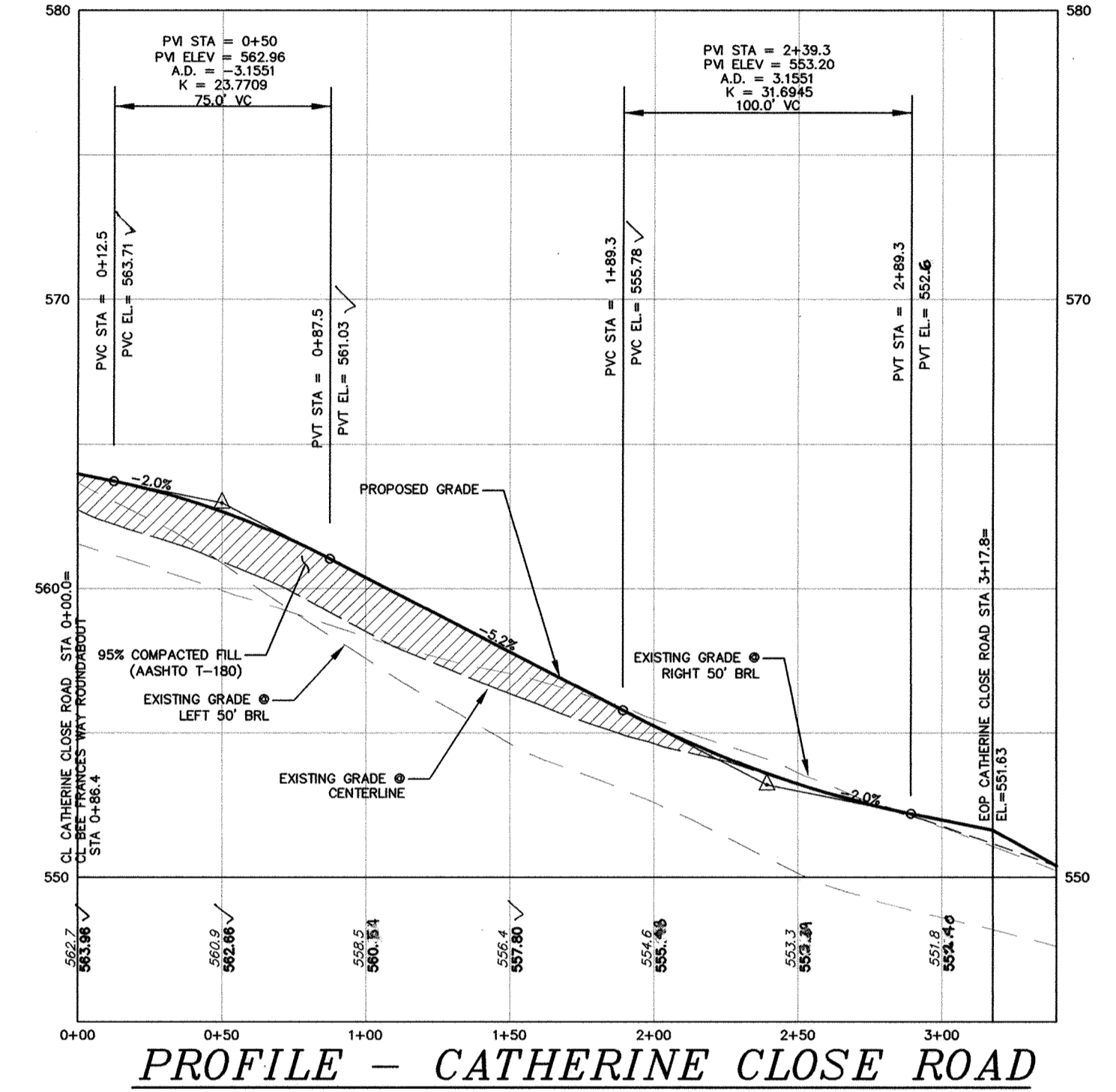
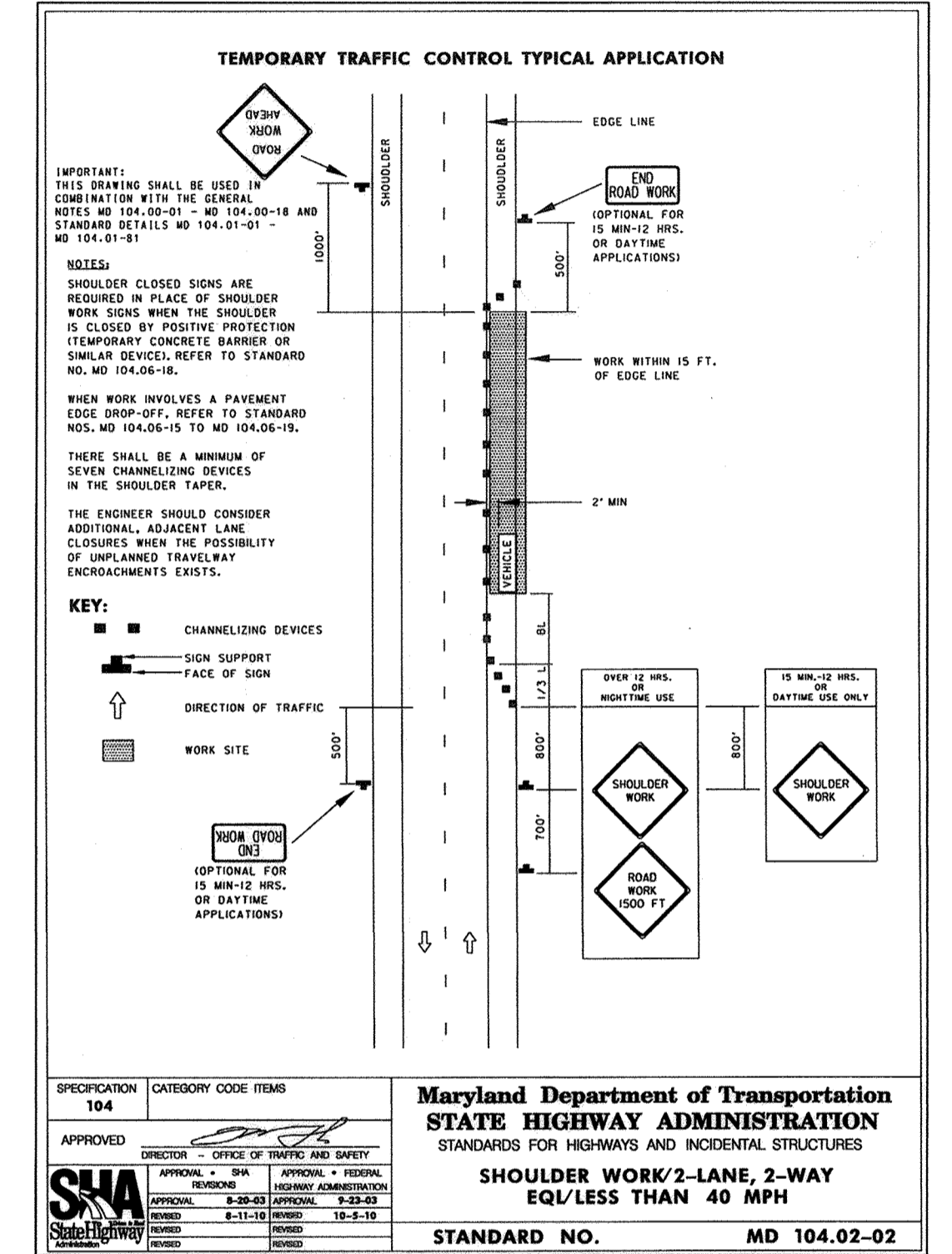
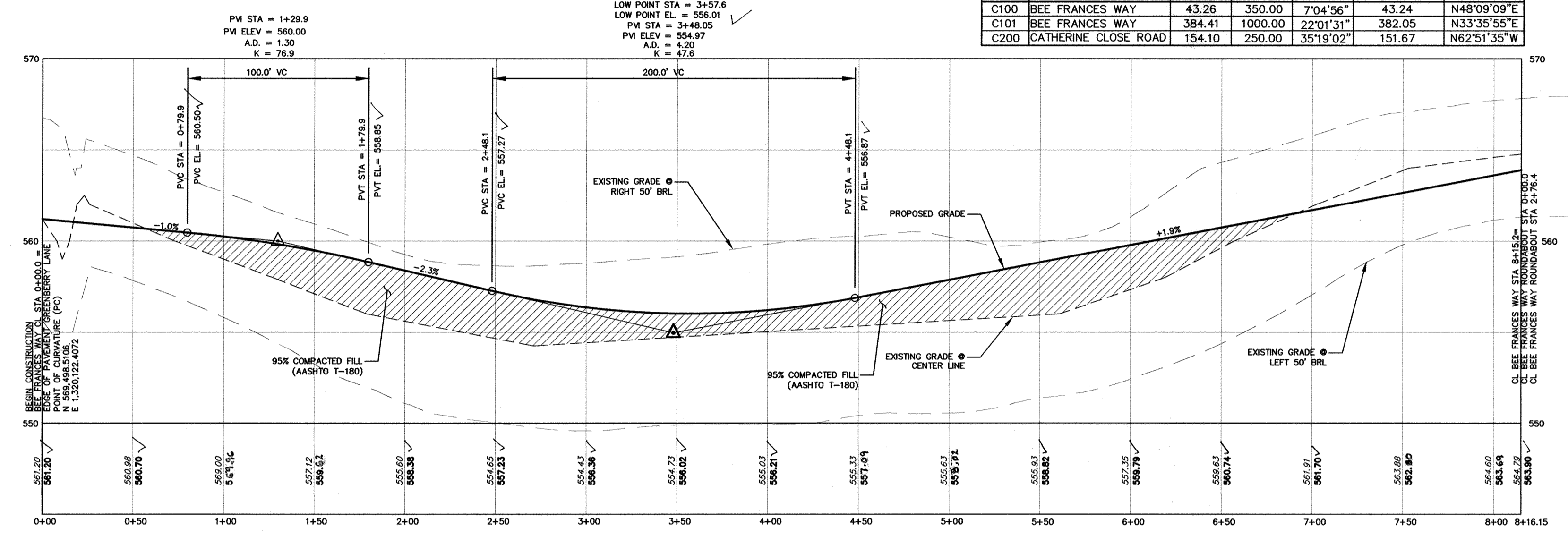
MILDENBERG, BOENDER & ASSOC., INC.
 Surveyors
 Planners
 Engineers
 7350-B Grace Drive, Columbia, Maryland 21044
 (410) 997-0296 Ext. (410) 997-0296 Fax

AS-BUILT



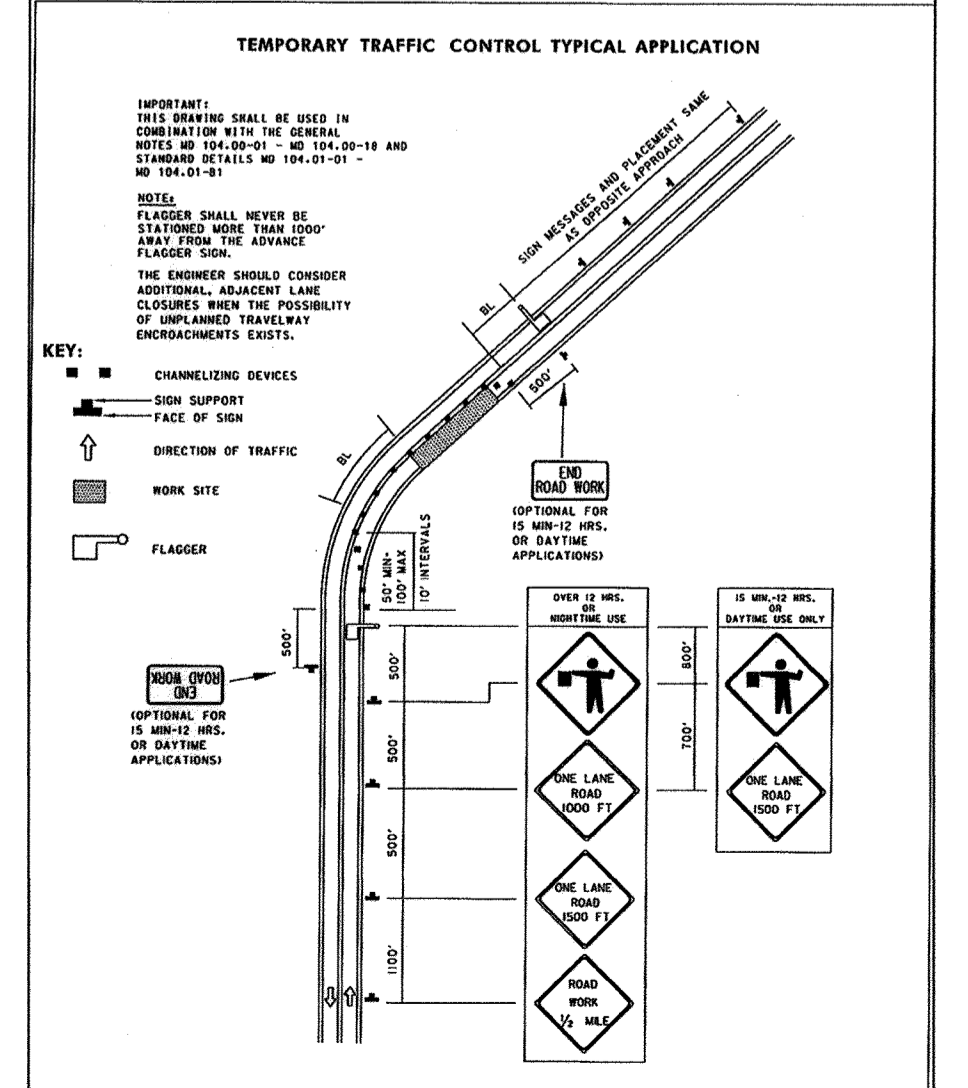
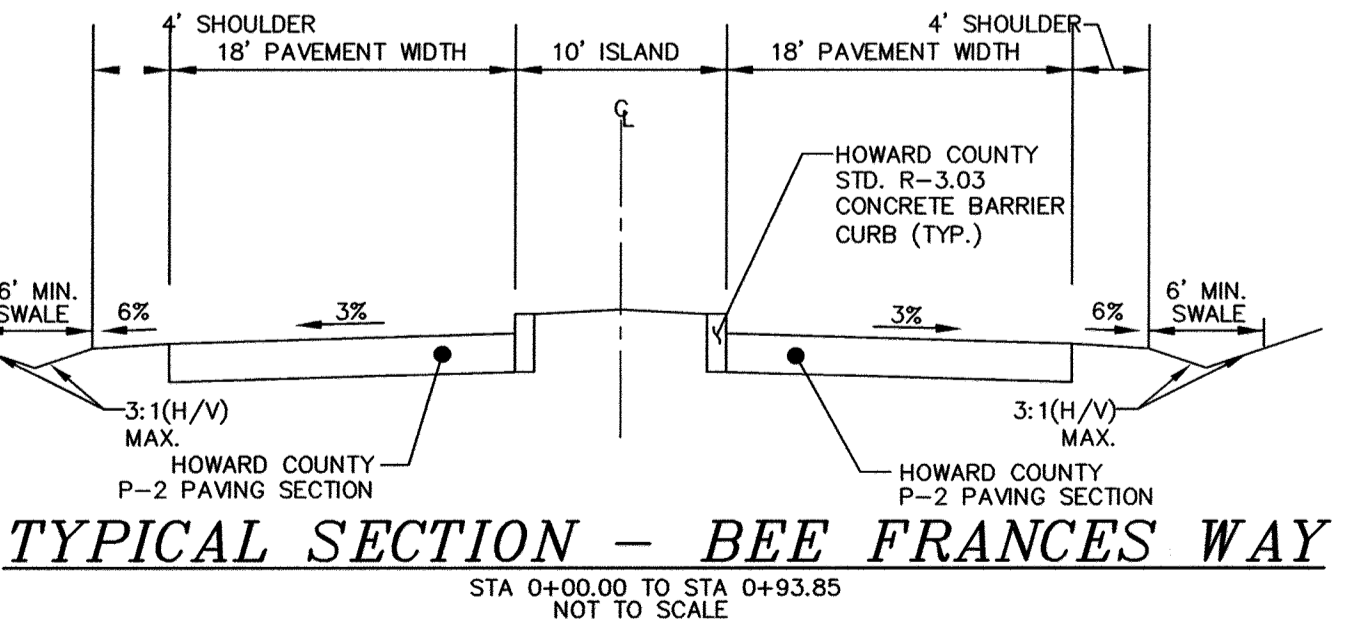
ROADWAY CURVE TABLE

CURVE	ROAD NAME	LENGTH (FT)	RADIUS (FT)	DELTA	CHORD LEN	CHORD DIR
C100	BEE FRANCES WAY	43.26	350.00	70°4'56"	43.24	N48°09'09"E
C101	BEE FRANCES WAY	384.41	1000.00	27°01'31"	382.05	N33°35'55"E
C200	CATHERINE CLOSE ROAD	154.10	250.00	35°19'02"	151.67	N62°51'35"W



DEVELOPER
 GREENBERRY, INC.
 7350-B GRACE DRIVE
 COLUMBIA, MARYLAND 21044
 (410)997-0296

OWNER
 ROBERT B. WILLIAMS
 JOANNA K. BENEDICT
 BARBARA B. CUSACK
 WILLIAM I. SLADE, JR.
 C/O MILDENBERG, BOENDER AND ASSOC.
 7350-B GRACE DRIVE
 COLUMBIA, MARYLAND 21044
 (410)997-0296



SEE SHEET 3 FOR LEFT AND RIGHT FILLET BEE FRANCES WAY PROFILES

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.

JEFFREY L. SLOMAN, P.E. DATE 10/7/14

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 10-27-2014
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 11-17-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 11-20-14
 CHIEF, DIVISION OF LAND DEVELOPMENT



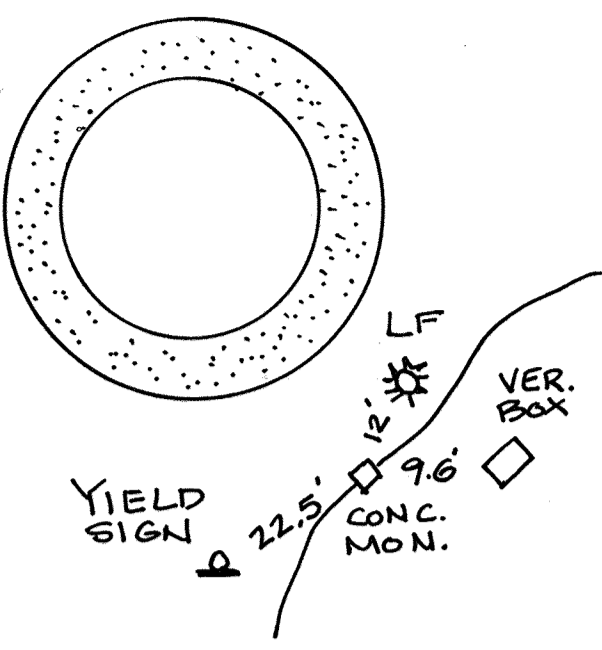
Project: 12-022
 Date: OCT 2014
 Illustration: JIS
 Scale: 1" = 50'
 Approval: MAM

ADD AS-BUILT DATA
 REVISIONS
 2. REVISED TOTAL SHEET NUMBER 10
 DATE: JULY 2015

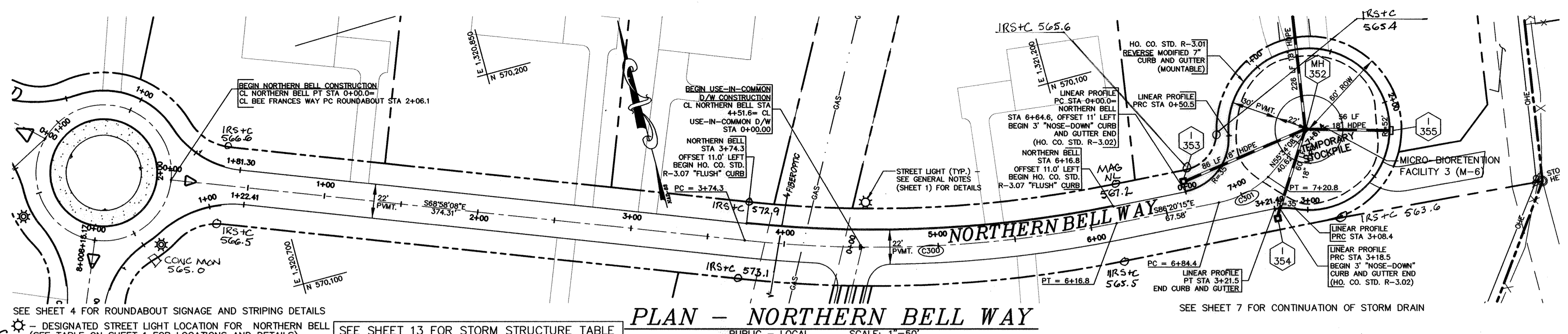
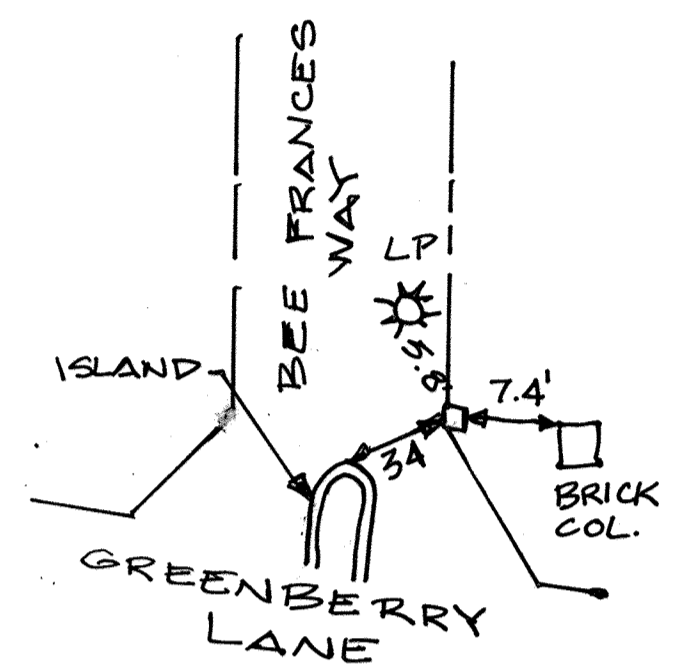
GREENBERRY, LOTS 1 THRU 25
 AND NON-BUILDABLE PRESERVATION PARCELS 'C', 'D', 'E', AND 'G', AND BUILDABLE PLOTS 'PARCEL 1' THROUGH 'PARCEL 25'
 TAX MAP 28, PARCEL 48
 HOWARD COUNTY, MARYLAND
 FIFTH ELECTION DISTRICT

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 7350-B Grace Drive, Columbia, Maryland 21044
 (410) 997-0296
 Fax: (410) 997-0296

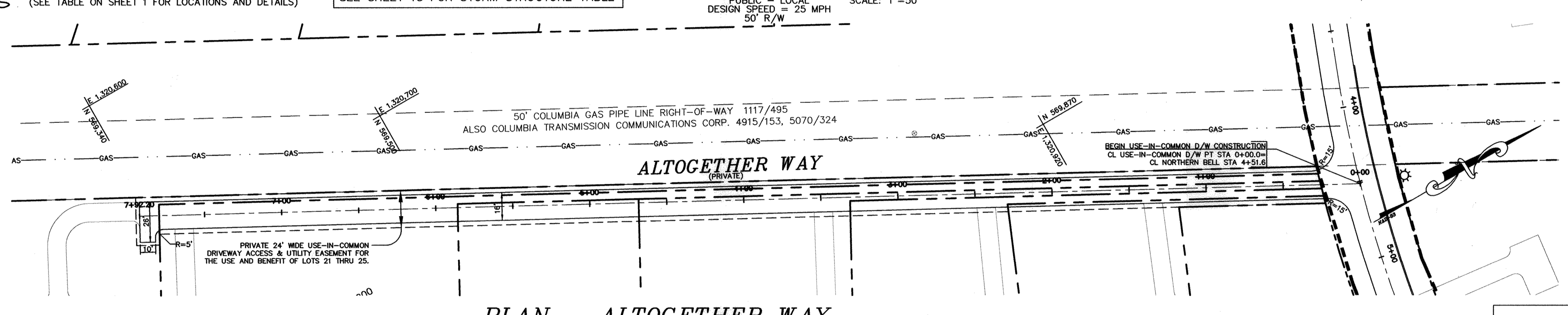
AS-BUILT



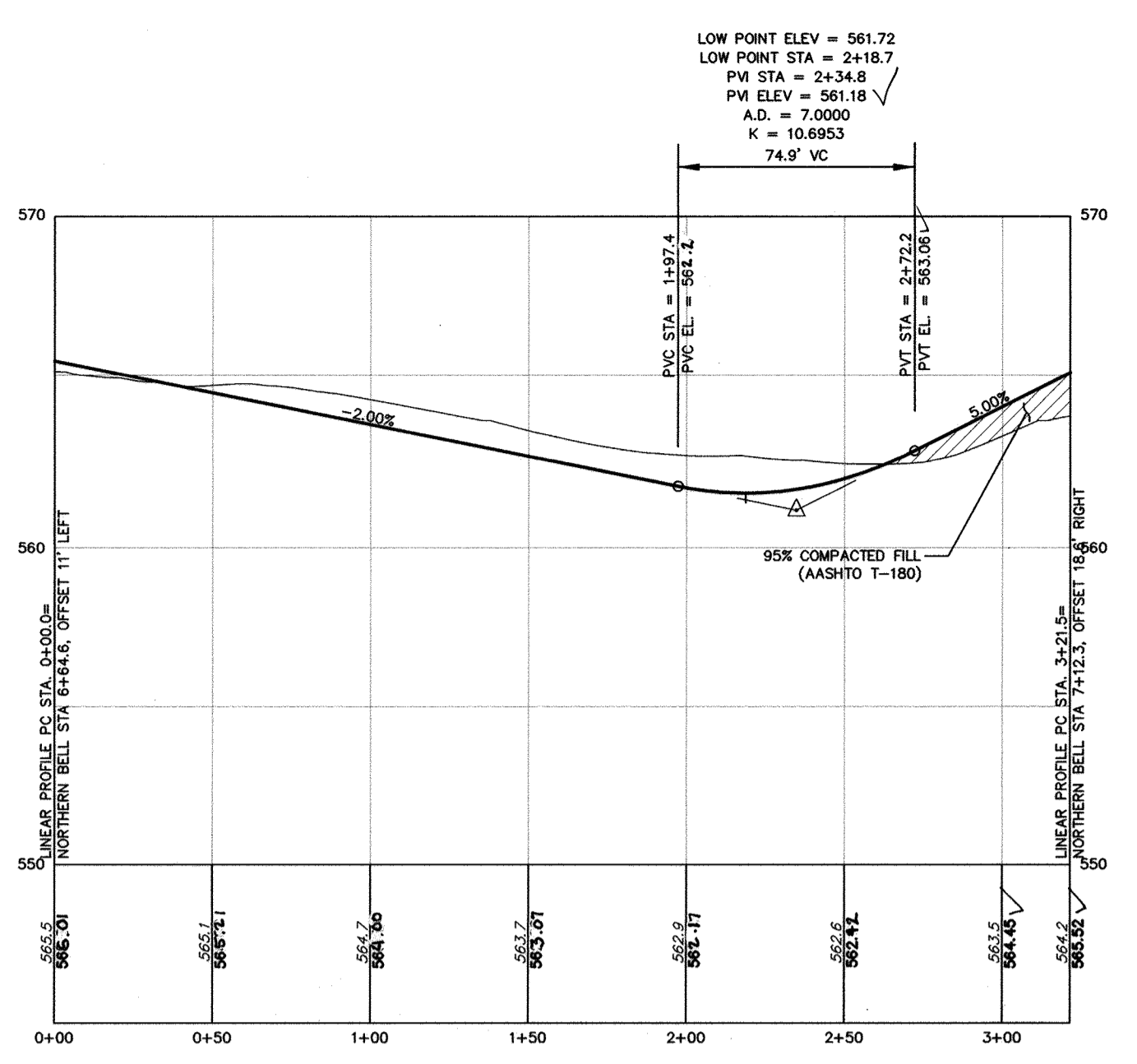
CONC. MON. SKETCHES
NOT TO SCALE



PLAN - NORTHERN BELL WAY



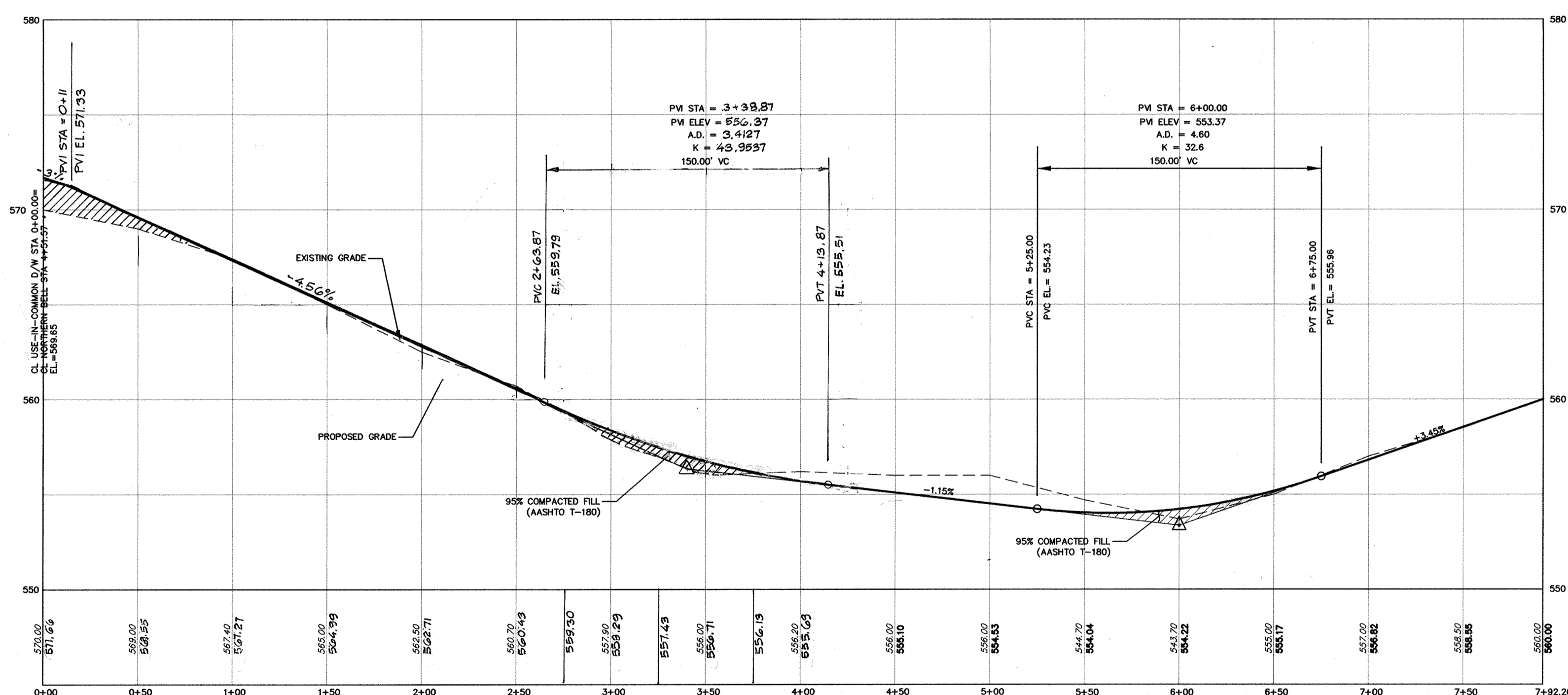
PLAN - ALTOGETHER WAY



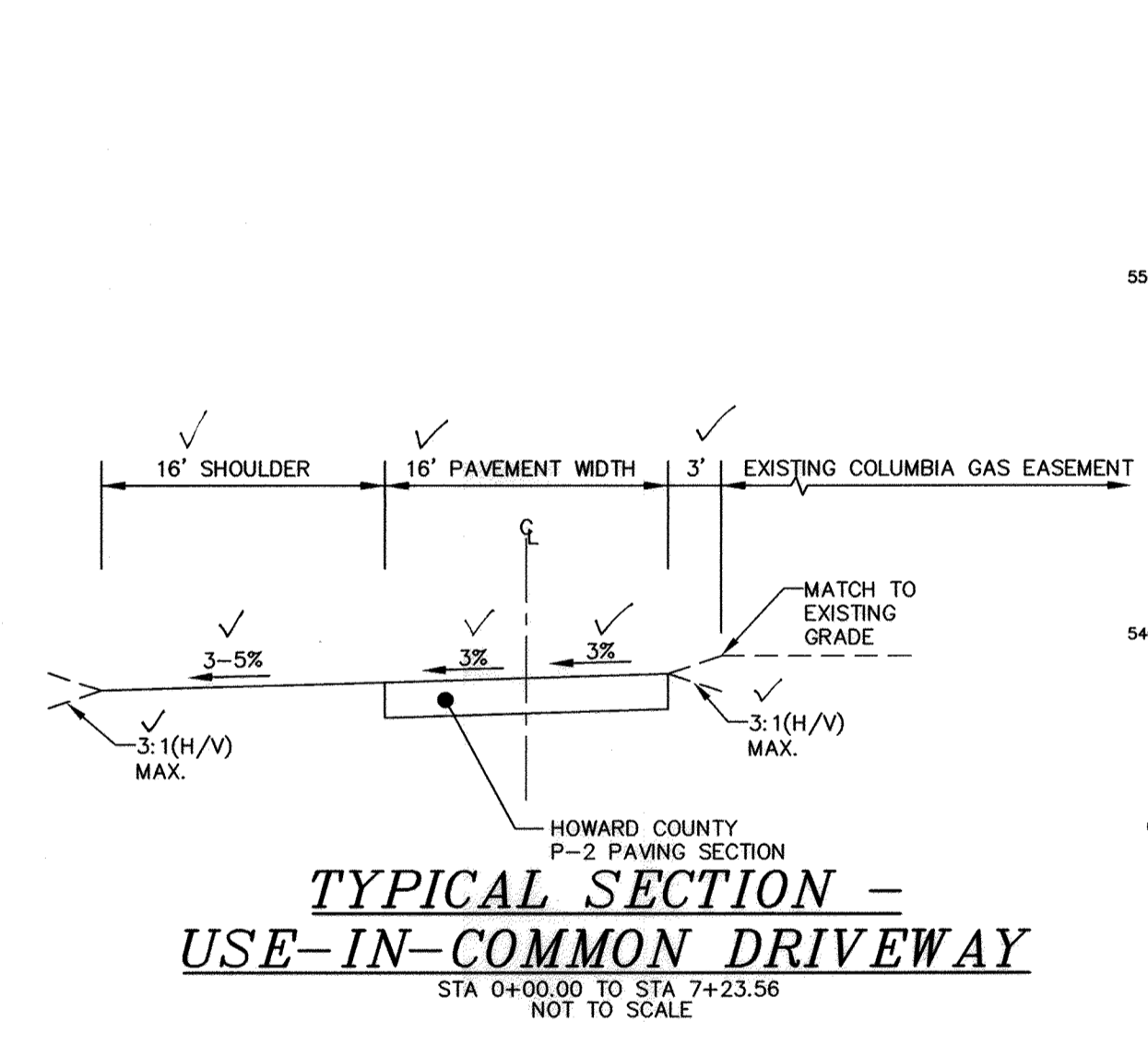
LINEAR PROFILE - CUL-DE-SAC
NORTHERN BELL

ROADWAY CURVE TABLE

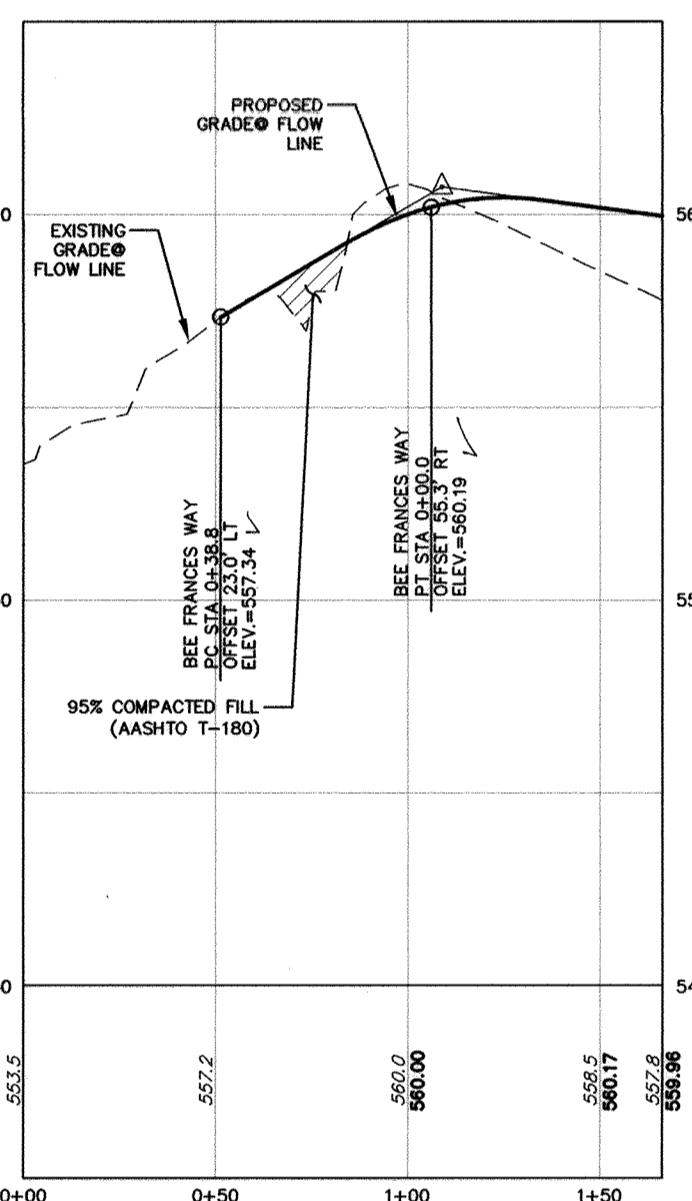
CURVE	ROAD NAME	LENGTH (FT)	RADIUS (FT)	DELTA	CHORD LEN (FT)	CHORD DIR
C300	NORTHERN BELL	242.51	800.00	17°22'07"	241.58	S77°39'11"E
C301	NORTHERN BELL	36.43	65.00	32°06'30"	35.95	N77°36'30"E



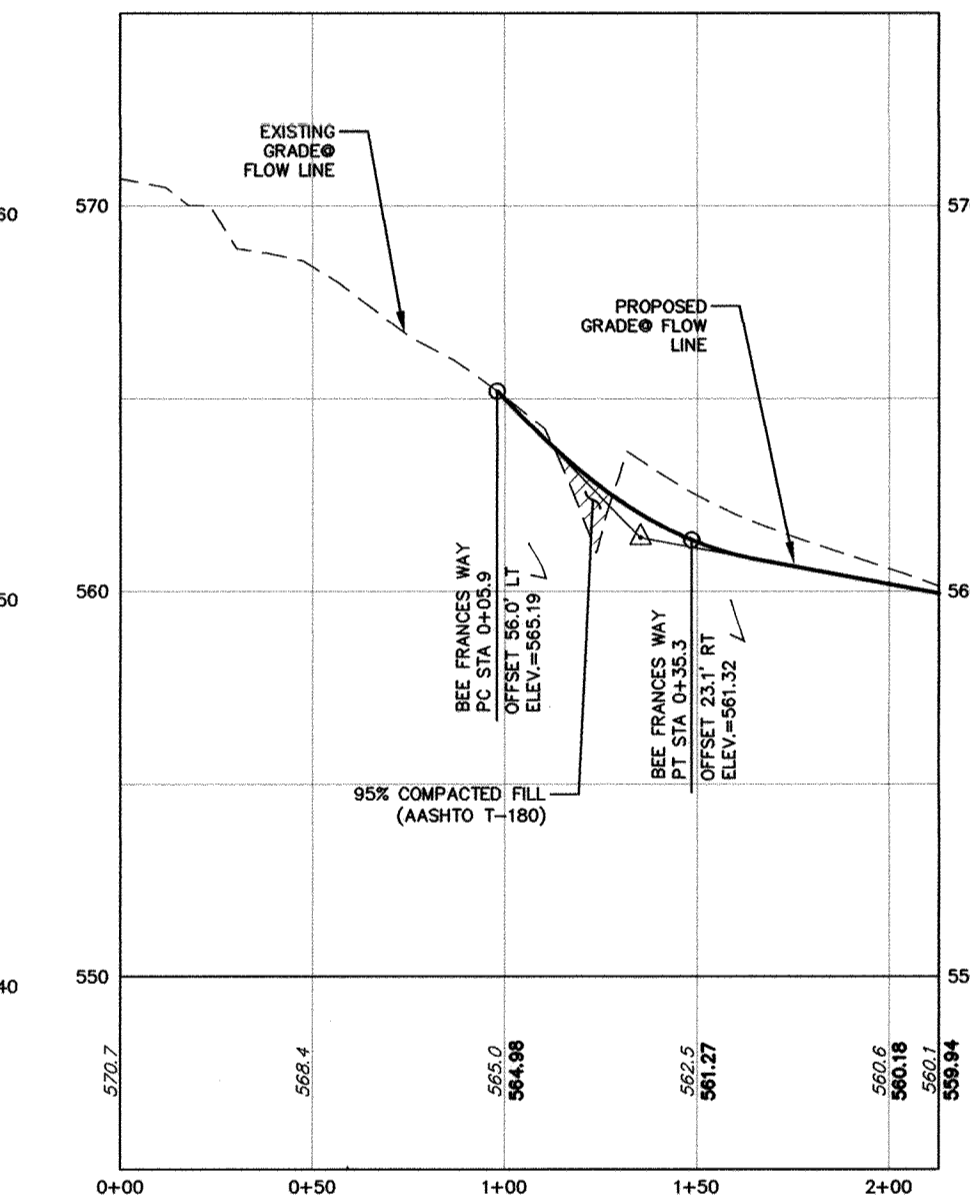
PROFILE - CENTERLINE ALTOGETHER WAY



TYPICAL SECTION -
USE-IN-COMMON DRIVEWAY



LEFT FILLET
BEE FRANCES WAY



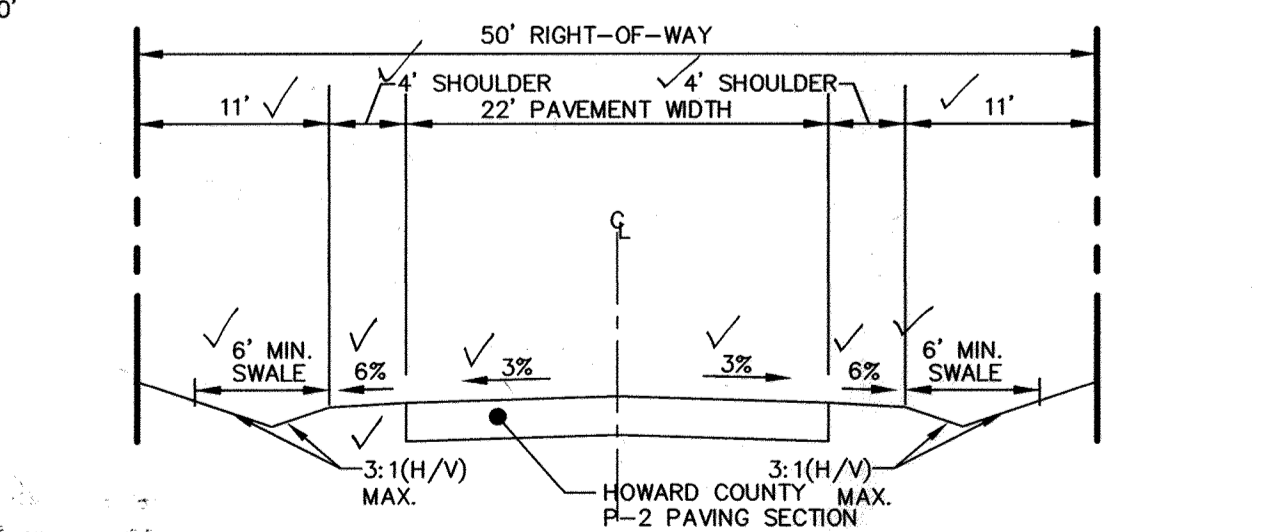
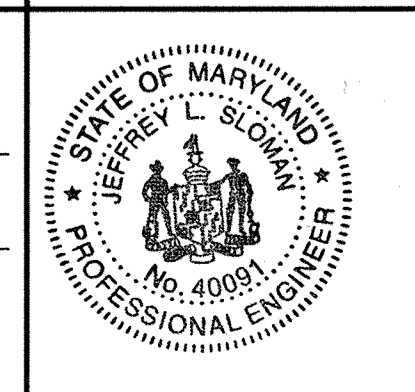
RIGHT FILLET
BEE FRANCES WAY

DEVELOPER
GREENBERRY, INC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

OWNER
ROBERT B. WILLIAMS
JOANNA K. BENEDICT
BARBARA B. CUSACK
WILLIAM I. SLADE, JR.
C/O MILDENBERG, BOENDER AND ASSOC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

APPROVED: DEPARTMENT OF PUBLIC WORKS
Melvin 10-27-2014
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Jeffrey S. P. 11-17-14
DATE
Jeffrey S. P. 11-20-14
DATE



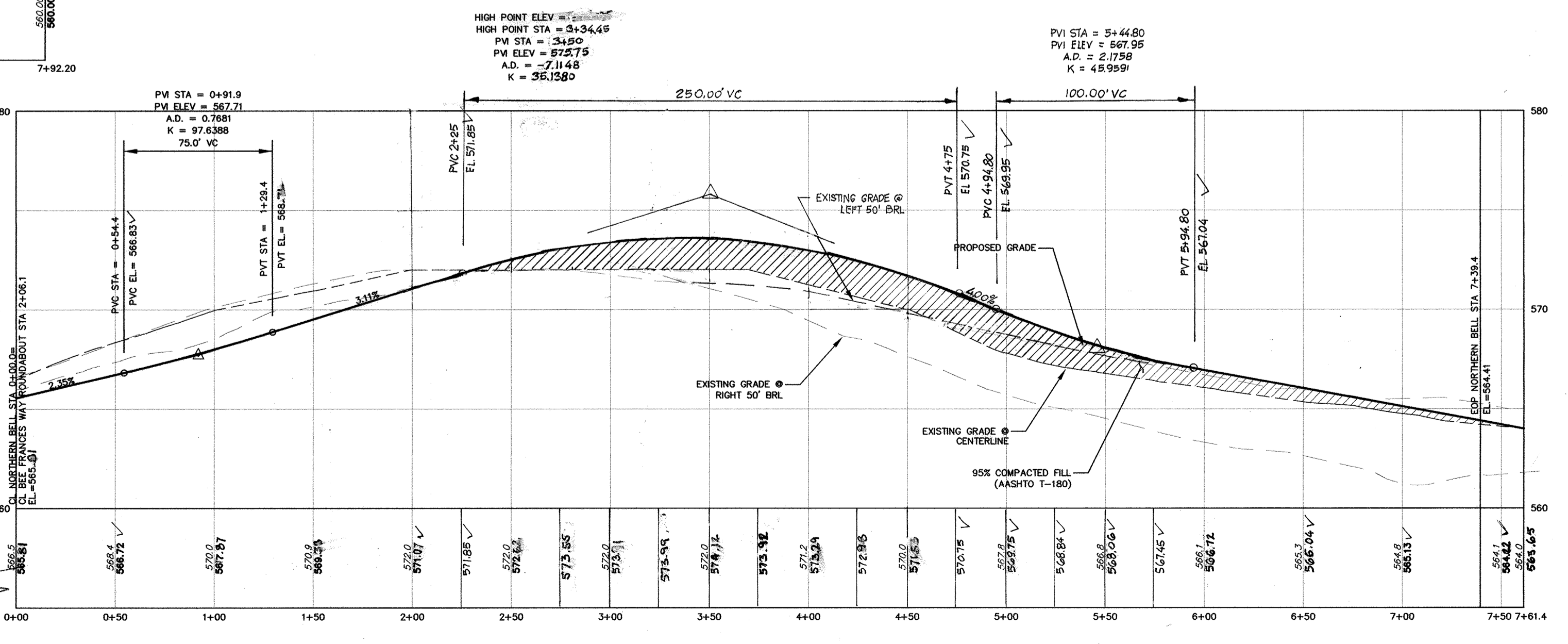
TYPICAL SECTION - NORTHERN BELL

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.

I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approved plans and specifications.



Jeffrey S. P. 10/14
DATE
JEFFREY SLOMAN, P.E.



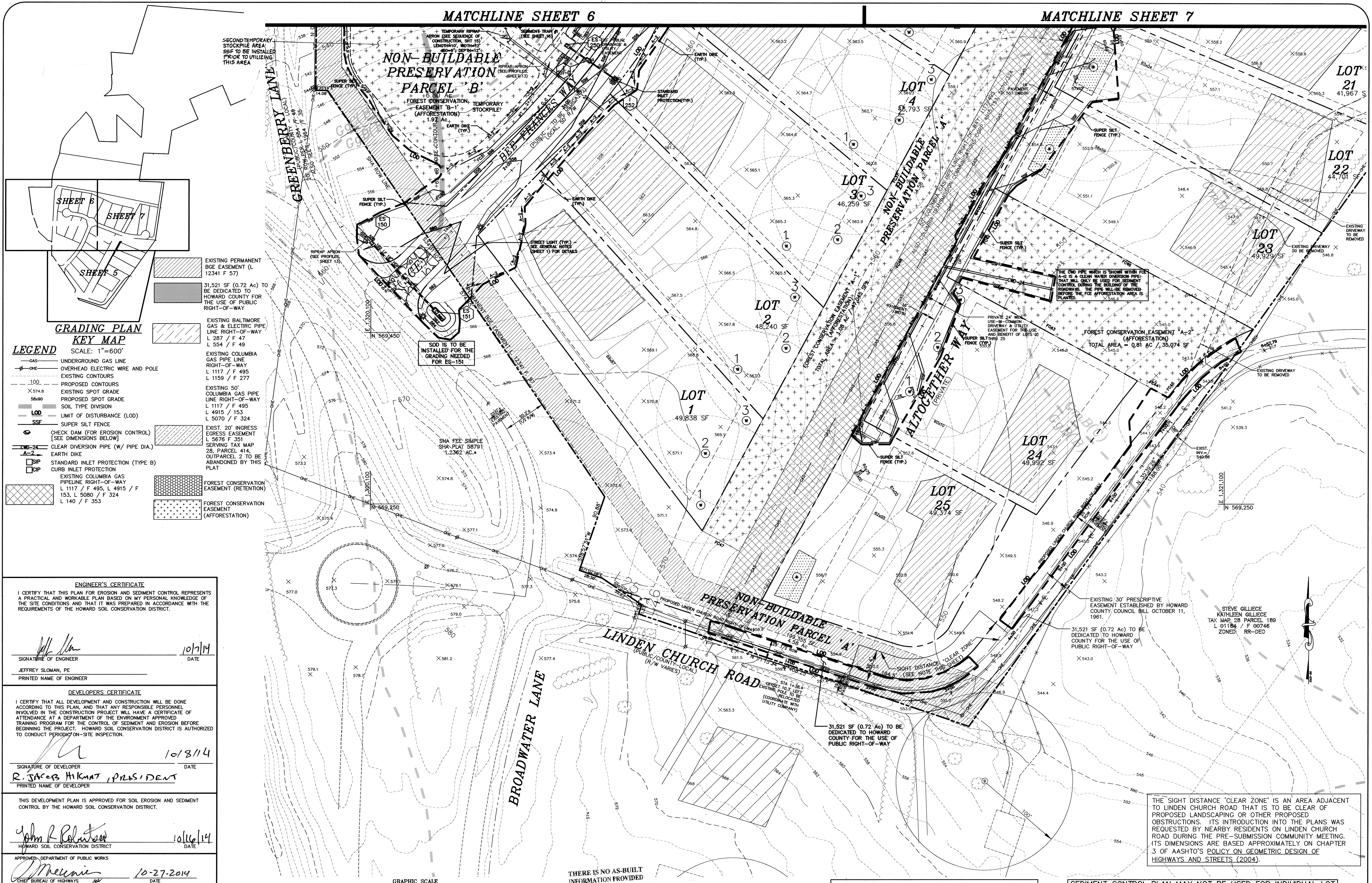
PROFILE - CENTERLINE NORTHERN BELL

Project: 12-022
date: OCT 2014
Illustration: JLS
scale: 1"=50'
approval: JLS
MAM

date: OCT 2014
description: ADD 15'-BUILT AND REVISED NORTHERN BELL WAY PROFILE
revisions: JLS JULY 2015

GREENBERRY, LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS A, B AND H, NON-BUILDABLE BULK PARCELS C, D, F AND G, AND BUILDABLE PARCELS I, J AND K
TAX MAP 28, PARCEL 48
HOWARD COUNTY, MARYLAND
ROAD PLANS, PROFILES AND TYPICAL SECTIONS
FIFTH ELECTION DISTRICT

MILDENBERG, BOENDER & ASSOC., INC.
Engineers, Surveyors, Planners
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296



GRADING PLAN KEY MAP

SCALE: 1"=600'

LEGEND

- GAS — UNDERGROUND GAS LINE
- O/E — OVERHEAD ELECTRIC WIRE AND POLE
- 100 — EXISTING CONTOURS
- 574.8 — PROPOSED CONTOURS
- 589.0 — EXISTING SPOT GRADE
- 589.0 — PROPOSED SPOT GRADE
- LOD — SOIL TYPE DIVISION
- SSF — LIMIT OF DISTURBANCE (LOD)
- CD — SUPER SILT FENCE
- CD — CHECK DAM (FOR EROSION CONTROL) [SEE DIMENSIONS BELOW]
- CD — CLEAR DIVERSION PIPE (W/ PIPE DIA.)
- A-2 — EARTH DIKE
- SIP — STANDARD INLET PROTECTION (TYPE B)
- CIP — CURB INLET PROTECTION
- EXISTING COLUMBIA GAS PIPELINE RIGHT-OF-WAY / L 1117 / F 495, L 4915 / F 153, L 5070 / F 324, L 140 / F 353
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (AFFORESTATION)

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

Signature: *Jeffrey S. Sloman* DATE: 10/7/14
 SIGNATURE OF ENGINEER
 JEFFREY SLOMAN, PE
 PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

Signature: *R. Jacobs Hickmat* DATE: 10/8/14
 SIGNATURE OF DEVELOPER
 R. JACOBS HICKMAT, PRESIDENT
 PRINTED NAME OF DEVELOPER

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

Signature: *John R. Polak* DATE: 10/16/14
 HOWARD SOIL CONSERVATION DISTRICT

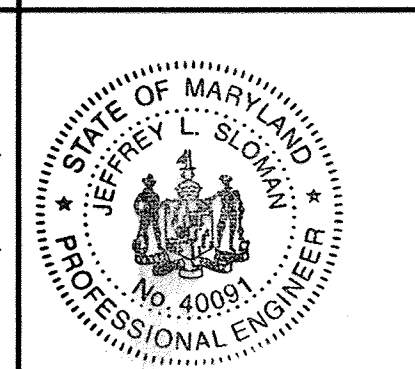
APPROVED: DEPARTMENT OF PUBLIC WORKS

Signature: *Michael* DATE: 10-27-2014
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Signature: *Chad* DATE: 11-17-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Signature: *Kate* DATE: 11-20-14
 CHIEF, DIVISION OF LAND DEVELOPMENT



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.

Signature: *Jeffrey S. Sloman* DATE: 10/7/14
 JEFFREY SLOMAN, P.E.

DEVELOPER
 GREENBERRY, INC.
 7350-B GRACE DRIVE
 COLUMBIA, MARYLAND 21044
 (410)997-0296

OWNER
 ROBERT B. WILLIAMS
 JOANNA K. BENEDICT
 BARBARA B. OUSACK
 WILLIAM I. SLADE, JR.
 C/O MILDENBERG, BOENDER AND ASSOC.
 7350-B GRACE DRIVE
 COLUMBIA, MARYLAND 21044
 (410)997-0296

SEE SHEET 16 FOR SEDIMENT TRAP DETAILS

TYPE 'B' TO BE USED FOR ALL STANDARD INLET PROTECTION

SEE SHEET 4 FOR LINDEN CHURCH ROAD WIDENING DETAILS

SEE SHEET 17 FOR STABILIZATION TECHNIQUES ON ROADSIDE DITCHES.

SEDIMENT CONTROL PLAN MAY NOT BE USED FOR INDIVIDUAL LOT GRADING OR TO OBTAIN BUILDING PERMITS FOR THE PROPOSED HOUSES.

ALL SEDIMENT CONTROLS INTERRUPTED BY THE INSTALLATION OF UTILITIES, STORM DRAINS, ETC. ARE TO BE REPAIRED IMMEDIATELY.

SOILS DESCRIPTION

SYMBOL	HYDROLOGICAL GROUP	DESCRIPTION
GaA	B	GENEVA LOAM, 0 TO 3% SLOPE
GaB	B	GENEVA LOAM, 3 TO 6% SLOPE
GaC	B	GENEVA LOAM, 6 TO 15% SLOPE
GaB	C	GENEVA SILT LOAM, 3 TO 6% SLOPE

AS-BUILT

project 12-022
 illustration JLS
 date OCT 2014
 engineering JLS
 scale 1"=60'
 approval MAM

REVISED TEMPORARY STOCKPILE AREA
 REVISED TOTAL SHEET NUMBER
 description
 no. revisions

date 7/17/05

GREENBERRY, LOTS 1 THRU 25
 AND NON-BUILDABLE PRESERVATION PARCELS A, B AND C, AND BUILDABLE PARCELS D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UU, UV, UW, UX, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ

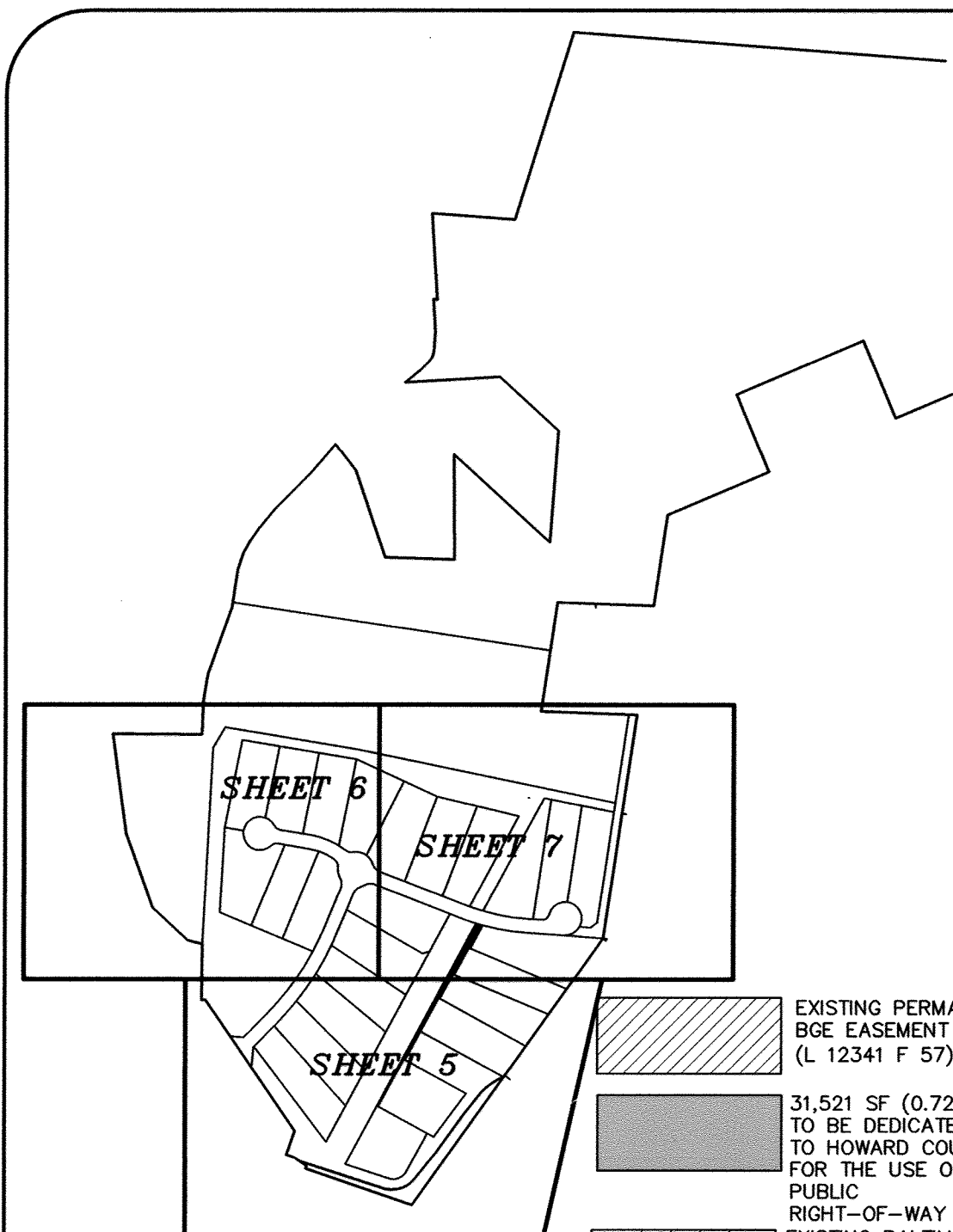
FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 7350-B Grace Drive, Columbia, Maryland 21044
 (410) 997-0296

5 OF 21

F-14-095



**GRADING PLAN
KEY MAP**

- LEGEND** SCALE: 1"=600'
- GAS
 - UNDERGROUND GAS LINE
 - OHE
 - OVERHEAD ELECTRIC WIRE AND POLE
 - EXISTING CONTOURS
 - 100
 - PROPOSED CONTOURS
 - X 574.8
 - EXISTING SPOT GRADE
 - 5890
 - PROPOSED SPOT GRADE
 - LOD
 - SOIL TYPE DIVISION
 - LIMIT OF DISTURBANCE (LOD)
 - SSF
 - SUPER SILT FENCE
 - CHECK DAM (FOR EROSION CONTROL)
 - [SEE DIMENSIONS - SHEET 5]
 - DWD-24
 - CLEAR DIVERSION PIPE (W/ PIPE DIA.)
 - A-2
 - EARTH DIKE
 - SIP
 - STANDARD INLET PROTECTION (TYPE B)
 - CIP
 - CURB INLET PROTECTION
 - EXISTING COLUMBIA GAS PIPELINE RIGHT-OF-WAY
 - L 1117 / F 495, L 4915 / F 153, L 5080 / F 324, L 140 / F 353
 - FOREST CONSERVATION EASEMENT (RETENTION)
 - FOREST CONSERVATION EASEMENT (AFFORESTATION)

DEVELOPER
GREENBERRY, INC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

OWNER
ROBERT B. WILLIAMS
JOANNA K. BENEDICT
BARBARA B. CUSACK
WILLIAM I. SLADE, JR.
C/O MILDENBERG, BOENDER AND ASSOC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

ENGINEER'S CERTIFICATE
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

Signature: Jeffrey Sloman, PE
DATE: 10/7/14

DEVELOPERS CERTIFICATE
I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

Signature: R. JACOB HAKMAT, PRESIDENT
DATE: 10/8/14

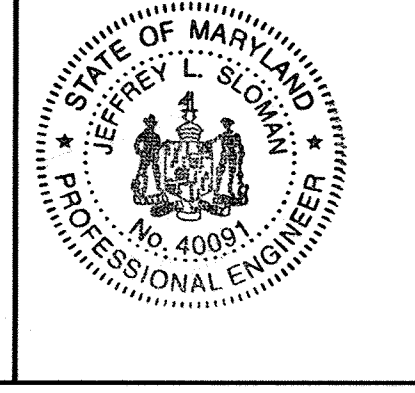
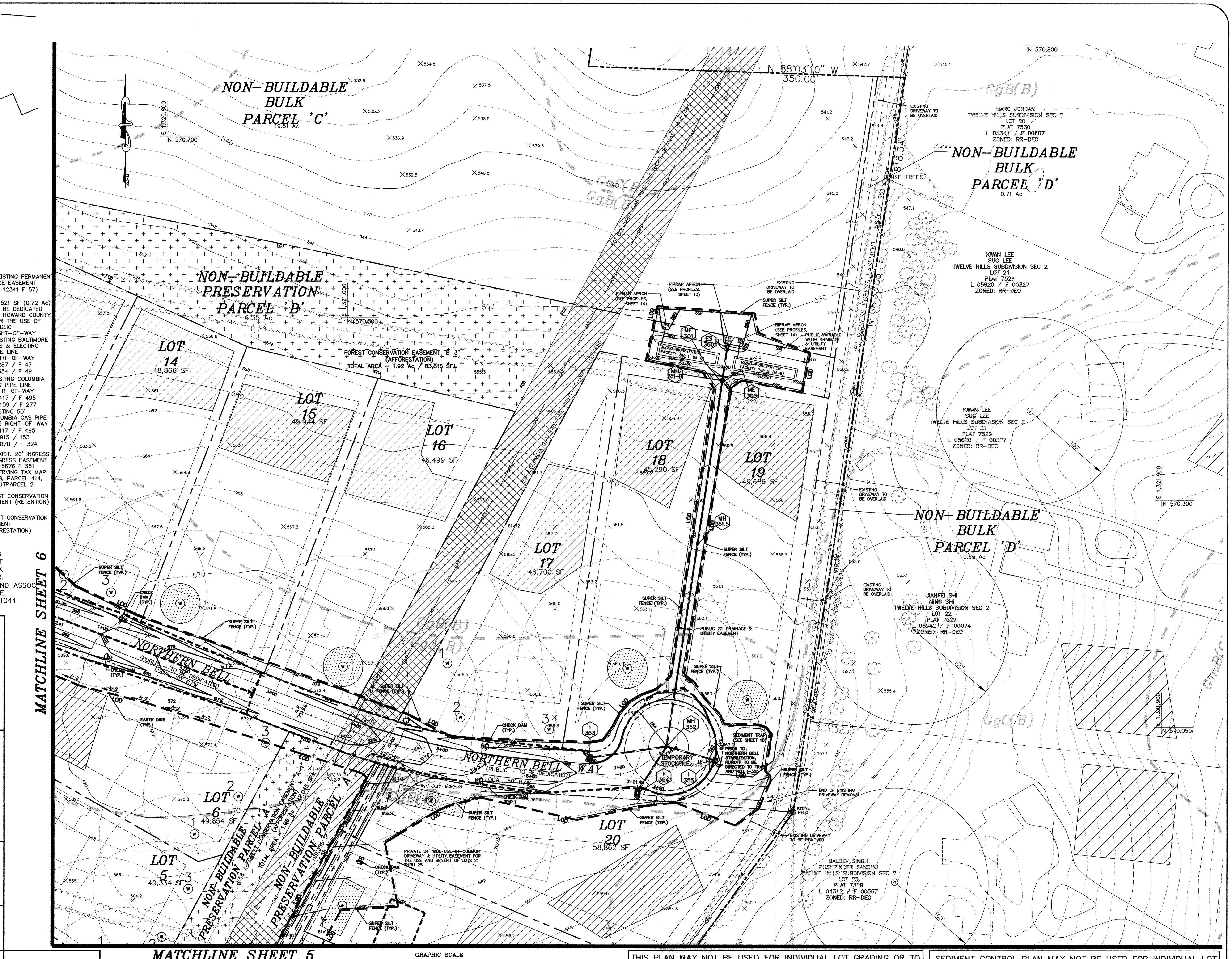
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: Jeffrey Sloman, PE
DATE: 10/16/14

APPROVED: DEPARTMENT OF PUBLIC WORKS
Signature: [Signature]
DATE: 10-27-2014

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Signature: [Signature]
DATE: 11-17-14

Signature: [Signature]
DATE: 11-20-14



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.

Signature: Jeffrey Sloman, P.E.
DATE: 10/7/14

SOILS DESCRIPTION

SYMBOL	HYDROLOGICAL DESCRIPTION	GROUP
GgA	GLENNIC LOAM, 0 TO 3% SLOPE	B
GgB	GLENNIC LOAM, 3 TO 8% SLOPE	B
GgC	GLENNIC LOAM, 8 TO 15% SLOPE	B
GgD	GLENNIC SILT LOAM, 3 TO 8% SLOPE	B

THIS PLAN MAY NOT BE USED FOR INDIVIDUAL LOT GRADING OR TO OBTAIN BUILDING PERMITS FOR THE PROPOSED HOUSES.

SEE SHEET 18 FOR STABILIZATION TECHNIQUES ON ROADSIDE DITCHES.

THIS IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

SEDIMENT CONTROL PLAN MAY NOT BE USED FOR INDIVIDUAL LOT GRADING OR TO OBTAIN BUILDING PERMITS FOR THE PROPOSED HOUSES.

TYPE 'B' TO BE USED FOR ALL STANDARD INLET PROTECTION

Project	12-022	Date	OCT 2014
Illustration	JLS	Engineering	JLS
Scale	1"=60'	Approval	MMB

Revised	PROPOSED CONTOURS FOR NORTHERN BELL WAY & ADJACENT WAY, REVISED TOTAL SHEET NUMBER	Date	JULY 2015
No.		Description	
		Revisions	

GREENBERRY, LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS 'A', 'B' AND 'C', NON-BUILDABLE BULK PARCELS 'C', 'D', 'E' AND 'G', AND BUILDABLE PLOTS, PARCEL 'F'

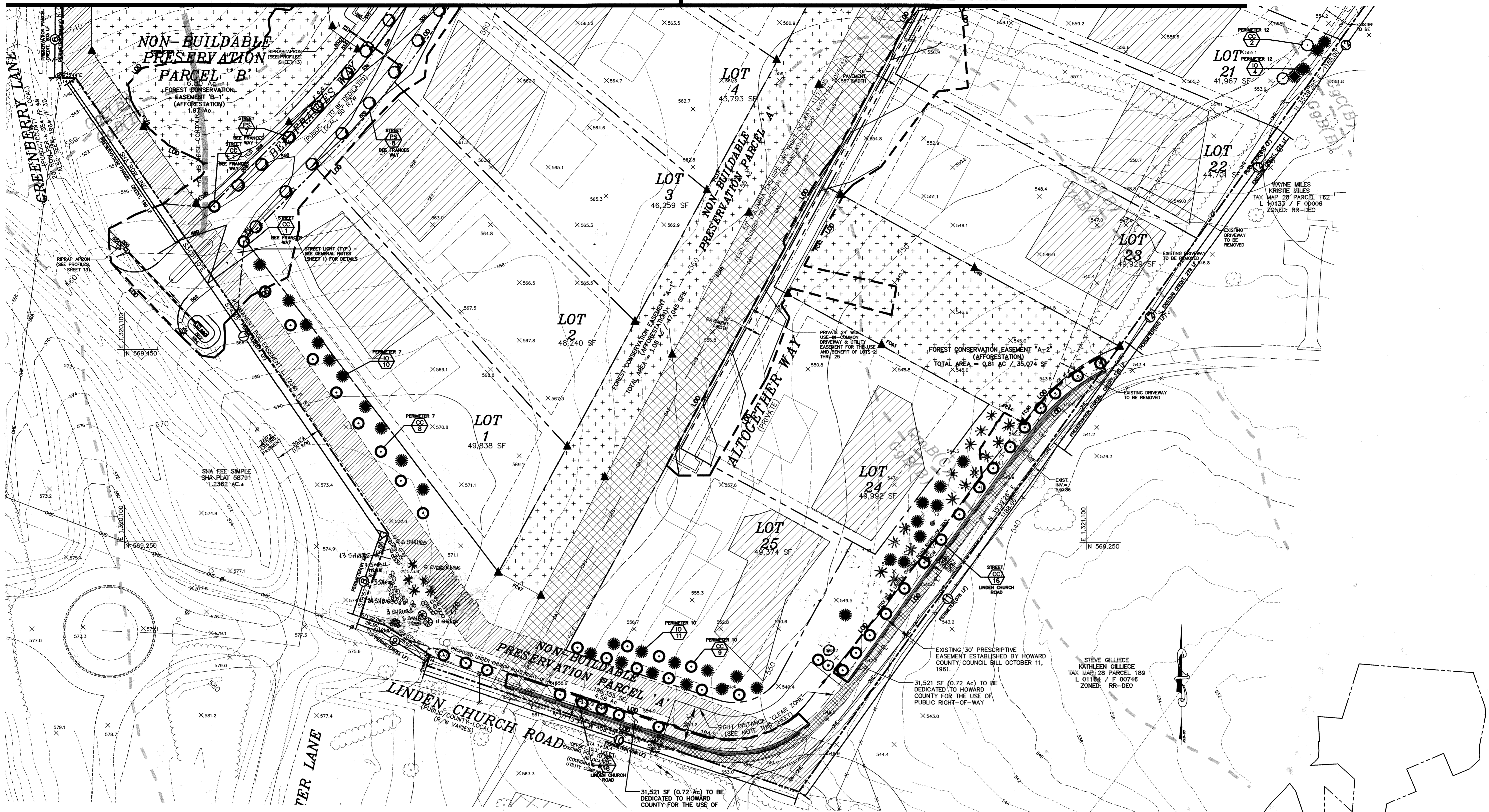
FIFTH ELECTION DISTRICT
TAX MAP 28, PARCEL 48
HOWARD COUNTY, MARYLAND

GRADING, EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Ext. (410) 997-0298 Fax.

7 OF 21
F-14-095

AS-BUILT



DEVELOPERS / BUILDERS CERTIFICATE
 I / WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE IN ACCORDANCE 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.

10/18/14
 SIGNATURE OF DEVELOPER
R. JAMES HIKMAT, PRESIDENT
 PRINTED NAME OF DEVELOPER

APPROVED: DEPARTMENT OF PUBLIC WORKS
 10-27-2014
 CHIEF BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 11-17-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 11-20-14
 CHIEF, DIVISION OF LAND DEVELOPMENT

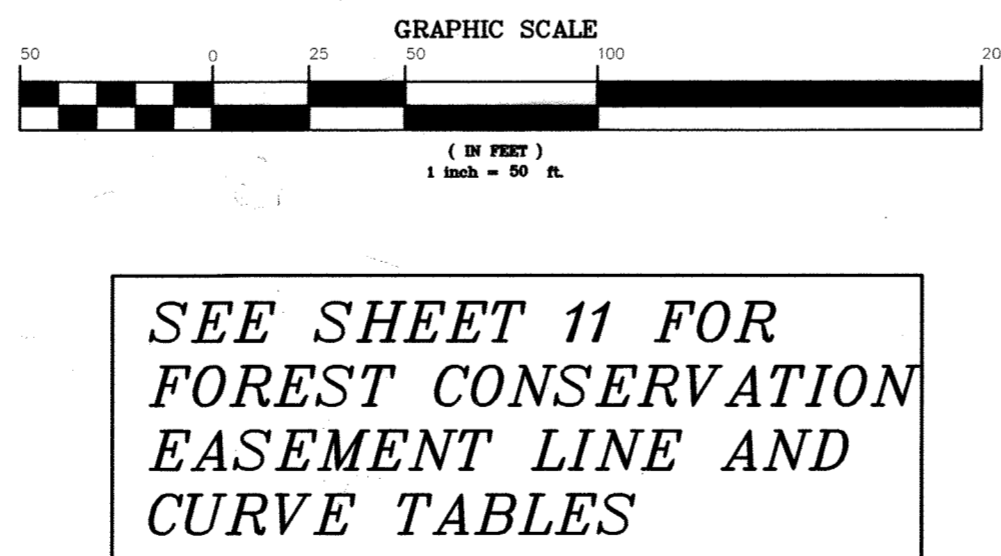
DEVELOPER
 GREENBERRY, INC.
 7350-B GRACE DRIVE
 COLUMBIA, MARYLAND 21044
 (410)997-0296

OWNER
 ROBERT B. WILLIAMS
 JOANNA K. BENEDICT
 BARBARA B. CUSACK
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 C/O MILDENBERG, BOENDER AND ASSOC.
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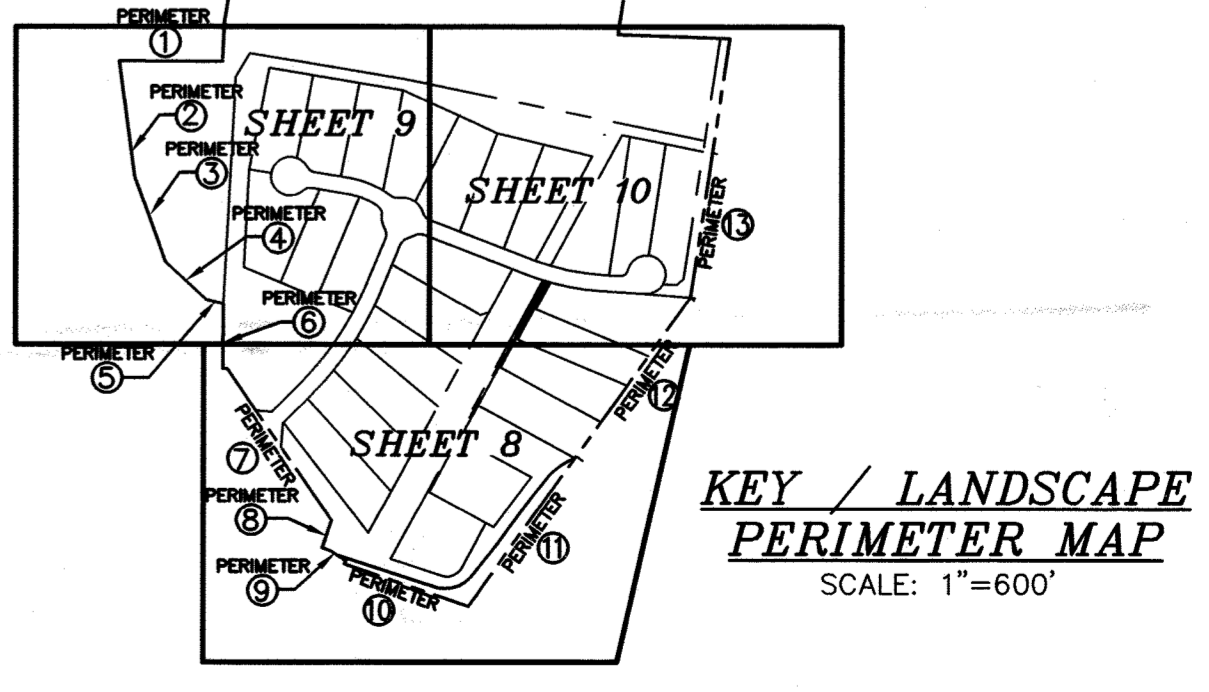
THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.

10/7/14
 JEFFREY SLOMAN, P.E. DATE



- LEGEND**
 (SEE SHEET 11 FOR LANDSCAPE FOREST CONSERVATION DETAILS)
- ▲ FOREST CONSERVATION EASEMENT SIGN (SEE SHEET 11)
 - O/E — OVERHEAD ELECTRIC WIRE AND POLE
 - GAS — UNDERGROUND GAS LINE
 - EXISTING COLUMBIA GAS PIPELINE RIGHT-OF-WAY L 1117 / F 495, L 4915 / F 153, L 5080 / F 324, L 140 / F 353
 - EXISTING PERMANENT BGE EASEMENT (L 12341 F 57)
 - 31,521 SF (0.72 AC) TO BE DEDICATED TO HOWARD COUNTY FOR THE USE OF PUBLIC RIGHT-OF-WAY
 - EXISTING BALTIMORE GAS & ELECTRIC PIPE LINE RIGHT-OF-WAY L 287 / F 47, L 554 / F 49
 - EXISTING 50' COLUMBIA GAS PIPE RIGHT-OF-WAY L 1117 / F 495, L 4915 / 153, L 1159 / F 277
 - EXISTING COLUMBIA GAS PIPE LINE RIGHT-OF-WAY L 1117 / F 495, L 1159 / F 277
 - EXIST. 20' INGRESS EGRESS EASEMENT L 5876 F 351 SERVING TAX MAP 28, PARCEL 414, OUTPARCEL 2
 - FOREST CONSERVATION EASEMENT (RETENTION)
 - FOREST CONSERVATION EASEMENT (AFFORESTATION)



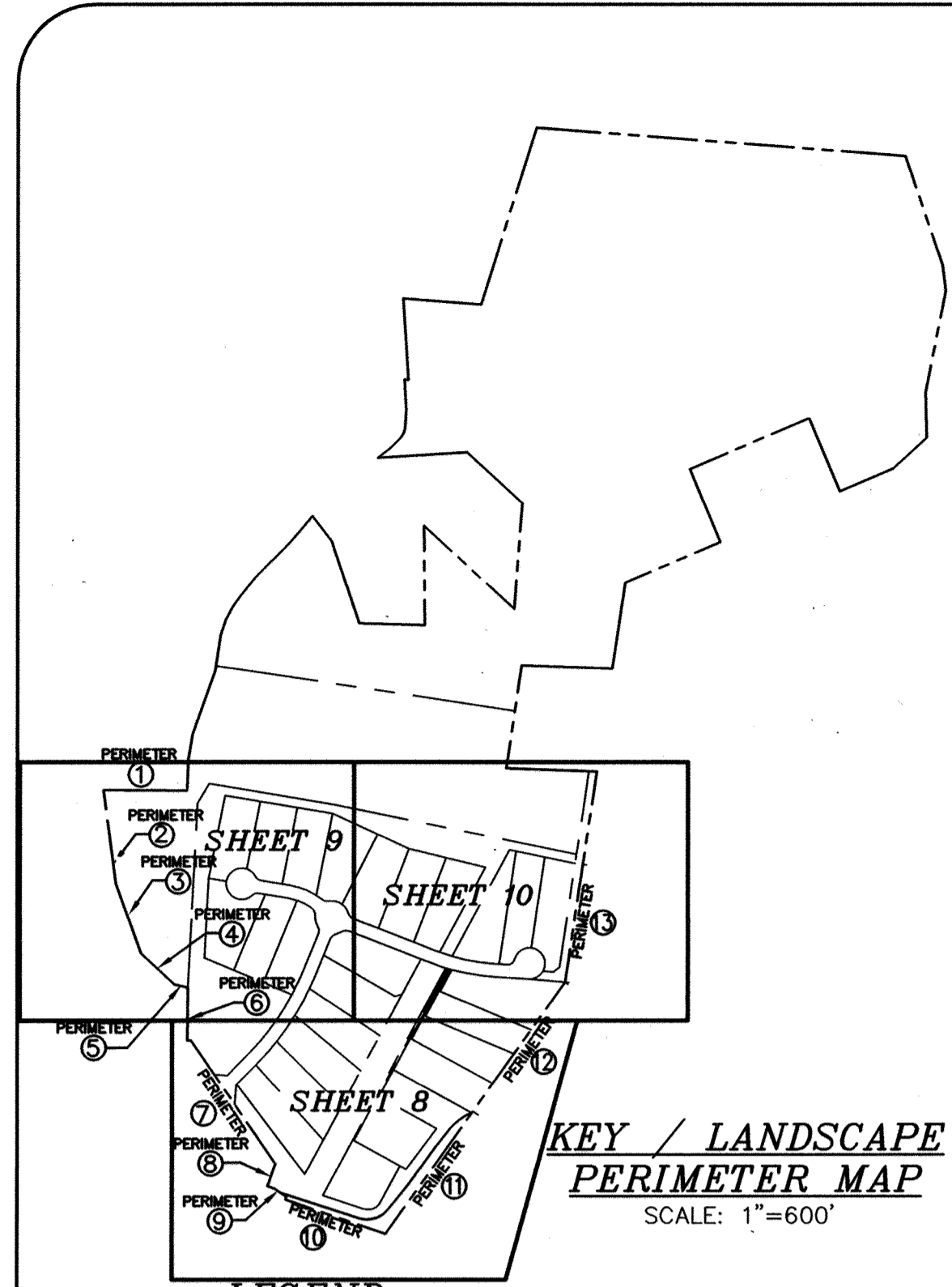
Masjid Pany
 DNR QUALIFIED PROFESSIONAL

date	OCT 2014	engineering	JIS	approval	MMM
project	12-022	illustration	JIS	scale	1"=50'

date	OCT 2014	description	revisions
1.	REVISED LANDSCAPING FOR PERIMETERS 9, 10 AND 11		
2.	REVISED TOTAL SHEET NUMBER		

GREENBERRY, LOTS 1 THRU 25
 AND NON-BUILDABLE PRESERVATION PARCELS A, B AND H, AND NON-BUILDABLE BOX PARCELS C, D, F AND G, AND BUILDABLE PARS. PARCEL X
 TAX MAP 28, PARCEL 48
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
LANDSCAPE AND FOREST CONSERVATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
 Engineers Planners Surveyors
 7350-B Grace Drive, Columbia, Maryland 21044
 (410) 997-0296 Fax: (410) 997-0298 Fax



KEY / LANDSCAPE PERIMETER MAP
SCALE: 1"=600'

LEGEND

- (SEE SHEET 11 FOR LANDSCAPE SYMBOL LEGEND AND FOREST CONSERVATION DETAILS)
- O— OVERHEAD ELECTRIC WIRE AND POLE
 - G— UNDERGROUND GAS LINE
 - E— EXISTING COLUMBIA GAS PIPELINE RIGHT-OF-WAY (L 1117 / F 495, L 4915 / F 153, L 5080 / F 324, L 140 / F 353)
 - P— EXISTING PERMANENT BOE EASEMENT (L 12341 F 57)
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 - D— EXISTING 20' INGRESS EGRESS EASEMENT (L 5876 F 351 SERVING TAX MAP 28, PARCEL 414, OUTPARCEL 2)
 - ▲ FOREST CONSERVATION EASEMENT SIGN (SEE SHEET 11)
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 - ▲ EXISTING 50' COLUMBIA GAS PIPE LINE RIGHT-OF-WAY (L 1117 / F 495, L 4915 / F 153, L 1159 / F 277)
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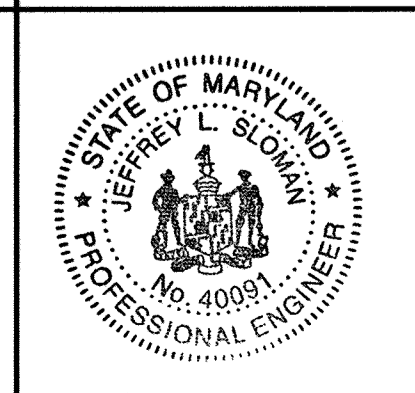
DEVELOPER
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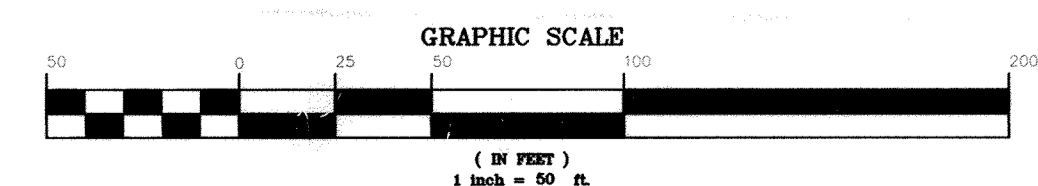
SIGNATURE OF DEVELOPER: *R. JACOB HIKMAT* / PRESIDENT, DATE: 10/18/14
APPROVED: DEPARTMENT OF PUBLIC WORKS, CHIEF BUREAU OF HIGHWAYS, DATE: 10-27-2014

APPROVED: DEPARTMENT OF PLANNING AND ZONING, CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE: 11-17-14
CHIEF, DIVISION OF LAND DEVELOPMENT, DATE: 11-20-14

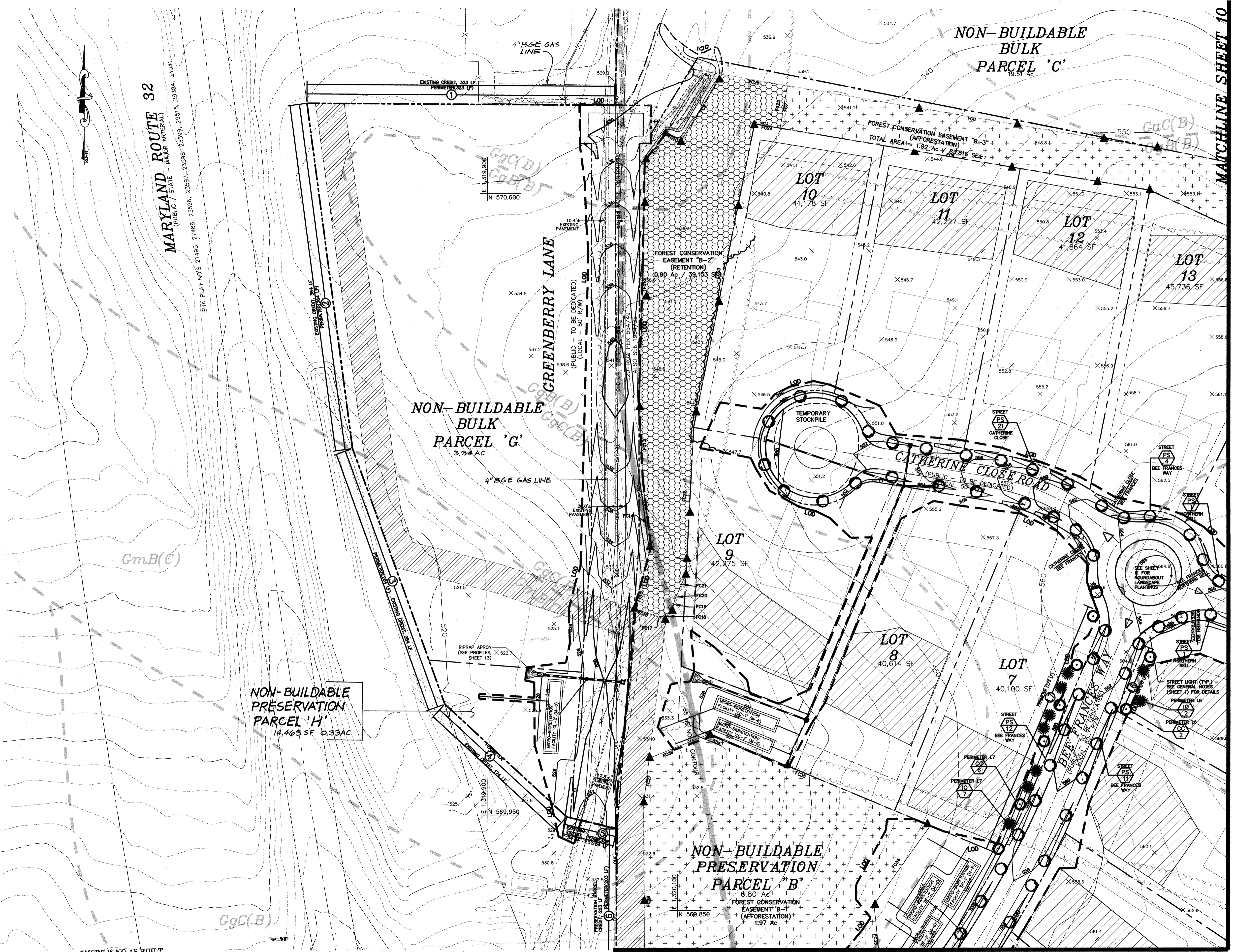


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JEFFREY SLOMAN, P.E. DATE: 10/7/14

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET



SEE SHEET 11 FOR FOREST CONSERVATION EASEMENT LINE AND CURVE TABLES



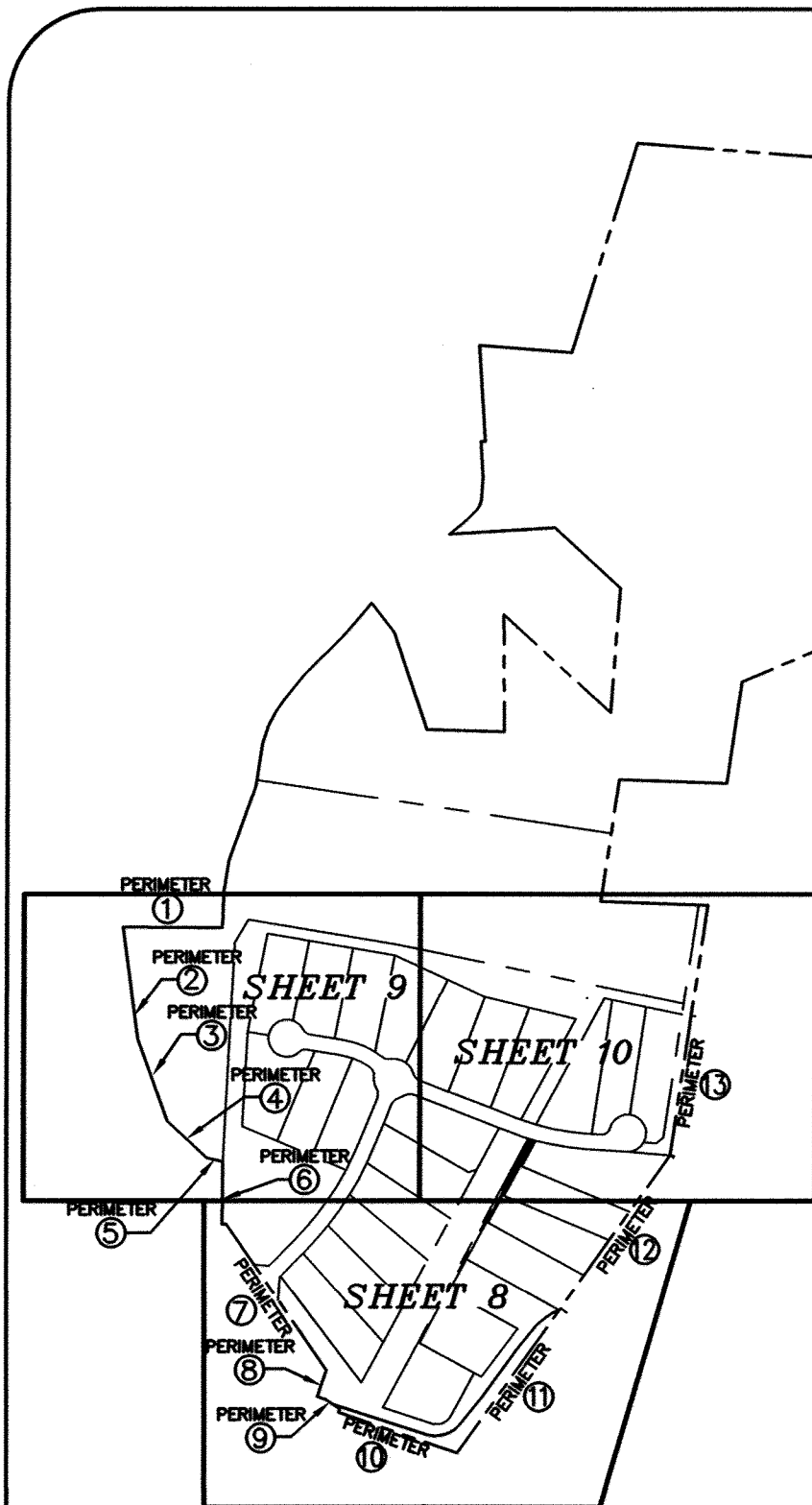
MATCHLINE SHEET 8

Project	date	approval
12-022	OCT 2014	MMM
Illustration	engineering	
JIS	JIS	
scale	1"=50'	

date	description	revisions
7 JULY 2016	REMOVED STORMDRAIN FROM L-662 TO E5-060	
2 JULY 2016	REVISED MICRO-SITE PLAN, ADD GAS-SIGNAL DETAIL, ADD/REVISE HIGHWAY LINES, CORRECT LABEL C & H	
2 JULY 2015	REVISED TOTAL SHEET NUMBER	

GREENBERRY, LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS 'A', 'B' AND 'H', NON-BUILDABLE BULK PARCELS 'C', 'D', 'E' AND 'G', AND BUILDABLE PARCELS 'F' AND 'I'.
TAX MAP 26, PARCEL 48
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
LANDSCAPE AND FOREST CONSERVATION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Fax: (410) 997-0298 Fax.



LEGEND
(SEE SHEET 11 FOR LANDSCAPE SYMBOL LEGEND AND FOREST CONSERVATION DETAILS)

KEY / LANDSCAPE PERIMETER MAP
SCALE: 1"=600'

	OVERHEAD ELECTRIC WIRE AND POLE		UNDERGROUND GAS LINE
	EXISTING COLUMBIA GAS PIPELINE RIGHT-OF-WAY L 1117 / F 495, L 4915 / F 153, L 5080 / F 324, L 140 / F 353		FOREST CONSERVATION EASEMENT SIGN (SEE SHEET 11)
	EXISTING PERMANENT BGE EASEMENT (L 12341 F 57)		FOREST CONSERVATION EASEMENT (RETENTION)
	31,521 SF (0.72 AC) TO BE DEDICATED TO HOWARD COUNTY FOR THE USE OF PUBLIC RIGHT-OF-WAY		FOREST CONSERVATION EASEMENT (AFFORESTATION)
	EXISTING BALTIMORE GAS & ELECTRIC PIPE LINE RIGHT-OF-WAY L 287 / F 47, L 554 / F 49		EXISTING 50' COLUMBIA GAS PIPE LINE RIGHT-OF-WAY L 1117 / F 495, L 4915 / F 153, L 5070 / F 324
	EXIST. 20' INGRESS EGRESS EASEMENT L 5676 F 351 SERVING TAX MAP 23, PARCEL 414, OUTPARCEL 2		

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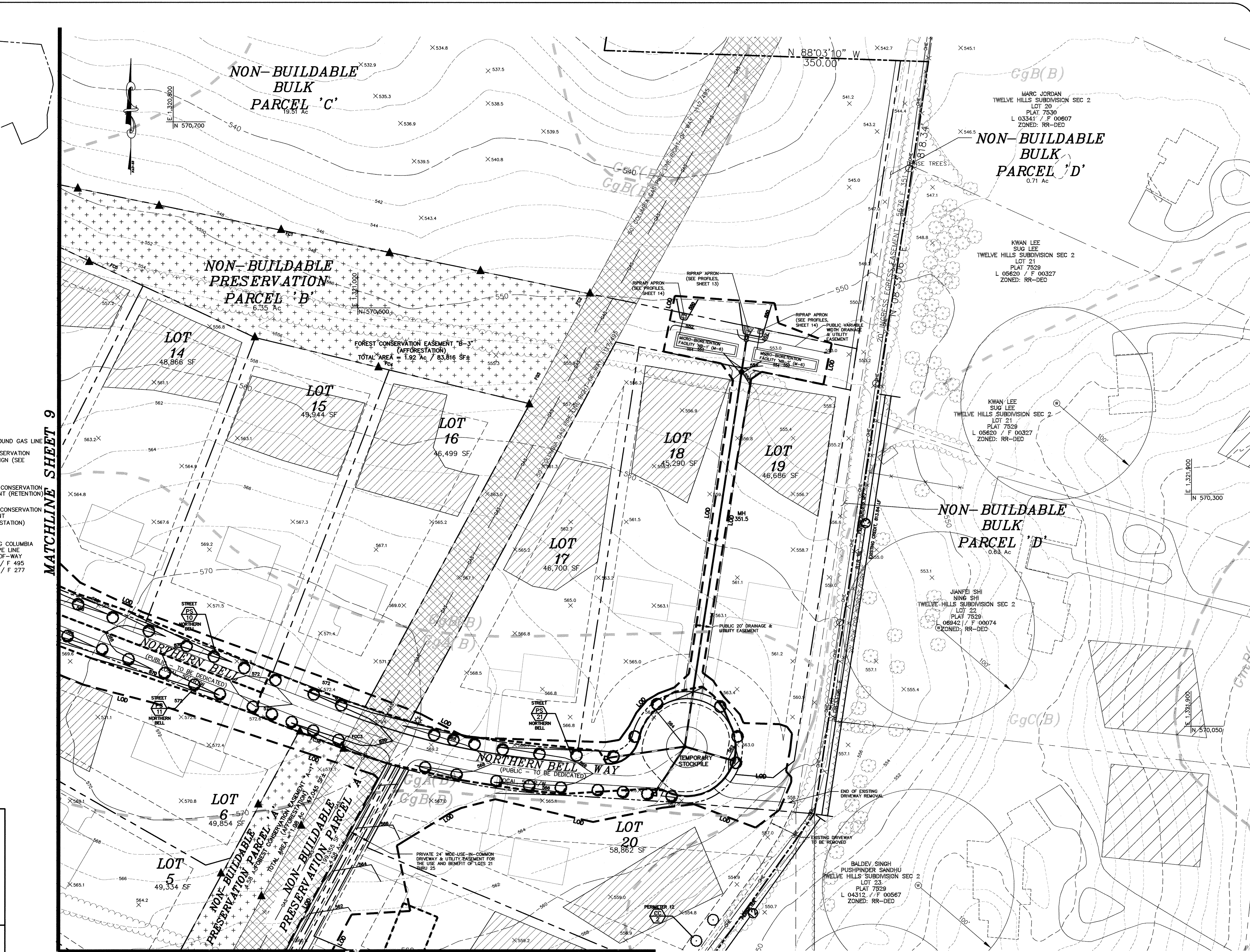
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SIGNATURE OF DEVELOPER: *R. JACOB HILMANT* 10/18/14
DATE: 10/18/14
PRINTED NAME OF DEVELOPER: R. JACOB HILMANT, PRESIDENT

APPROVED, DEPARTMENT OF PUBLIC WORKS
SIGNATURE: *Melvin* 10-27-2014
DATE: 10-27-2014
OFFICE: CHIEF BUREAU OF HIGHWAYS

APPROVED, DEPARTMENT OF PLANNING AND ZONING
SIGNATURE: *Chad Edrington* 11-17-14
DATE: 11-17-14
OFFICE: CHIEF, DEVELOPMENT ENGINEERING DIVISION

SIGNATURE: *Kate Shindler* 11-20-14
DATE: 11-20-14
OFFICE: CHIEF, DIVISION OF LAND DEVELOPMENT



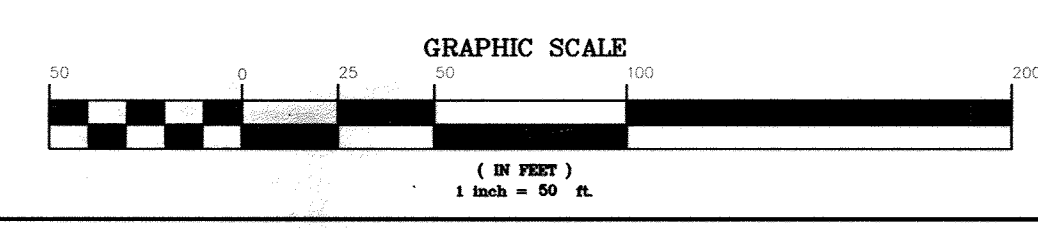
MATCHLINE SHEET 9

MATCHLINE SHEET 8

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SIGNATURE: *Jeffrey Sloman* 10/7/14
DATE: 10/7/14
NAME: JEFFREY SLOMAN, P.E.



SEE SHEET 11 FOR FOREST CONSERVATION EASEMENT LINE AND CURVE TABLES

SIGNATURE: *Masha Riz*
DNR QUALIFIED PROFESSIONAL

project	date	scale	approval
12-022	OCT 2014	1"=60'	MMB
illustration	engineering	JLS	JLS

no.	description	date
1	REVISED TOTAL SHEET NUMBER	JULY 2015

GREENBERRY, LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS A, B AND D, NON-BUILDABLE BULK PARCELS C, D, F AND G, AND BUILDABLE PARS. PARCEL E
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SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES													TOTAL	
	A (PERIMETER 1)	A (PERIMETER 12)	A (PERIMETER 13)	B (PERIMETER 2)	B (PERIMETER 3)	B (PERIMETER 4)	B (PERIMETER 5)	B (PERIMETER 6)	B (PERIMETER 7)	B (PERIMETER 8)	B (PERIMETER 9)	B (PERIMETER 10)	B (PERIMETER 11)		B (PERIMETER 16)
LANDSCAPE TYPE	A (PERIMETER 1)	A (PERIMETER 12)	A (PERIMETER 13)	B (PERIMETER 2)	B (PERIMETER 3)	B (PERIMETER 4)	B (PERIMETER 5)	B (PERIMETER 6)	B (PERIMETER 7)	B (PERIMETER 8)	B (PERIMETER 9)	B (PERIMETER 10)	B (PERIMETER 11)	B (PERIMETER 16)	B (PERIMETER 17)
LINEAR FEET OF PERIMETER	323 LF	818 LF	818 LF	364 LF	284.36 LF	174 LF	54 LF	203 LF	574 LF	91 LF	83 LF	408 LF	578 LF	75 LF	275 LF
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	YES, 323 LF	YES, 272 LF	YES, 818 LF	YES, 364 LF	YES, 284.36 LF	YES, 174 LF	YES, 54 LF	YES, 203 LF (PRESERVATION PARCEL)	YES, 199 LF (PRESERVATION PARCEL)	NO	NO	NO	YES, 128 LF (PRESERVATION PARCEL)	NO	NO
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	6 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	8 SHADE TREES 12 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	9 SHADE TREES 11 EVERGREEN TREES 0 SHRUBS	9 SHADE TREES 2 EVERGREEN TREES 0 SHRUBS	6 SHADE TREES 7 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	4 SHADE TREES 4 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	8 SHADE TREES 10 EVERGREEN TREES 0 SHRUBS	1 SHADE TREES 4 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 3 EVERGREEN TREES 0 SHRUBS	9 SHADE TREES 11 EVERGREEN TREES 0 SHRUBS	2 SHADE TREES 2 EVERGREEN TREES 0 SHRUBS	6 SHADE TREES 7 EVERGREEN TREES 0 SHRUBS

FOREST CONSERVATION EASEMENT

LINE TABLE

LINE	LENGTH (FT)	BEARING
FC1	661.15	S78°26'48"E
FC2	70.49	S28°30'38"W
FC3	64.26	S28°30'38"W
FC4	304.90	N76°30'38"W
FC5	324.13	N65°19'44"W
FC6	393.24	N80°31'06"W
FC7	45.05	N03°08'54"E
FC8	393.42	S80°31'06"E
FC9	80.60	S31°29'10"W
FC10	17.62	N62°10'53"W
FC11	37.14	S37°34'08"W
FC12	256.92	S01°07'26"W
FC13	81.18	S02°22'05"E
FC14	85.71	S07°18'40"E
FC15	87.71	S15°06'34"W
FC16	21.07	S71°32'26"E
FC17	12.61	S71°33'06"E
FC18	12.77	N38°03'43"E
FC19	10.64	N15°56'35"E
FC20	5.53	N23°31'51"E
FC21	23.75	N23°31'51"E
FC22	153.42	N03°02'56"E
FC23	323.62	N11°16'04"E
FC24	27.37	S80°31'06"E
FC25	45.05	N09°28'54"E
FC26	69.87	N80°31'06"W
FC27	47.00	S06°54'34"W
FC28	202.68	S00°18'19"E
FC29	191.86	S34°41'19"E
FC30	19.74	N56°55'17"E
FC31	107.78	N49°29'40"E
FC32	36.44	N55°03'56"W
FC33	73.16	N05°51'56"W
FC34	101.45	N35°33'26"E
FC35	250.36	N67°23'16"W
FC36	68.82	S68°11'16"W
FC37	939.20	N28°30'38"W
FC38	40.58	S68°58'08"E
FC39	NOT USED	
FC40	945.83	S28°30'38"W
FC41	50.00	N61°29'22"W
FC42	117.62	S28°30'38"W
FC43	239.86	S61°29'22"E
FC44	40.43	S61°29'22"E
FC45	27.14	N38°43'00"E
FC46	330.30	N61°29'22"W
FC47	50.00	N61°29'22"W
FC48	945.83	S28°30'38"W

STREET TREE CALCULATIONS

STREET NAME	PERIMETER LENGTH	PLANTING REQUIREMENT	TREES REQUIRED	TREES PROVIDED	QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
BEE FRANCES WAY	1,734 LF.	1 TREE / 40 LF.	44	44	4	○	FAGUS GRANDIFOLIA	AMERICAN BEECH	2 1/2" - 3" CAL.
CATHERINE CLOSE ROAD	833 LF.	1 TREE / 40 LF.	21	21	21	○	CERCIS CANADENSIS	EASTERN REDBUD	2 1/2" - 3" CAL.
NORTHERN BELL	1,687 LF.	1 TREE / 40 LF.	43	43	28	○	CERCIS CANADENSIS	EASTERN REDBUD	2 1/2" - 3" CAL.
LINDEN CHURCH ROAD WIDENING	939 LF.	1 TREE / 40 LF.	24	24	24	○	ILEX OPACA	AMERICAN HOLLY	5' - 6' HT.
TOTAL			132	132	32				

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
130	○	PRUNUS SARGENTII	SARGENT CHERRY	2 1/2" - 3" CAL.
2	○	CERCIS CANADENSIS	EASTERN REDBUD	2 1/2" - 3" CAL.
TOTAL				132 STREET TREES

PERIMETER TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
4	○	FAGUS GRANDIFOLIA	AMERICAN BEECH	2 1/2" - 3" CAL.
28	○	CERCIS CANADENSIS	EASTERN REDBUD	2 1/2" - 3" CAL.
24	○	ILEX OPACA	AMERICAN HOLLY	5' - 6' HT.

SEE SHEET 14 FOR MICRO-BIORETENTION FACILITY (M-6) PLANTINGS

FOREST CONSERVATION DATA

FOREST CONSERVATION WORKSHEET

NET TRACT AREA: 133.64

A. Total tract area... 133.64

B. Area to remain in agricultural production (Pres. Parcels A, B and E)... 80.58

C. Area of Future Development (Non-Buildable Bulk Parcels C and D)... 23.55

D. Net tract area (Area of Lots 1-25, Road right-of-way and right-of-way dedication)... 30.01

LAND USE CATEGORY

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

AREA FOR DAIRY/POULTRY USE

1. 0 0 0 0

2. 0 0 0 0

3. 0 0 0 0

4. 0 0 0 0

5. 20% x D = 6.00

6. 25% x D = 7.50

EXISTING FOREST COVER

G. Existing forest cover (excluding floodplain)... 0.65

H. Area of forest above afforestation threshold... 0.00

I. Area of forest above conservation threshold... 0.00

J. Break even point... 0.00

K. Forest retention above threshold with no mitigation... 0.00

L. Forest retention above threshold with mitigation... 0.00

M. Total area of forest to be retained... 0.65

N. Total area of forest to be released... 0.00

PROPOSED FOREST COVER

O. Retention for clearing below conservation threshold... 0.00

P. Retention for clearing above conservation threshold... 0.00

Q. Credit for retention above conservation threshold... 0.00

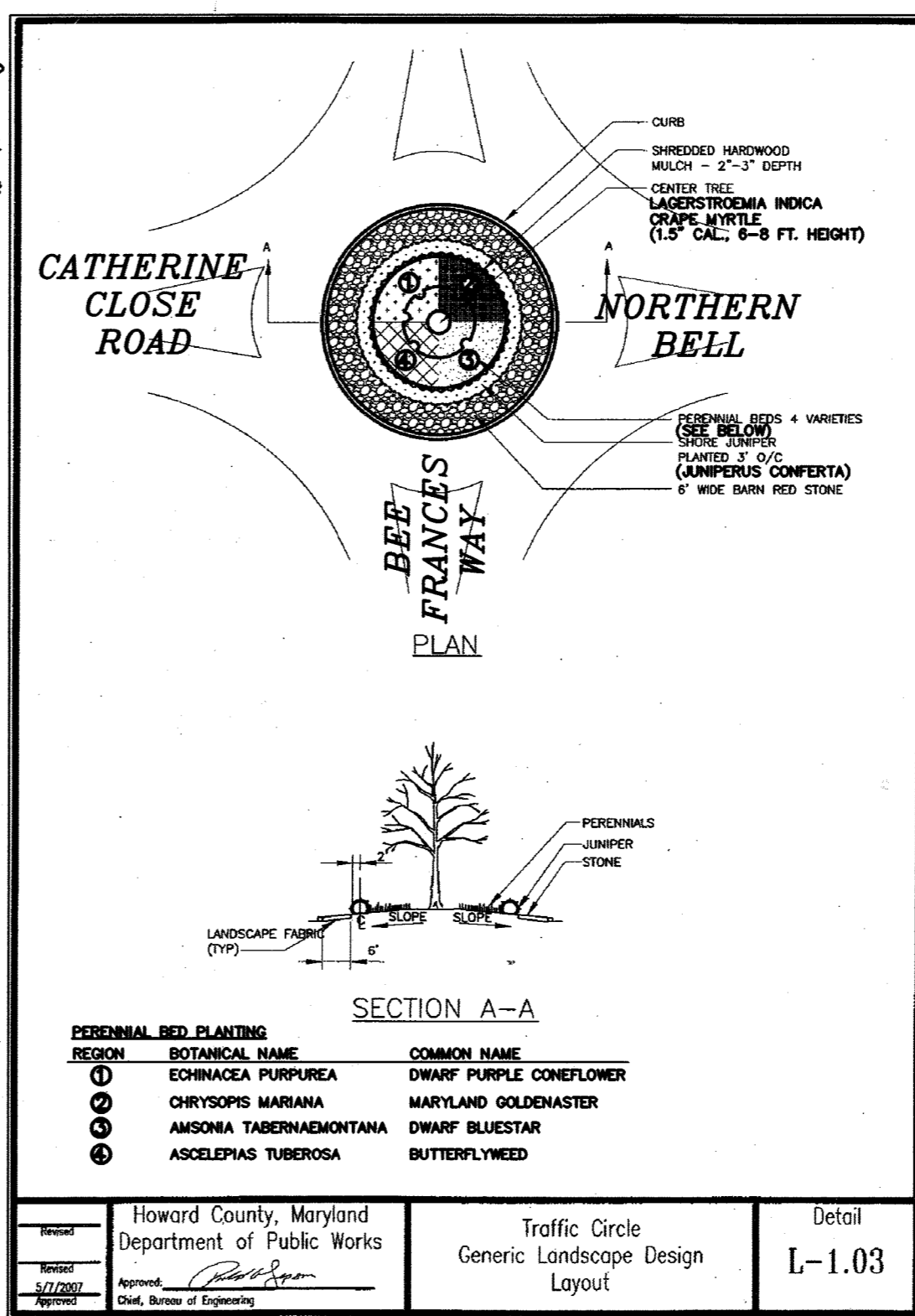
R. Total reforestation required... 1.30

S. Total afforestation required... 5.37

T. Total reforestation and afforestation required... 6.67

U. Total reforestation and afforestation provided... 6.67

1. Forest conservation for this project is in compliance with "Option A" of Appendix L. "Guidelines for Rural Cluster Subdivisions" outlined in the Forest Conservation Manual.
2. The forest conservation requirement for Non-Buildable Bulk Parcels C & D must be addressed at the time of subdivision of this parcel.
3. Forest Conservation Easement B-2 is 0.90 Acre retention and at a 2:1 ratio, satisfies 0.45 Acre of reforestation / afforestation obligations.
4. The 0.24 reforestation / afforestation obligation is being met by providing 5.78 Acre of afforestation within Forest Conservation Easements A-1 (1.09 Acre), A-2 (0.91 Acre), B-1 (0.99 Acre) and B-2 (1.80 Acre). A credit of 0.45 Acre is provided through the retention of 0.90 acres of existing forest within Forest Conservation Easement B-2.



PERMANENT RED PLANTING

REGION	BOTANICAL NAME	COMMON NAME
1	ECHINACEA PURPUREA	DIARY PURPLE CONEFLOWER
2	CHRYSOPS MARIANA	MARYLAND GOLDMASTER
3	AMSONIA TABERNAMONTANA	DIARY BLUESTAR
4	ASCLEPIAS TUBEROSA	BUTTERFLYWEED

AFFORESTATION PLANT LIST (FCE A-1 - 1.08 Ac)

QTY.	SPECIES	SHADE	MOIST.	WET.	MIN.O.C.	SIZE & SPACING	REMARKS
10	Acer rubrum	VT	D-W	FAC	20'	CONT/B & B 2" CALIPER	
20	Lindera benzoin	T	M	FACW-	20'	CONT/B & B 3'-5" HEIGHT	
20	Liquidambar styraciflua	I	M-W	FAC	20'	CONT/B & B 2" CALIPER	
20	Liriodendron tulipifera	MT	D-M	FAC	20'	CONT/B & B 2" CALIPER	
19	Nyssa sylvatica	T	M-W	FAC	20'	CONT/B & B 2" CALIPER	
19	Quercus alba	MT	D-M	FACU	20'	CONT/B & B 2" CALIPER	
19	Quercus alba	MT	D-M	FACU	20'	CONT/B & B 2" CALIPER	
TOTAL							108 - 1" CALIPER TREES

NOTE: WHIPS OR SEEDLINGS MAY BE SUBSTITUTED FOR THE 1" CALIPER OR 3" - 5". IF WHIPS OR SEEDLINGS ARE TO BE USED, MULTIPLY THE QUANTITIES BY 1.75 TO DETERMINE THE NUMBER OF TREES REQUIRED.

AFFORESTATION PLANT LIST (FCE B-1 - 1.97 Ac)

QTY.	SPECIES	SHADE	MOIST.	WET.	MIN.O.C.	SIZE & SPACING	REMARKS
82	Acer rubrum	VT	D-W	FAC	15'	CONT/B & B 1" CALIPER	
46	Lindera benzoin	T	M	FACW-	15'	CONT/B & B 3'-5" HEIGHT	
61	Liquidambar styraciflua	I	M-W	FAC	15'	CONT/B & B 1" CALIPER	
73	Liriodendron tulipifera	MT	D-M	FAC	15'	CONT/B & B 1" CALIPER	
73	Nyssa sylvatica	T	M-W	FAC	15'	CONT/B & B 1" CALIPER	
59	Quercus alba	MT	D-M	FACU	15'	CONT/B & B 1" CALIPER	
59	Quercus alba	MT	D-M	FACU	15'	CONT/B & B 1" CALIPER	
TOTAL							394 - 1" CALIPER TREES

NOTE: WHIPS OR SEEDLINGS MAY BE SUBSTITUTED FOR THE 1" CALIPER OR 3" - 5". IF WHIPS OR SEEDLINGS ARE TO BE USED, MULTIPLY THE QUANTITIES BY 1.75 TO DETERMINE THE NUMBER OF TREES REQUIRED.

AFFORESTATION PLANT LIST (FCE B-2 - 0.90 Ac)

QTY.	SPECIES	SHADE	MOIST.	WET.	MIN.O.C.	SIZE & SPACING	REMARKS
75	Acer rubrum	VT	D-W	FAC	15'	CONT/B & B 1" CALIPER	
44	Lindera benzoin	T	M	FACW-	15'	CONT/B & B 3'-5" HEIGHT	
69	Liquidambar styraciflua	I	M-W	FAC	15'	CONT/B & B 1" CALIPER	
64	Liriodendron tulipifera	MT	D-M	FAC	15'	CONT/B & B 1" CALIPER	
64	Nyssa sylvatica	T	M-W	FAC	15'	CONT/B & B 1" CALIPER	
64	Quercus alba	MT	D-M	FACU	15'	CONT/B & B 1" CALIPER	
64	Quercus alba	MT	D-M	FACU	15'	CONT/B & B 1" CALIPER	
TOTAL							384 - 1" CALIPER TREES

NOTE: WHIPS OR SEEDLINGS MAY BE SUBSTITUTED FOR THE 1" CALIPER OR 3" - 5". IF WHIPS OR SEEDLINGS ARE TO BE USED, MULTIPLY THE QUANTITIES BY 1.75 TO DETERMINE THE NUMBER OF TREES REQUIRED.

PLANTING SPECIFICATIONS AND NOTES

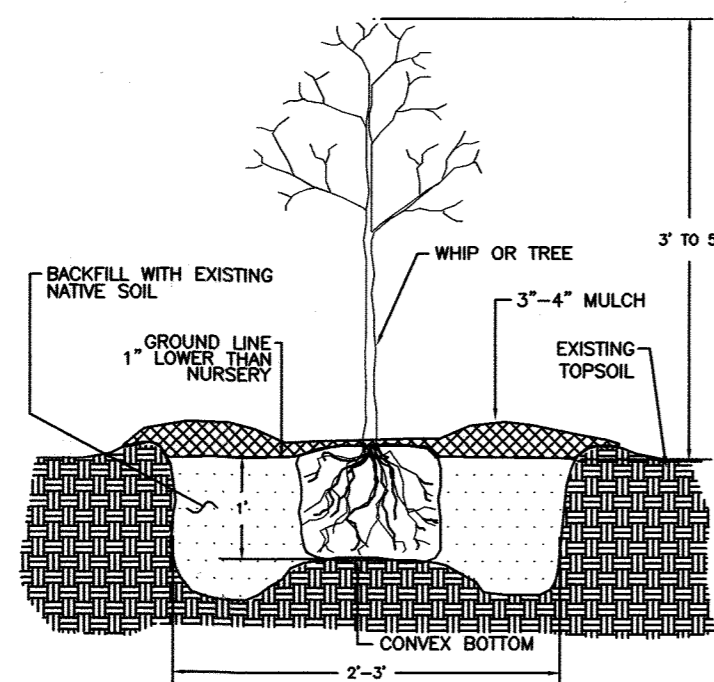
1. PROTECTION FENCING AND SILT FENCES FOR SEDIMENT AND EROSION CONTROL ARE TO BE INSTALLED AS A FIRST ORDER OF BUSINESS. SEE PLAN FOR LOCATIONS.
2. DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT. AS SHOWN ON THE DETAIL VIEW, A PLANTING FIELD OF RADIUS = 5 X DIAMETER OF THE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

1. CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED.
2. SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
3. FOR BALL AND BURLAP STOCK, PLANT TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL, THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
4. FOR TREES PLANTED IN THE AFFORESTATION AREA, CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) TO FOUR (4), PER SPECIES, OVER THE ENTIRE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED ON PLANT LIST.
5. AVOID PLANTING IN A STRAIGHT GRID PATTERN. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED ON PLANT LISTS TO OBTAIN A MORE NATURAL APPEARANCE.
6. NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE WELL DRAINED NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONITOR AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.

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

1. AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
 - A. TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS;
 - B. INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
 - C. MAKE ALL NECESSARY ADJUSTMENTS;
 - D. ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.
2. CONSTRUCTION MONITORING
3. THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.
4. ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIATED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL AS TO THE APPROPRIATE LIMITS OF WORK.
5. THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS, ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

STANDARD SPECIMEN TREE NON-DISTURBANCE NOTE: THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, SOIL COMPACTION OR EXCAVATION, INTRODUCTION OF TOXIC CHEMICALS OR OTHER DISTURBANCES DETRIMENTAL TO THE LIVE SPECIMEN TREES OR CRITICAL ROOT ZONES FOR THESE TREES EXCEPT AS PERMITTED BY HOWARD COUNTY



TREE PLANTING DETAIL



LANDSCAPE NOTES

1. NO CLEARING OF EXISTING VEGETATION IS PERMITTED WITHIN THE LANDSCAPE EDGE FOR WHICH CREDIT IS BEING TAKEN; HOWEVER, LANDSCAPE MAINTENANCE IS AUTHORIZED.
2. THE OWNER, TENANT AND / OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, BERMS, FENCES, AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
3. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWIT LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
4. SHOULD ANY TREE DESIGNATED FOR PRESERVATION, FOR WHICH CREDIT IS GIVEN, BE REMOVED OR DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE LANDSCAPE MANUAL.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT PROGRAM

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

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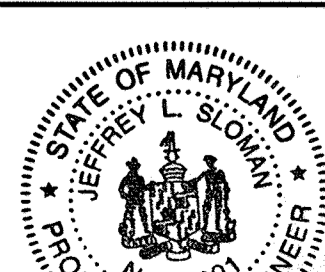
DEVELOPER
GREENBERRY, INC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

OWNER
ROBERT B. WILLIAMS
JOANNA K. BENEDICT
BARBARA B. CUSACK
WILLIAM I. SLADE, JR.
C/O MILDENBERG, BOENDER AND ASSOC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

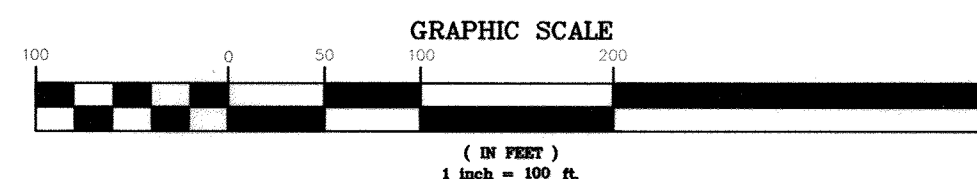
APPROVED-DEPARTMENT OF PUBLIC WORKS
[Signature] 10-27-2014
CHIEF BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 11-17-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
[Signature] 11-20-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

THERE IS NO AS-BUILT
INFORMATION PROVIDED
ON THIS SHEET



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME AND THAT I AM
A DULY LICENSED PROFESSIONAL ENGINEER
UNDER THE LAWS OF THE STATE OF MARYLAND,
LICENSE NO. 40091, EXP DATE 2/13/15.
[Signature] 10/7/14
JEFFREY SLOVAN, P.E. DATE



Project	date
12-022	OCT 2014
Illustration	engineering
JLS	JLS
scale	1"=100'
approval	MMM

no.	description	revisions	date
1	REVISED TOTAL SHEET NUMBER		JULY 2015

GREENBERRY, LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS 'A', 'B' AND 'C', AND BUILDABLE PARS. PARCEL 'D'
TAX MAP 28, PARCEL 48
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
STORM DRAIN DRAINAGE AREA MAP

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Fax

AS-BUILT

PLANT SPECIES	SEEDING RATE (LB/AC)	SEEDING DEPTH (INCHES)	RECOMMENDED SEEDING DATED BY PLANT HARDINESS ZONE			
			5B AND 6A	6B	7A AND 7B	
COOL SEASON GRASSES						
ANNUAL Ryegrass (Lolium perenne ssp. multiflorum)	40	1.0	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
BARLEY (Hordeum vulgare)	96	2.2	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
OATS (Avena sativa)	72	1.7	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
WHEAT (Triticum aestivum)	120	2.8	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
SCARLET FESCUE (Scaevola italica)	112	2.8	0.5	MAR 15 TO MAY 31; AUG 1 TO OCT 31	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO DEC 15
WARM SEASON GRASSES						
Foxtail Millet (Setaria italica)	30	0.7	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14
Pearl Millet (Pennisetum glaucum)	20	0.5	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14

(B-4-5) STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOIL WITH PERMANENT VEGETATION.
PURPOSE
TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER OF DISTURBED CONDITIONS WHERE PRACTICE APPLIES
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

- CRITERIA**
1. GENERAL USE
 - A. SELECT ONE OR MORE OF THE SPECIES OF MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED IN THE SITE CONDITION OR PURPOSE.
 - B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DINES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD GUIDE, SECTION 342-CRITICAL AREA PLANTING.
 - C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
 - D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FROM FERTILIZED (40-0-01) AT 3 1/2 POUNDS PER 1000 S.F. (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 DESIRE INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
 - B. SELECT ONE OR MORE SPECIES OF MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY.
 - C. MIXTURES MUST BE BLENDED.
 - I. KENTUCKY BLUEGRASS: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 S.F. 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/PERENIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 S.F. 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 MIXTURE: FOR USE IN DROUGHT AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 65 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 PERCENT PER 1000 S.F. 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. MATURE MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATES 1 1/2 TO 3 POUNDS PER 1000 S.F.
 - D. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURE
 - WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDNESS ZONES: 5B,6A)
 - CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 6B)
 - SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 7A, 7B)
 - E. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES. LEVEL TO AND GRASS SEEDS. REMOVE STONE AND DEBRIS OVER 1.5 INCHES IN DIAMETER. THE RESULTING SEEDING MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASS WILL POSE NO DIFFICULTY WITH ADEQUATE WATER FOR PLANT GROWTH.
 - F. SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH. 0.5 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 SEASON, OR ON ADVERSE SITES.

PERMANENT 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 THEREOF.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, 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 AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SDC-B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
6. SITE ANALYSIS:
 - TOTAL AREA OF SITE: 133.64 ACRES
 - AREA TO BE ROOFED OR PAVED: 1.91 ACRES (INCL. B/W)
 - AREA TO BE VEGETATIVELY STABILIZED: 7.66 ACRES (INCL. B/W)
 - TOTAL OUTF.: 2,800 CU. YDS.
 - TOTAL FILL: 3,800 CU. YDS.
 - OFFSITE WASTE/BORROW AREA LOCATION: TBD
7. ANY QUANTITIES OF MATERIALS PERMITTED PURPOSES ONLY. CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITIES MEASUREMENTS.
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE INSTALLED UPON COMPLETION OF INSTALLATION OF THE APPROVED PLAN OR AS INDICATED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCESSING WITH CONSTRUCTION.
11. SHALL BE BACK FILLED AND STABILIZED BY THE END OF EACH WORKING DAY, WHICHEVER IS SHORTER. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCESSING WITH CONSTRUCTION.
12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM MAXIMUM OF 20 AC. PER GRADING UNIT) AT A TIME WORK IS PROCEEDED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITIES, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

HARDINESS ZONE (FROM FIGURE B.3): 6b		FERTILIZER RATE (10-20-20)		LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	
1	TALL FESCUE	100	MARCH 1-MAY 15 AUG 15-OCT 15	2 TONS / ACRE (90 LBS / 1000 SF)

(B-4-4) STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOIL WITH VEGETATION FOR UP TO 6 MONTHS.
PURPOSE
TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED 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 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 FORTILIZER 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-4-4.3.A.1, AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

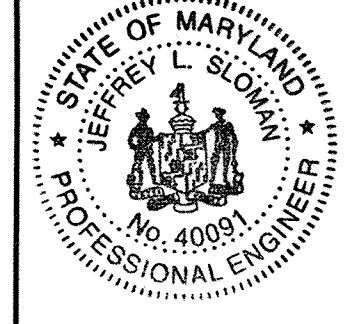
SEQUENCE OF CONSTRUCTION #1

1. OBTAIN GRADING PERMIT (1 DAY).
2. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT LOCATION SHOWN (1 DAY).
3. PERFORM CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS (5 DAYS).
4. INSTALL PERIMETER CONTROLS: SUPER SILT FENCES, CLEAN WATER DIVERSION DIKES AND PIPES (7 DAYS).
5. CONSTRUCT SEDIMENT CONTROL TRAPS (5 DAYS).
6. CLEAR AND GRUB SITE (2 DAYS).
7. BRING SITE TO GRADE INDICATED (30 DAYS).
8. CONSTRUCT STORM DRAINAGE SYSTEM (5 DAYS).
9. INSTALL CHECK DAMS AND INLET PROTECTIONS (5 DAYS).
10. CONSTRUCT NEW CURBING AND BASE MATERIALS OF NEW ROADWAYS IN THE FOLLOWING ORDER: 1) BEE FRANCES WAY, 2) NORTHERN BELL WAY, 3) CATHERINE CLOSE ROAD (14 DAYS). THE RUNOFF SHOULD BE DIRECTED TO THE SEDIMENT TRAPS UNTIL THE ROADS ARE PAVED.
11. PAVE ROADWAYS (5 DAYS).
12. SEED AND MULCH ALL REMAINING DISTURBED AREAS (30 DAYS).
13. CONSTRUCT STORMWATER MANAGEMENT FACILITIES (7 DAYS).
14. UPON THE APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL FEATURES (2 DAYS).
15. STABILIZE THE AREAS THAT HAVE BEEN DISTURBED BY REMOVAL OF SEDIMENT CONTROL FEATURES (2 DAYS).

SEQUENCE OF CONSTRUCTION #3

1. REQUEST PRE-CONSTRUCTION MEETING IF NECESSARY AND OBTAIN GRADING PERMIT UNLESS CONSTRUCTION CONCURRENTLY BEGINS (1 DAY).
2. CONSTRUCT AREA TO GRADES INDICATED (1 DAY).
3. STABILIZE BASE MATERIALS OF NEW ROADWAYS (3 DAYS).
4. SEED AND MULCH ALL REMAINING DISTURBED AREAS (1 DAY).
5. PAVE ROADWAYS (1 DAY).

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.



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ENGINEER'S CERTIFICATE
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.
SIGNATURE OF ENGINEER: Jeffrey P. Sloman
DATE: 10/7/14

DEVELOPERS CERTIFICATE
I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.
SIGNATURE OF DEVELOPER: R. Jacob H. Kumat, President
DATE: 10/8/14

APPROVED: DEPARTMENT OF PUBLIC WORKS
SIGNATURE: [Signature]
DATE: 10-27-2014

APPROVED: DEPARTMENT OF PLANNING AND ZONING
SIGNATURE: [Signature]
DATE: 11-17-14

APPROVED: DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION
SIGNATURE: [Signature]
DATE: 11-20-14

(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**
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 RIPPER MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED OVER. THE QUALITY OF SEED BEDS 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 USED WHEN THE GROUND THAW. SEEDING MUST BE VERIFIED TYPE OF SEED AND SEEDING RATE.
 - 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 KILL BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - d. SOIL 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. 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 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.
 - d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF SOIL TEST.
 - e. MAKE SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. MAKE 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. WHERE SITE CONDIION IS SUCH THAT SOIL IS NOT PERMITTED NORMAL SEEDBED PREPARATION, TRACK SLOES 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 FRABLE. 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.
 - e. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
4. TOPSOIL SPECIFICATIONS: TOPSOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA: TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER EQUIPMENT IS REQUIRED AS RECOMMENDED BY A 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 CONCRETE, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/2 INCHES IN DIAMETER. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, PONSOP HYV, THISTLE, OR OTHERS AS SPECIFIED.

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 OXIDE (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-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
 - I. 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-4.4 REGARDING THE QUALITY OF SEED. SEEDS 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 USED WHEN THE GROUND THAW. SEEDING MUST BE VERIFIED TYPE OF SEED AND SEEDING RATE.
 - 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 KILL BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - d. SOIL 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.
 - II. 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.
 - II. PERMANENT SEEDING: SEE TABLE B.3.
 - I. 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.
 - III. DRILL OR CULT/PACKER 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. SEEDS MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - IV. 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; P₂O₅(PHOSPHOROUS), 200 POUNDS PER ACRE; K₂O (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 LIME HYDROSEEDING UNLESS APPROVED BY THE APPROVAL AUTHORITY.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

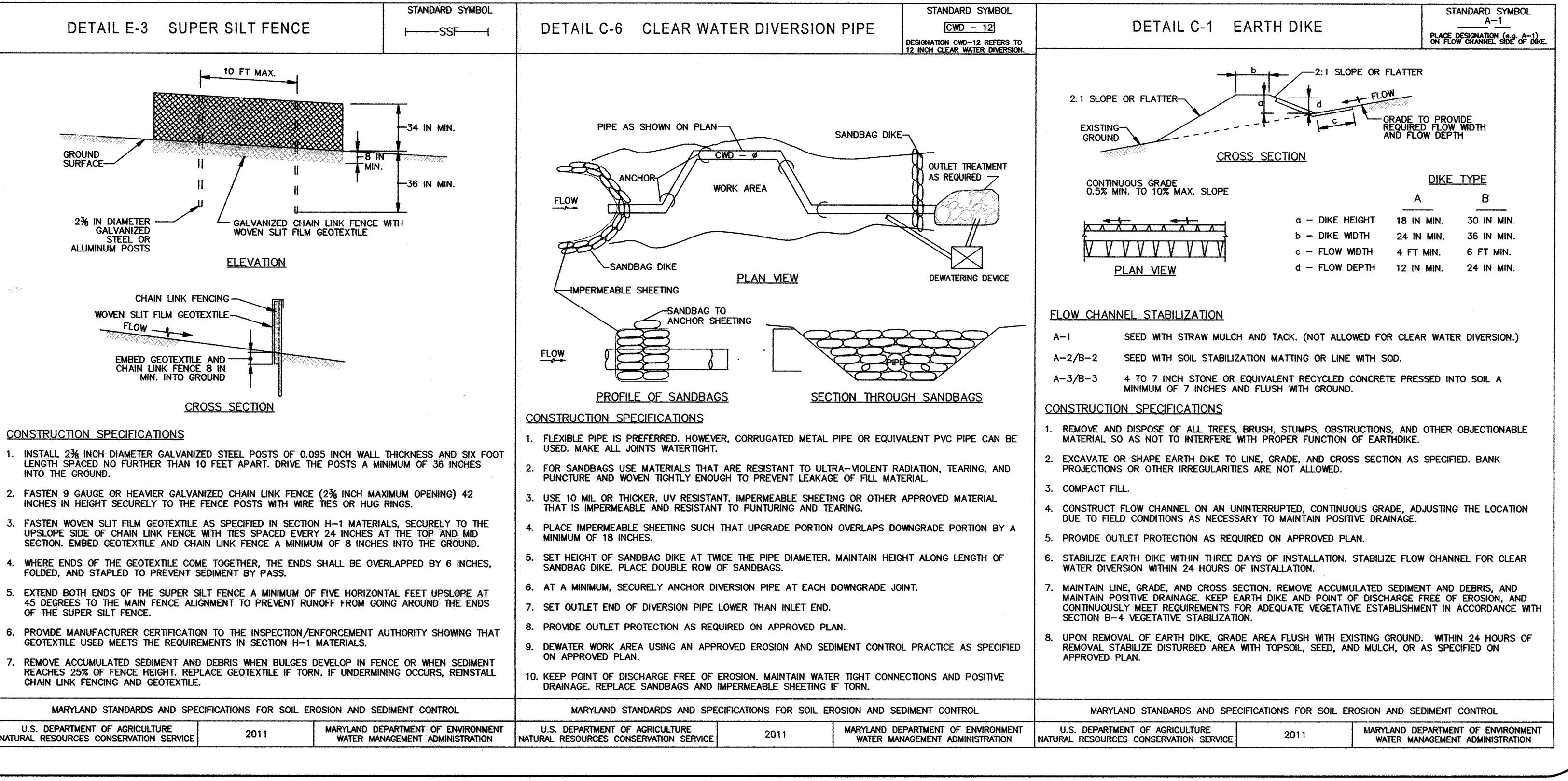
B. MULCHING

- 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, MOLLY, CANKED, 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 UNIFORM 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 GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDINGS.
 - IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
- c. 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.

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 1000 GALLONS OF WATER.
 - III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK, AR OR OTHER APPROVED EQUIPMENT 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.
 - IV. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
- b. LIGHTWEIGHT PLASTIC NETTING MAY BE APPLIED TO ANCHOR THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET



STONE/RIPRAP OUTLET SEDIMENT TRAP II (TRAP #1)	
PROPOSED DRAINAGE AREA	0.81 Ac
EXISTING DRAINAGE AREA	N/A
WET STORAGE REQUIRED	1458 CF
WET STORAGE PROVIDED	1496 CF
DRY STORAGE REQUIRED	1458 CF
DRY STORAGE PROVIDED	1463 CF
EXISTING GROUND ELEVATION AT OUTLET	548.25
TRAP BOTTOM ELEVATION	546.00
TRAP BOTTOM DIMENSIONS	36'x15'
WEIR CREST (DRY STORAGE ELEVATION)	549.00
OUTLET (WET STORAGE) ELEVATION	548.25
CLEANOUT ELEVATION	547.12
EMBANKMENT HEIGHT ELEV.	550.00
SIDE SLOPE	2:1 (H/V)
WEIR LENGTH	2'
DRY STORAGE ZONE (ELEV.)	548.25 - 549.00
WET STORAGE ZONE (ELEV.)	546.00 - 548.25

STONE/RIPRAP OUTLET SEDIMENT TRAP II (TRAP #2)	
PROPOSED DRAINAGE AREA	1.36Ac
EXISTING DRAINAGE AREA	N/A
WET STORAGE REQUIRED	2488 CF
WET STORAGE PROVIDED	2777 CF
DRY STORAGE REQUIRED	2488 CF
DRY STORAGE PROVIDED	2575 CF
EXISTING GROUND ELEVATION AT OUTLET	548.25
TRAP BOTTOM ELEVATION	546.00
TRAP BOTTOM DIMENSIONS	53'x20'
WEIR CREST (DRY STORAGE ELEVATION)	549.00
OUTLET (WET STORAGE) ELEVATION	548.25
CLEANOUT ELEVATION	547.12
EMBANKMENT HEIGHT ELEV.	550.00
SIDE SLOPE	2:1 (H/V)
WEIR LENGTH	2'
DRY STORAGE ZONE (ELEV.)	548.25 - 549.00
WET STORAGE ZONE (ELEV.)	546.00 - 548.25

STONE/RIPRAP OUTLET SEDIMENT TRAP II (TRAP #3)	
PROPOSED DRAINAGE AREA	0.48 Ac
EXISTING DRAINAGE AREA	N/A
WET STORAGE REQUIRED	964 CF
WET STORAGE PROVIDED	978 CF
DRY STORAGE REQUIRED	964 CF
DRY STORAGE PROVIDED	873 CF
EXISTING GROUND ELEVATION AT OUTLET	544.40
TRAP BOTTOM ELEVATION	542.00
TRAP BOTTOM DIMENSIONS	30'x10'
WEIR CREST (DRY STORAGE ELEVATION)	545.00
OUTLET (WET STORAGE) ELEVATION	544.50
CLEANOUT ELEVATION	543.25
EMBANKMENT HEIGHT ELEV.	546.00
SIDE SLOPE	2:1 (H/V)
WEIR LENGTH	2'
DRY STORAGE ZONE (ELEV.)	542.00 - 543.25
WET STORAGE ZONE (ELEV.)	543.25 - 545.00

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 (410)997-0296

ENGINEER'S CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

Signature of Engineer: *Jeffrey S. Slovan* 10/7/14
 DATE
 JEFFREY SLOVAN, PE
 PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE
 I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

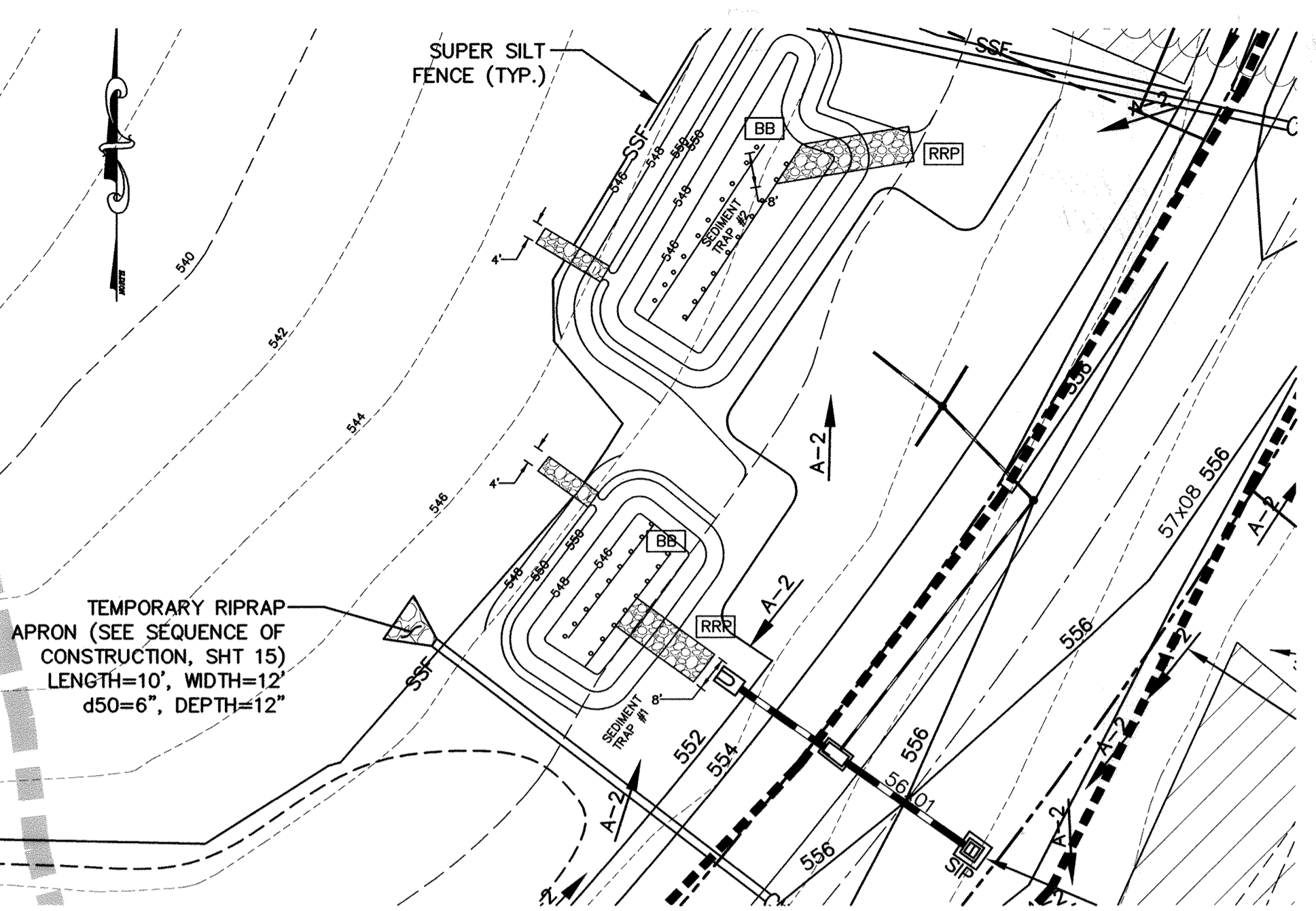
Signature of Developer: *R. James Hikmat* 10/8/14
 DATE
 R. JAMES HIKMAT, PRESIDENT
 PRINTED NAME OF DEVELOPER

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

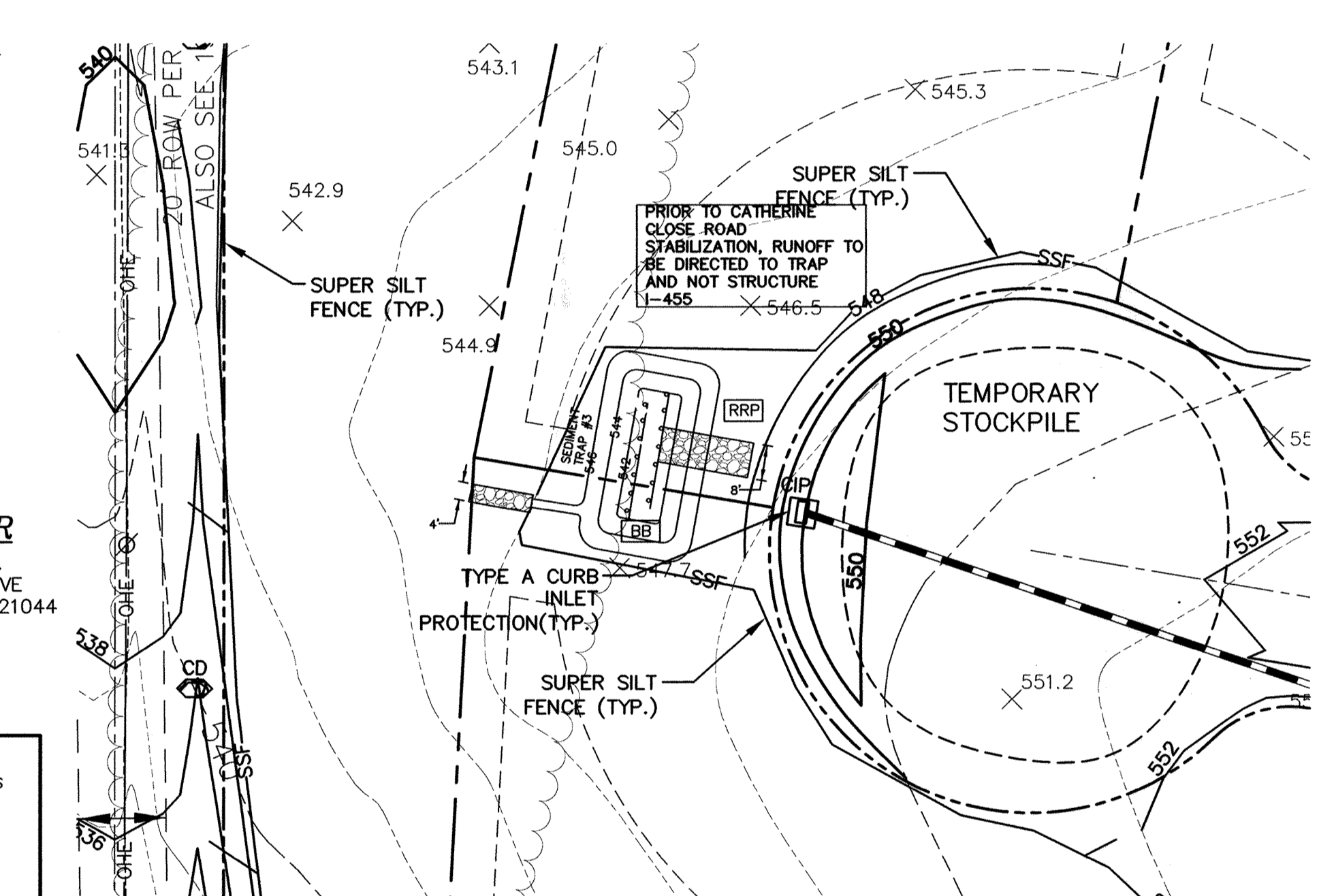
Signature of Chief Bureau of Highways: *John R. Robertson* 10/10/14
 DATE
 APPROVED-DEPARTMENT OF PUBLIC WORKS
 JOHN R. ROBERTSON
 CHIEF BUREAU OF HIGHWAYS

Signature of Chief Development Engineering Division: *Chel Egan* 11-17-14
 DATE
 APPROVED- DEPARTMENT OF PLANNING AND ZONING
 CHEL EGAN
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Signature of Chief Division of Land Development: *Kevin D. Owen* 11-20-14
 DATE
 KEVIN D. OWEN
 CHIEF, DIVISION OF LAND DEVELOPMENT

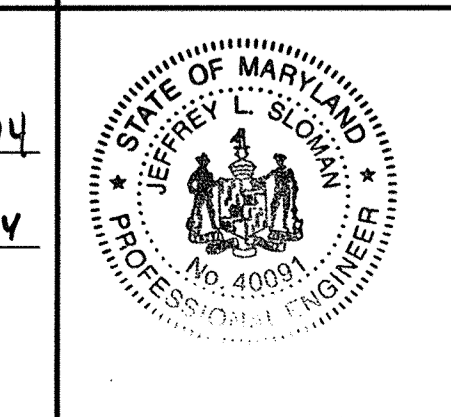


DETAIL - SEDIMENT TRAPS 1 AND 2
 SCALE: 1"=30'



DETAIL - SEDIMENT TRAP 3
 SCALE: 1"=30'

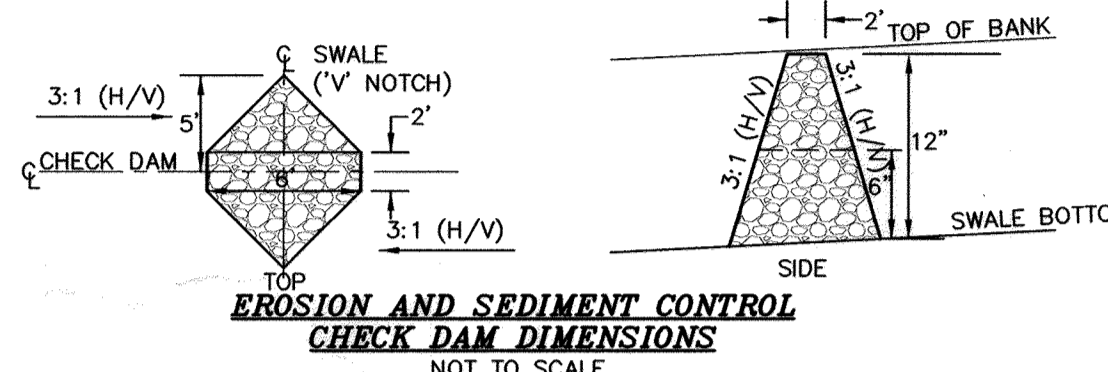
WHERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET



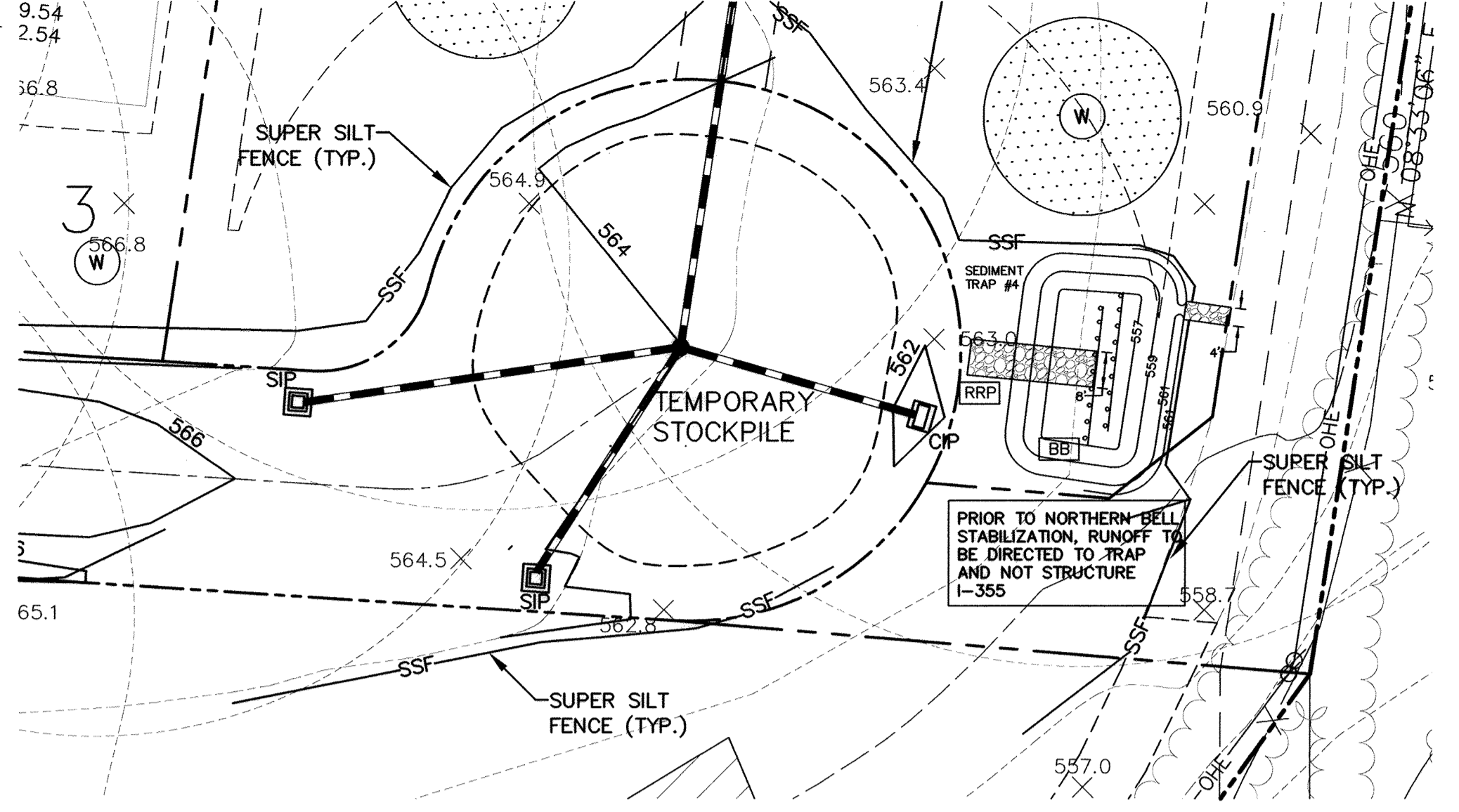
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.

Signature: *Jeffrey S. Slovan* 10/7/14
 DATE
 JEFFREY SLOVAN, P.E.

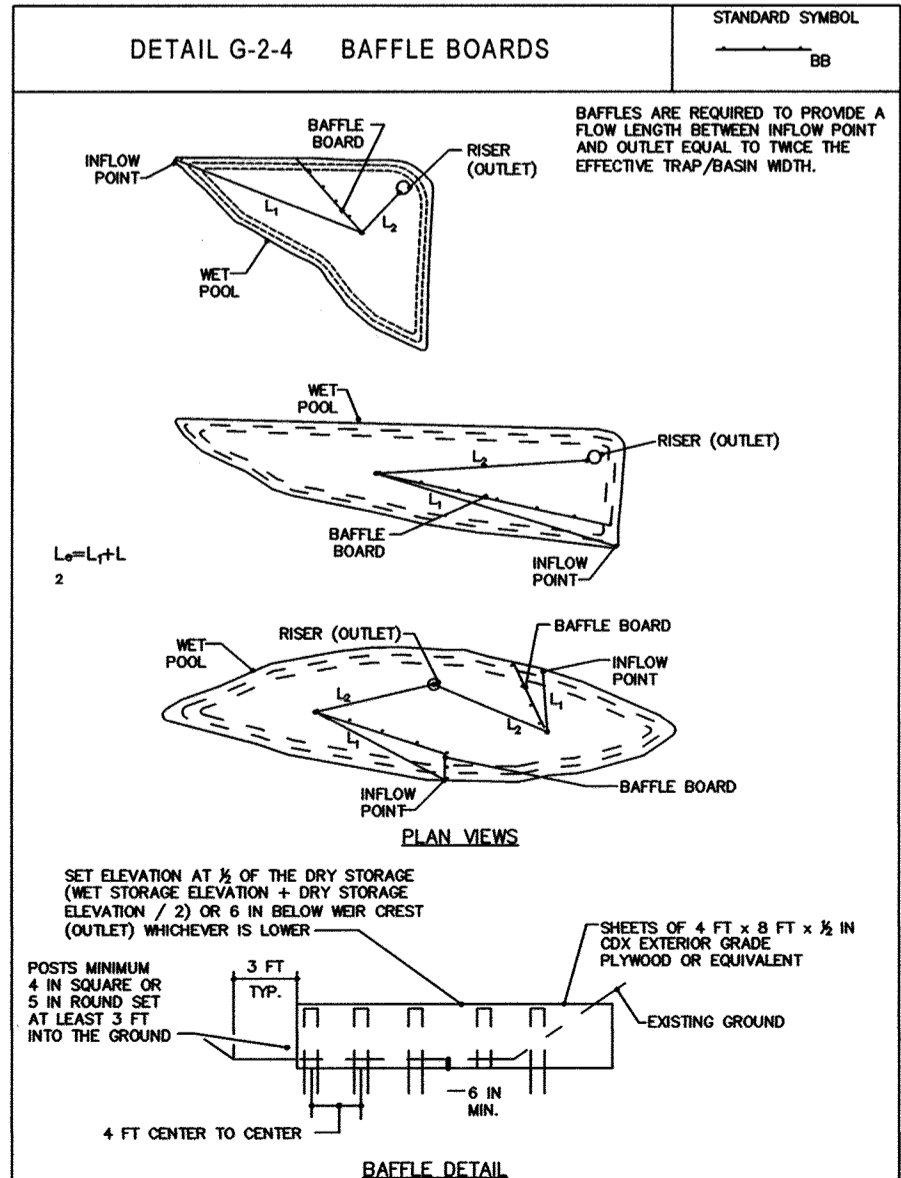
STONE/RIPRAP OUTLET SEDIMENT TRAP II (TRAP #4)	
PROPOSED DRAINAGE AREA	0.43 Ac
EXISTING DRAINAGE AREA	N/A
WET STORAGE REQUIRED	1530 CF
WET STORAGE PROVIDED	1619 CF
DRY STORAGE REQUIRED	1530 CF
DRY STORAGE PROVIDED	1638 CF
EXISTING GROUND ELEVATION AT OUTLET	559.20
TRAP BOTTOM ELEVATION	557.00
TRAP BOTTOM DIMENSIONS	34'x18'
WEIR CREST (DRY STORAGE ELEVATION)	560.00
OUTLET (WET STORAGE) ELEVATION	559.20
CLEANOUT ELEVATION	558.10
EMBANKMENT HEIGHT ELEV.	561.00
SIDE SLOPE	2:1 (H/V)
WEIR LENGTH	2'
DRY STORAGE ZONE (ELEV.)	559.20 - 560.00
WET STORAGE ZONE (ELEV.)	557.00 - 560.00



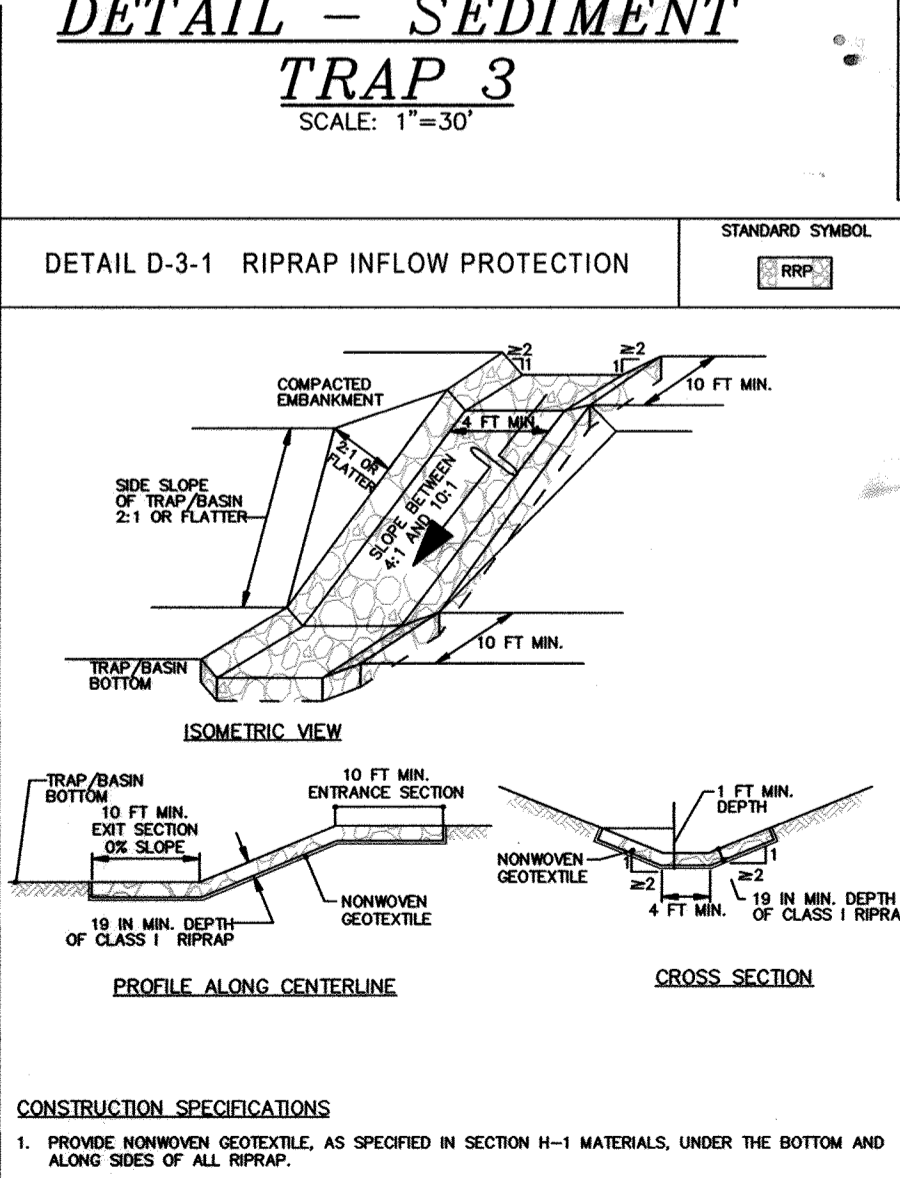
EROSION AND SEDIMENT CONTROL CHECK DAM DIMENSIONS
 NOT TO SCALE



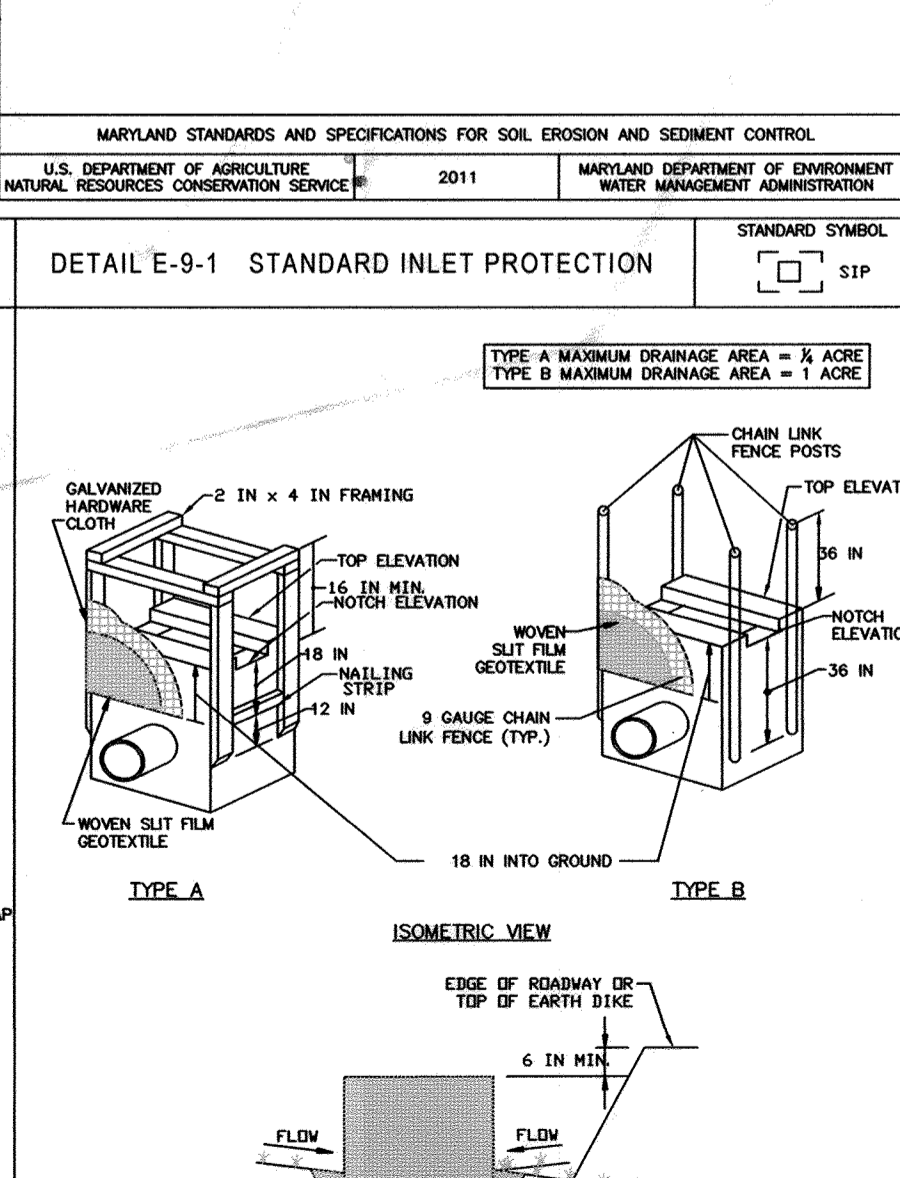
DETAIL - SEDIMENT TRAP 4
 SCALE: 1"=30'



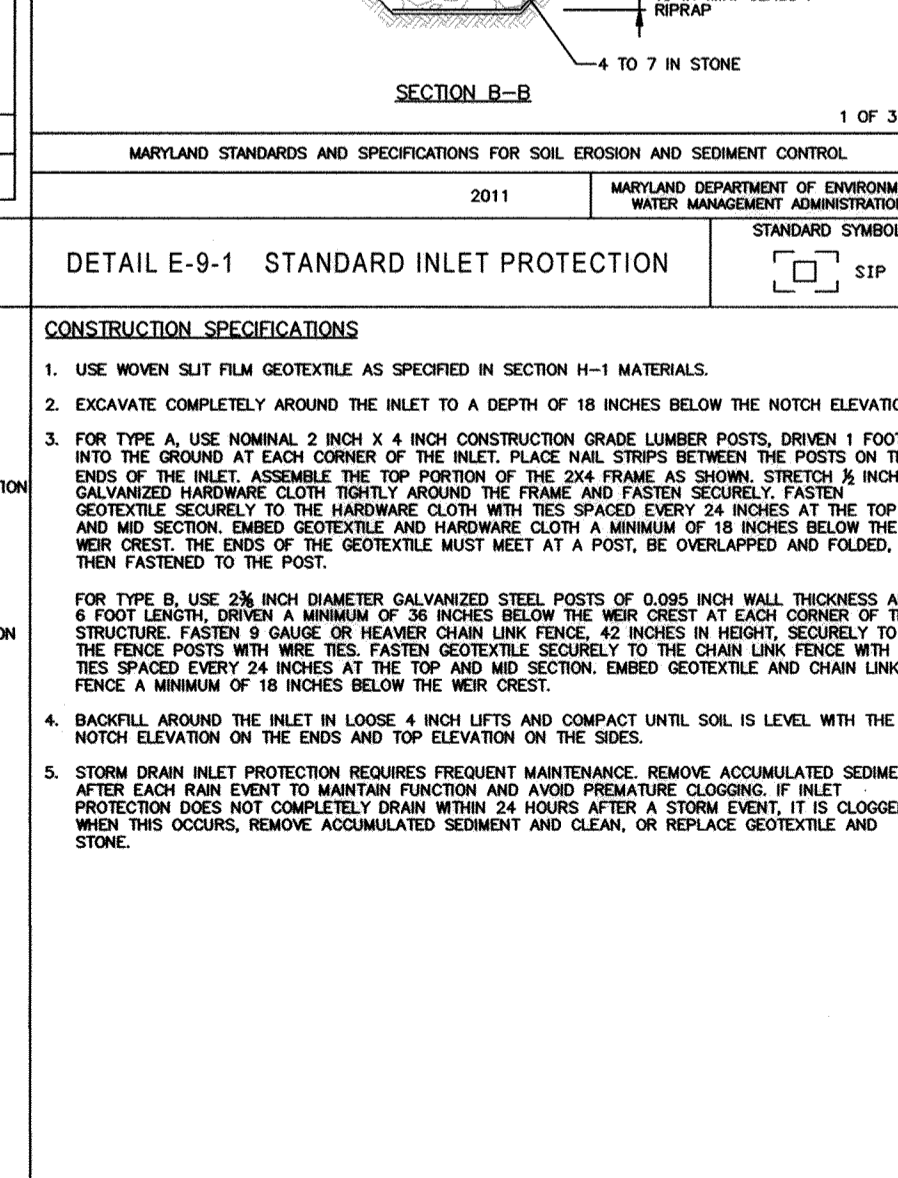
DETAIL G-2-4 BAFFLE BOARDS
 BAFFLES ARE REQUIRED TO PROVIDE A LOW VELOCITY ZONE FOR SEDIMENT TO SETTLE AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASH WIDTH.



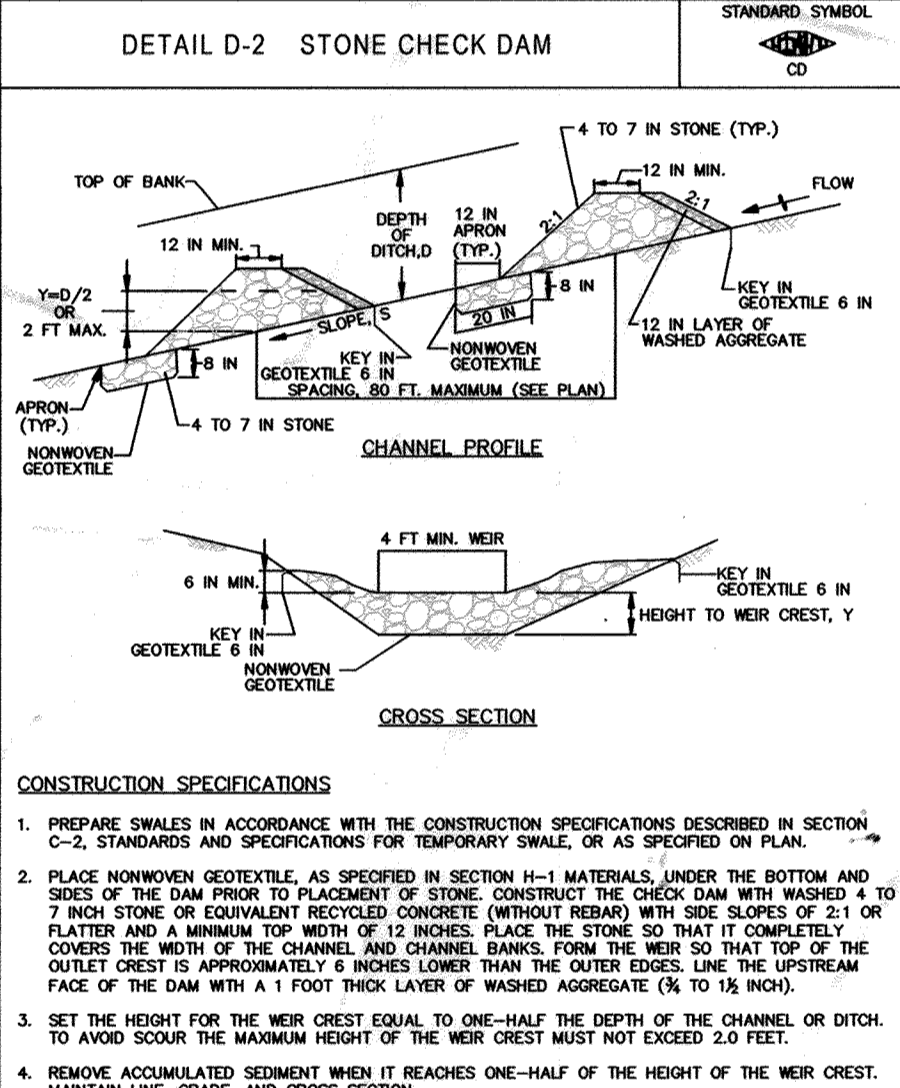
DETAIL D-3-1 RIPRAP INFLOW PROTECTION
 PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.



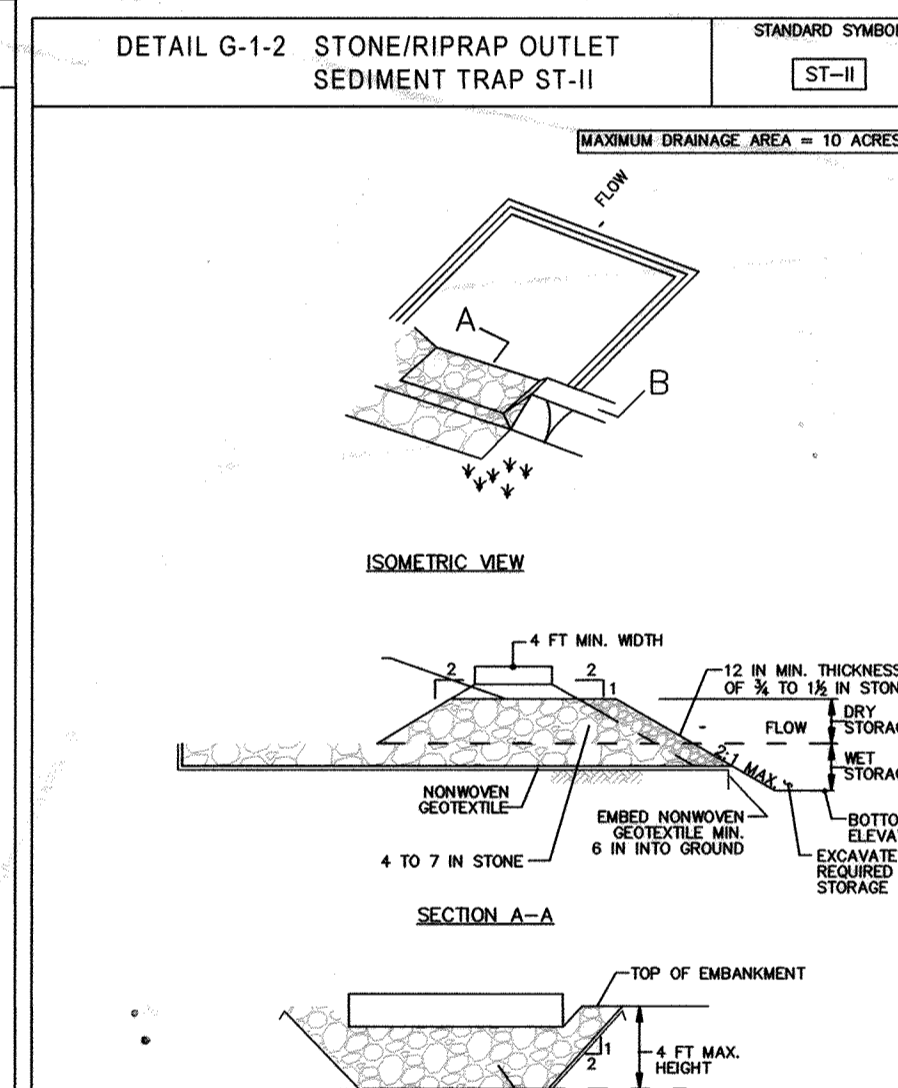
DETAIL E-9-1 STANDARD INLET PROTECTION
 PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.



DETAIL E-9-3 CURB INLET PROTECTION
 USE NOMINAL 2 INCH X 4 INCH LUMBER.



DETAIL D-2 STONE CHECK DAM
 PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2, STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN.



DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II
 REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST.

CONSTRUCTION SPECIFICATIONS

- CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
- CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
- USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBSTRUCTIVE MATERIAL FOR THE EMBANKMENT.
- CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY TRANSVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
- MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
- PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
- USE CLEAN 4 TO 7 INCH RIPRAP TO CONSTRUCT THE WEIR. USE CLASS I RIPRAP FOR THE APRON. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
- PLACE 1 FOOT OF CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
- CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
- STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
- REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (ROOF OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT. ACCORDING TO SECTION G-4 VEGETATIVE STABILIZATION, REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION.
- WHEN DRAINING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL STRUCTURE.
- AFTER REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

CONSTRUCTION SPECIFICATIONS

- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
- FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE MAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET ASSEMBLY. THE TOP PORTION OF THE 2x4 FRAME AS SHOWN. STRETCH 5 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. LAMBS GEOTEXTILE AND HARDWARE CLOTH WITH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.
- FOR TYPE B, USE 3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 1/8 INCH WALL THICKNESS AND 6 FOOT LENGTH. DRIVEN A MINIMUM OF 30 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
- BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
- STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOSING. 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.

CONSTRUCTION SPECIFICATIONS

- NOMINAL 2 INCH X 4 INCH LUMBER.
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- MAIL THE 2x4 MER TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
- ATTACH A CONTINUOUS PIECE OF 1/2 INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF A FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 MER, EXTENDING 12 FEET BEYOND THROAT ON EACH SIDE.
- PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 MER.
- PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND MAIL TO 2x4 ANCHORS (MINIMUM 3 FEET LENGTH), EXTENDING ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR ANCHORING METHOD.
- INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
- FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE OUTLET AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN 3/4 TO 1 1/2 INCH STONE. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
- AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BEAM TO PREVENT INLET BYPASS.
- STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOSING. 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.

Project	OCT 2014	date
12-022	illustration	JLS
JLS	scale	1"=60'
JLS	approval	MMB

REVISED	TOTAL SHEET NUMBER	DESCRIPTION	DATE
1	1	NUMBER	DATE
1	1	NUMBER	DATE

GREENBERRY, LOTS 1 THRU 25
 AND NON-BUILDABLE PRESERVATION PARCELS A, B AND Y, AND C, AND BUILDABLE PARS, PARCEL Y
 TAX MAP 28, PARCEL 48
 HOWARD COUNTY, MARYLAND
 FIFTH ELECTION DISTRICT
 EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

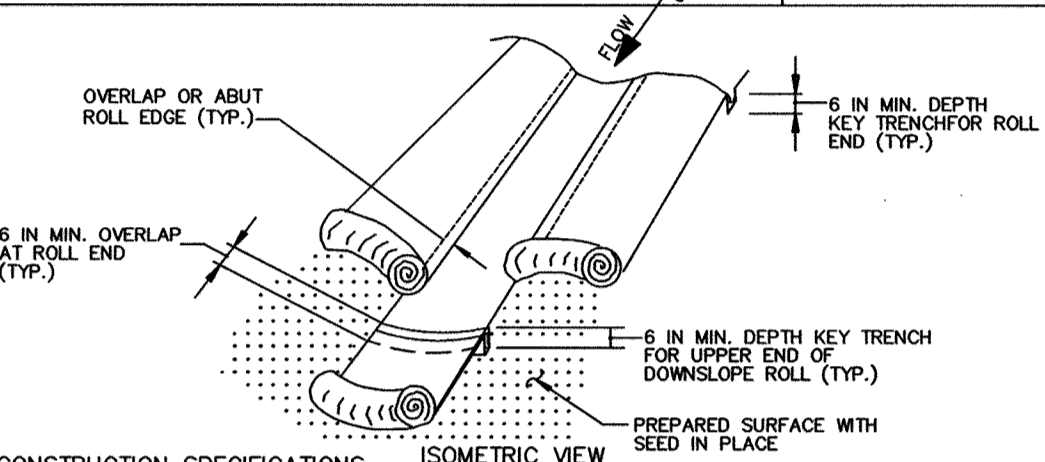
MILDENBERG, BOENDER & ASSOC., INC.
 Surveyors
 Planners
 Engineers
 7350-B Grace Drive, Columbia, Maryland 21044
 (410) 997-0296 Bldg. (410) 997-0298 Fax.

ROADSIDE SWALE STABILIZATION TECHNIQUES

MD 2011 STANDARDS AND SPECIFICATIONS FOR EROSION CONTROL

ROAD	STATION	DOWNSLOPE INLET	10-YEAR STORM VELOCITY	STABILIZATION TECHNIQUE	STANDARD DETAIL
BEE FRANCES WAY	0+00.0 TO 8+15.2 LEFT	I-251-D	4.6 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
BEE FRANCES WAY	0+00.0 TO 2+80.0 RIGHT	I-252	6.0 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
NORTHERN BELL WAY	0+00.0 TO 3+58.5 LEFT	I-353	4.0 FPS	SOLID SODDING	N/A
NORTHERN BELL WAY	2+81.0 TO 7+20.0 LEFT	I-354	3.5 FPS	SOLID SODDING	N/A
NORTHERN BELL WAY	0+00.0 TO 2+81.0 RIGHT	I-454	7.0 CFS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
CATHERINE CLOSE ROAD	0+00.0 TO 3+00.0 LEFT	I-453	5.7 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
CATHERINE CLOSE ROAD	0+00.0 TO 3+00.0 RIGHT	I-453	5.7 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
GREENBERRY LANE	0+00.0 TO 4+51.4 LEFT	I-552	5.9 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
GREENBERRY LANE	0+00.0 TO 4+51.4 RIGHT	FACTORY GL-2	5.9 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
GREENBERRY LANE	4+51.4 TO 7+51.7 LEFT	I-651-D	4.9 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6
GREENBERRY LANE	4+51.4 TO 7+51.7 RIGHT	I-652	4.3 FPS	TEMPORARY SOIL STABILIZATION MATTING OVER SEED AND MULCH	B-4-6

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION



- CONSTRUCTION SPECIFICATIONS**
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
 - USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SWALLOW RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SOIL. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2-2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
 - SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "J" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 9 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "J" SHAPED STAPLES MUST HAVE A MINIMUM 6 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
 - PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
 - UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL. CENTERLINE WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
 - KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
 - OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
 - STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
 - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

Jeffrey S. Sloman 10/7/14
SIGNATURE OF ENGINEER DATE
JEFFREY SLOMAN, PE
PRINTED NAME OF ENGINEER

DEVELOPER'S CERTIFICATE

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R. Jacob Hikmat 10/8/14
SIGNATURE OF DEVELOPER DATE
R. JACOB HIKMAT, PRESIDENT
PRINTED NAME OF DEVELOPER

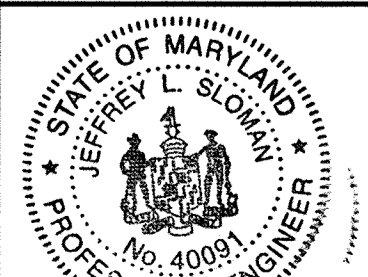
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson 10/16/14
SIGNATURE OF HOWARD SOIL CONSERVATION DISTRICT DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS

Chief Bureau of Highways 10-27-2014
SIGNATURE OF CHIEF BUREAU OF HIGHWAYS DATE

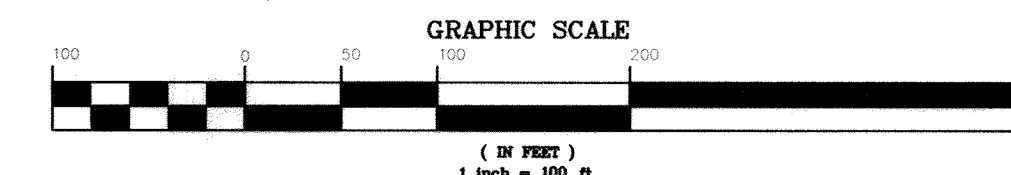
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Paul Chan 11-17-14
SIGNATURE OF CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Kathleen O'Connell 11-20-14
SIGNATURE OF CHIEF, DIVISION OF LAND DEVELOPMENT DATE



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.

Jeffrey S. Sloman 10/7/14
SIGNATURE DATE
JEFFREY SLOMAN, P.E.



THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET



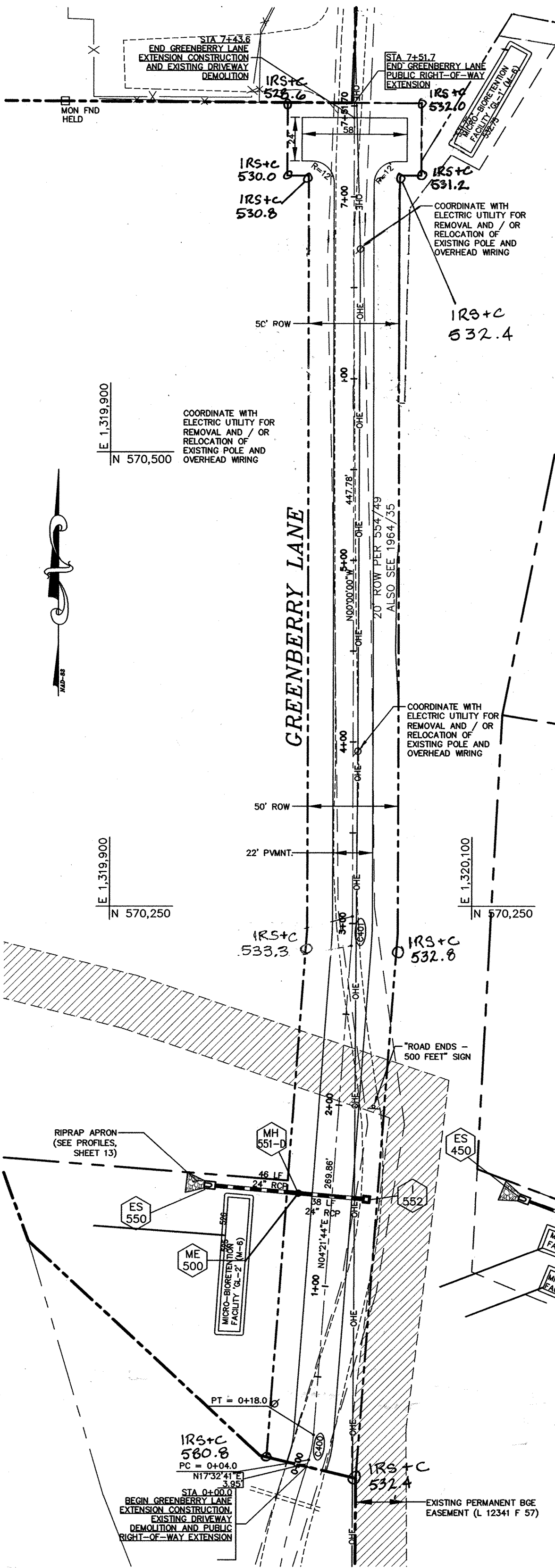
project	date	approval
12-022	OCT 2014	JIS
illustration	JIS	JIS
scale	1"=100'	MMM

REVISED TOTAL SHEET NUMBER	description	revisions
1	JULY 2015	
no.	date	

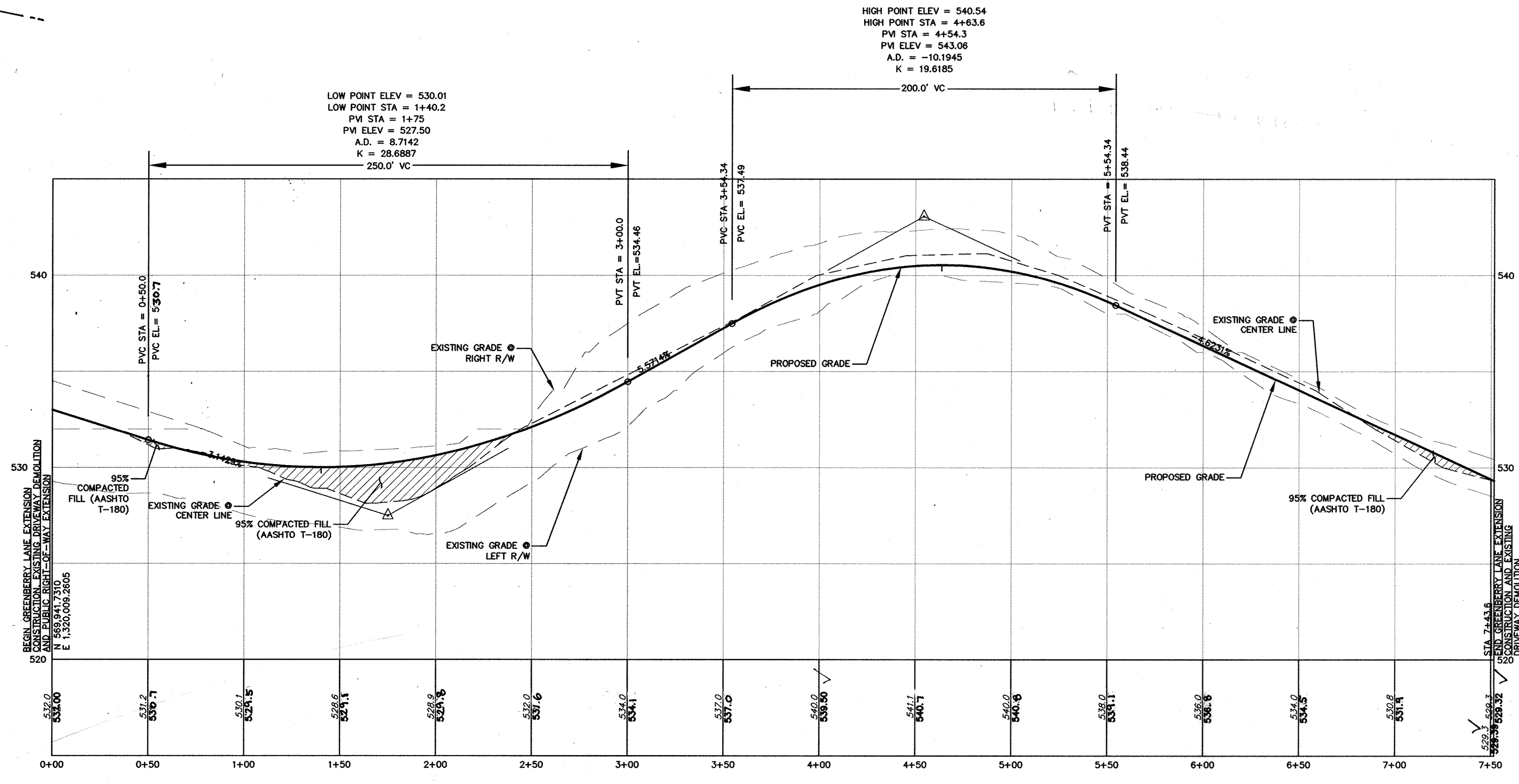
GREENBERRY LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS A, B AND C, AND BUILDABLE PRES. PARCEL Y
TAX MAP 28, PARCEL 48
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
EROSION CONTROL MEASURES DRAINAGE AREA MAP AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Balt. (410) 997-0298 Fax

AS-BUILT



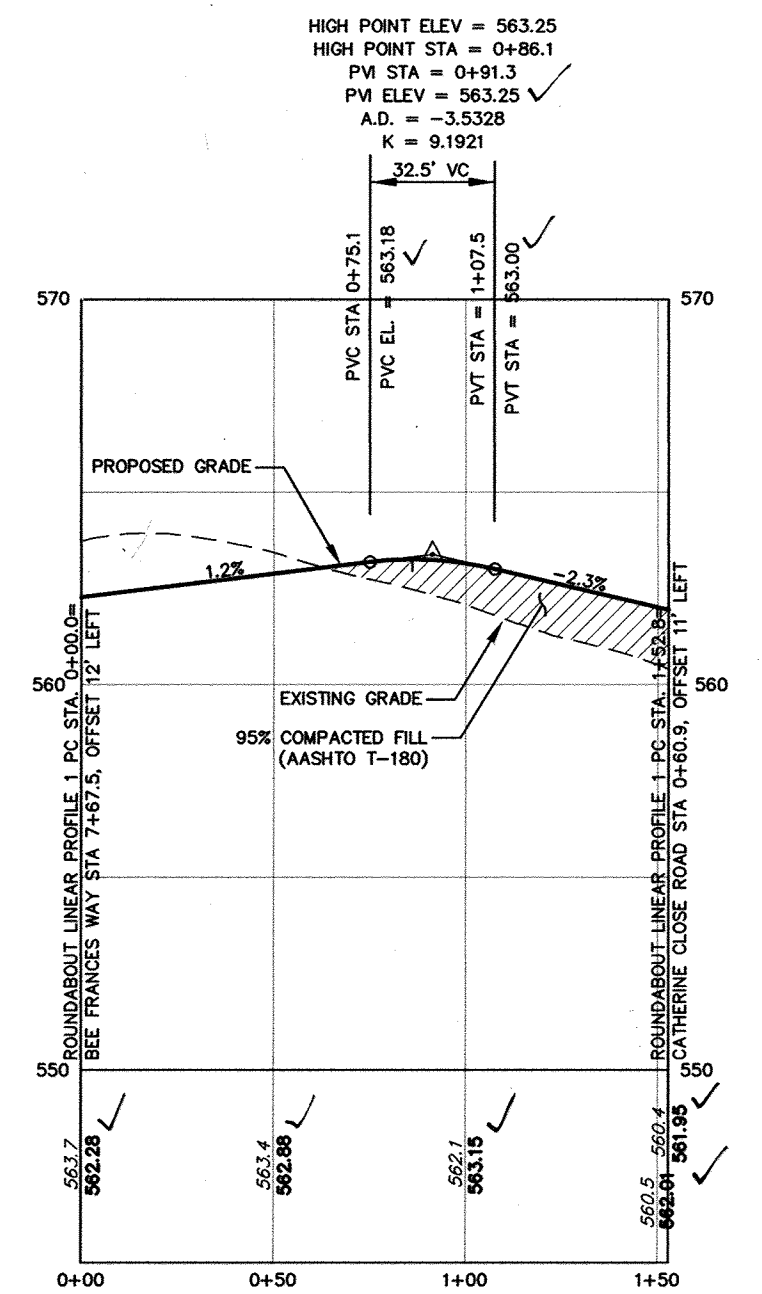
PLAN - GREENBERRY LANE EXTENSION
PUBLIC - LOCAL SCALE: 1"=50'
DESIGN SPEED = 25 MPH



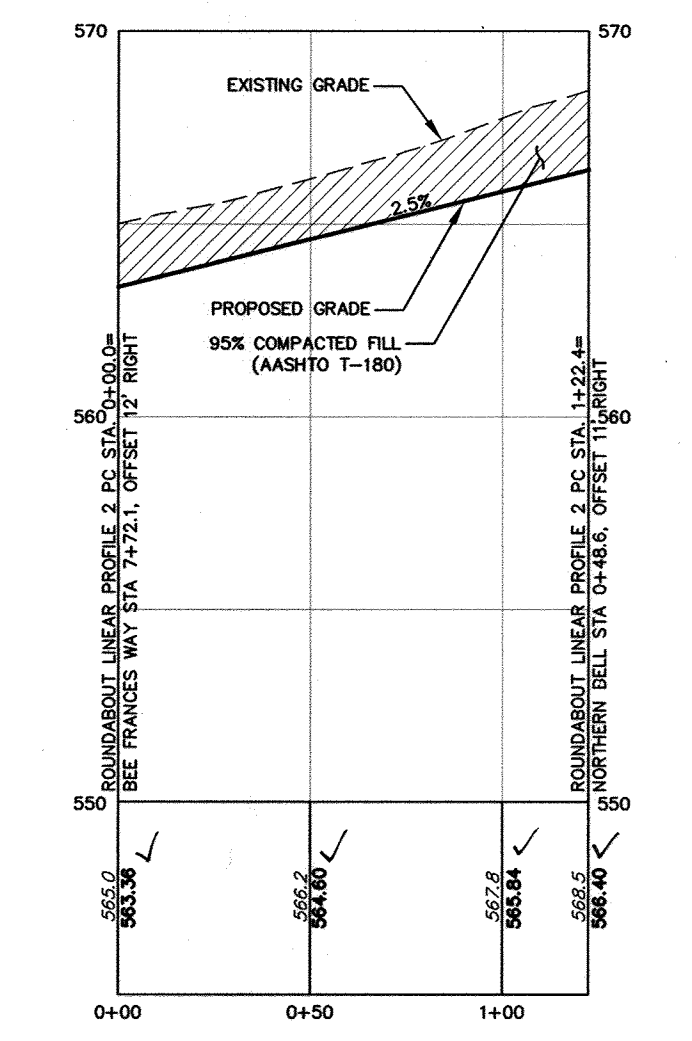
PROFILE - GREENBERRY LANE EXTENSION
SCALE: 1" = 50' HOR
1" = 5' VER

ROADWAY CURVE TABLE

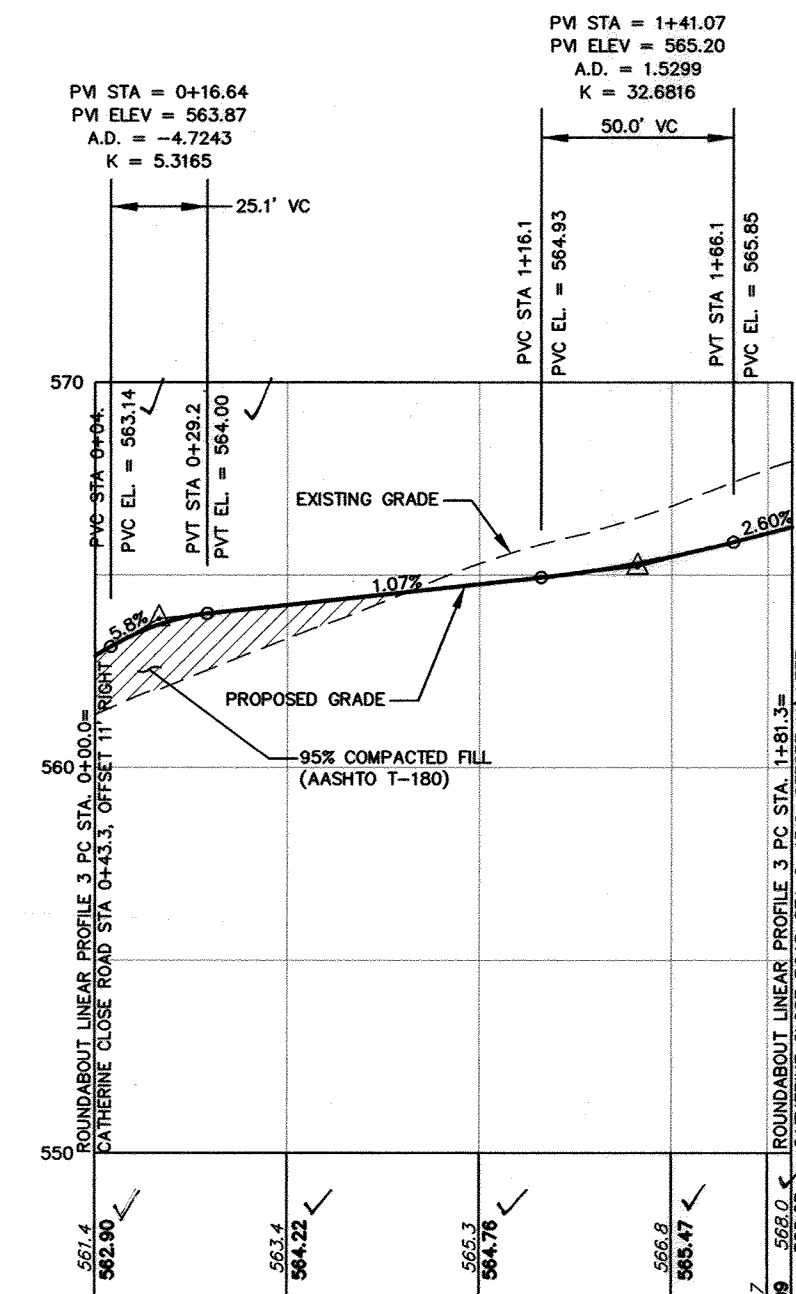
CURVE	ROAD NAME	LENGTH (FT)	RADIUS (FT)	DELTA	CHORD LEN (FT)	CHORD DIR
C400	GREENBERRY LANE EXTENSION	14.03	61.00	13°10'57"	14.00	N10°57'13"E
C401	GREENBERRY LANE EXTENSION	16.06	211.00	4°21'44"	16.06	N02°10'52"E



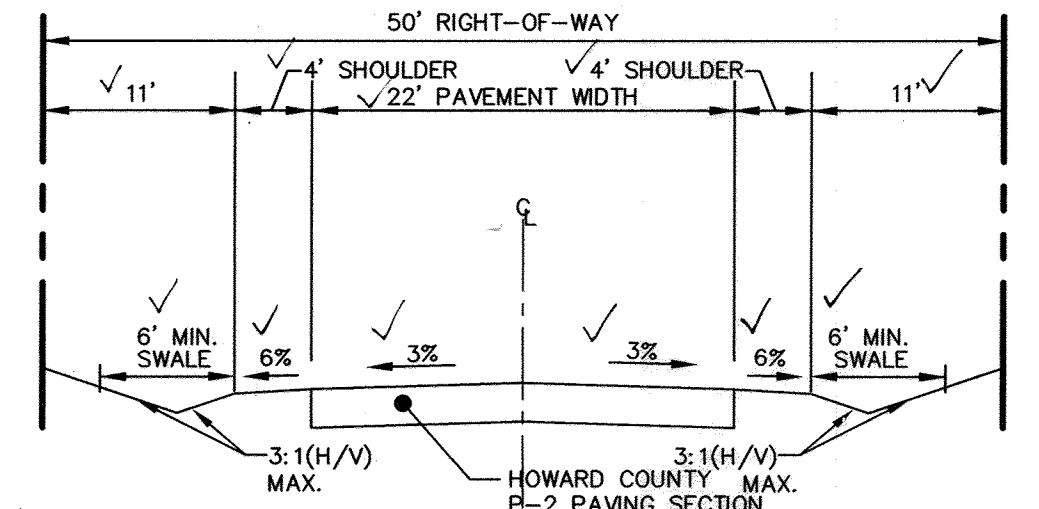
LINEAR PROFILE 1 - BEE FRANCES WAY ROUNDABOUT
SCALE: 1" = 50' HOR
1" = 5' VER



LINEAR PROFILE 2 - BEE FRANCES WAY ROUNDABOUT
SCALE: 1" = 50' HOR
1" = 5' VER



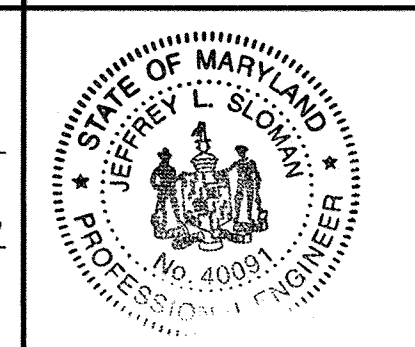
LINEAR PROFILE 3 - BEE FRANCES WAY ROUNDABOUT
SCALE: 1" = 50' HOR
1" = 5' VER



TYPICAL SECTION - GREENBERRY LANE
STA 0+00.00 TO STA 7+23.56
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 10-27-2014
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 11-17-14
DATE
[Signature] 11-20-14
DATE

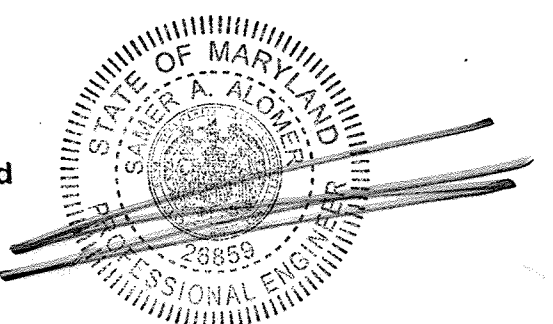


DEVELOPER
GREENBERRY, INC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

OWNER
ROBERT B. WILLIAMS
JOANNA K. BENEDICT
BARBARA B. CUSACK
WILLIAM I. SLADE, JR.
C/O MILDENBERG, BOENDER AND ASSOC.
7350-B GRACE DRIVE
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I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40091, EXP DATE 2/13/15.
[Signature] 10/7/14
JEFFREY SLOMAN, P.E. DATE

I hereby certify that the facility shown on this plan was constructed as shown on the 'As-Built' plans and meets with the approved plans and specifications.



H:\12-022\DWG\FINAL\022-NOV 2013 ROAD CONSIDING

Project: 12-022
Date: OCT 2014
Illustration: JLS
Scale: 1"=50'
Approval: JLS
MMK

ADD AS-BUILT DATA
REVISED STORM DRAIN FROM F-662 TO E-645
REVISED TOTAL SHEET NUMBER
NO. 1
DESCRIPTION
DATE
OCT 2014
JULY 2015

GREENBERRY, LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS A, B, AND C, AND BUILDABLE PLOTS, PARCELS D, E, F, AND G, AND BUILDABLE PLOTS, PARCELS H, I, J, AND K, AND BUILDABLE PLOTS, PARCELS L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, AND Z, AND BUILDABLE PLOTS, PARCELS AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Fax

GRADING SHOWN ON THESE PLANS DID NOT INCLUDE THE RESIDENTIAL LOTS; THEREFORE, THE STORMWATER DESIGN FOR THE LOTS IS CONCEPTUAL AND FINAL DESIGN WILL BE SHOWN WITH THE INDIVIDUAL LOT BUILDING PERMIT. DECLARATION OF COVENANTS WILL BE CORRECTED AS NEEDED AND MATCH THE ASSOCIATED PLOT PLAN.



THIS PLAN IS FOR LOT OVERALL GRADING PURPOSES ONLY.

LIMIT OF DISTURBANCE TO BE PLACED DIRECTLY BEYOND PROPOSED CONTROLS.

PRIVATE SEPTIC EASEMENT AREAS NOT TO BE DISTURBED BEYOND SEPTIC SYSTEM INSTALLATION

NO MORE THAN 20 ACRES CAN BE DISTURBED AT THE SAME TIME

OWNER
ROBERT B. WILLIAMS
C/O MILDENBERG, BOENDER AND ASSOC.
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(410)997-0296

DEVELOPER
NV HOMES
9720 PATUXENT WOODS DRIVE
COLUMBIA, MARYLAND 21046
(410)379-5956

ENGINEER'S CERTIFICATE
I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

Signature of Engineer: R. JACOB HIKMAT, P.E.
DATE: 6/22/15

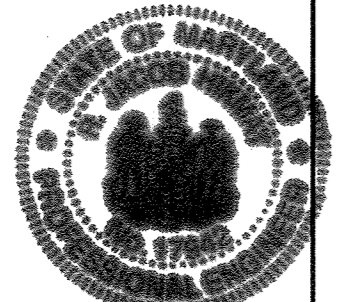
DEVELOPER'S CERTIFICATE
I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

Signature of Developer: Thayne Facis
DATE: 6/22/15

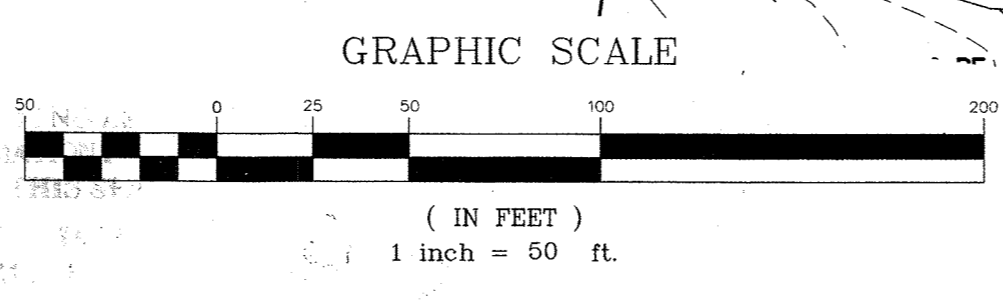
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of District Chief: [Signature]
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Signature: [Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 6/15/15



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP. DATE 09/03/16.
DATE: 6/22/15
R. JACOB HIKMAT, P.E.



- LEGEND:**
- [Hatched Box] IMPERVIOUS AREA TREATED BY NON-ROOFTOP DISCONNECTION (N-2)
 - [Dotted Box] TREATMENT AREA OF NON-ROOFTOP DISCONNECTION (N-2)
 - [Cross-hatched Box] IMPERVIOUS AREA TREATED BY ROOFTOP DISCONNECTIONS (N-1) AND DRYWELLS (M-5)
 - [Arrow] 75% MAX ROOFTOP DISCONNECTIONS (N-1)
 - [Square] DRYWELL (M-5)
 - [Dashed Line] ROOF LEADER
 - [Solid Line] LIMIT OF DISTURBANCE
 - [Dashed Line] SILT FENCE
 - [Dashed Line] SUPER SILT FENCE
 - [Dashed Line] TREE PROTECTION FENCE
 - [Dashed Line] STABILIZED CONSTRUCTION ENTRANCE

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

Project	15-005	Date	JUNE 2016
Illustration	MMM	Engineering	MMM
Scale	1"=50'	Approval	MMM

NO. 1	ADD DATE REGARDING SWA	DATE	MAY 2015
2	ADD THE GP PLAN TO THE SET, REV. SHEET NUMBER	DESCRIPTION	
		REVISIONS	

GREENBERRY, LOTS 1 THRU 25
AND NON-BUILDABLE PRESERVATION PARCELS A, B AND C, AND H, NON-BUILDABLE BULK PARCELS C, D, E, AND F, AND G, AND BUILDABLE PARCELS PARCEL X
TAX MAP 28, PARCEL 48
HOWARD COUNTY, MARYLAND
FIFTH ELECTION DISTRICT
GRADING AND SEDIMENT CONTROL PLAN

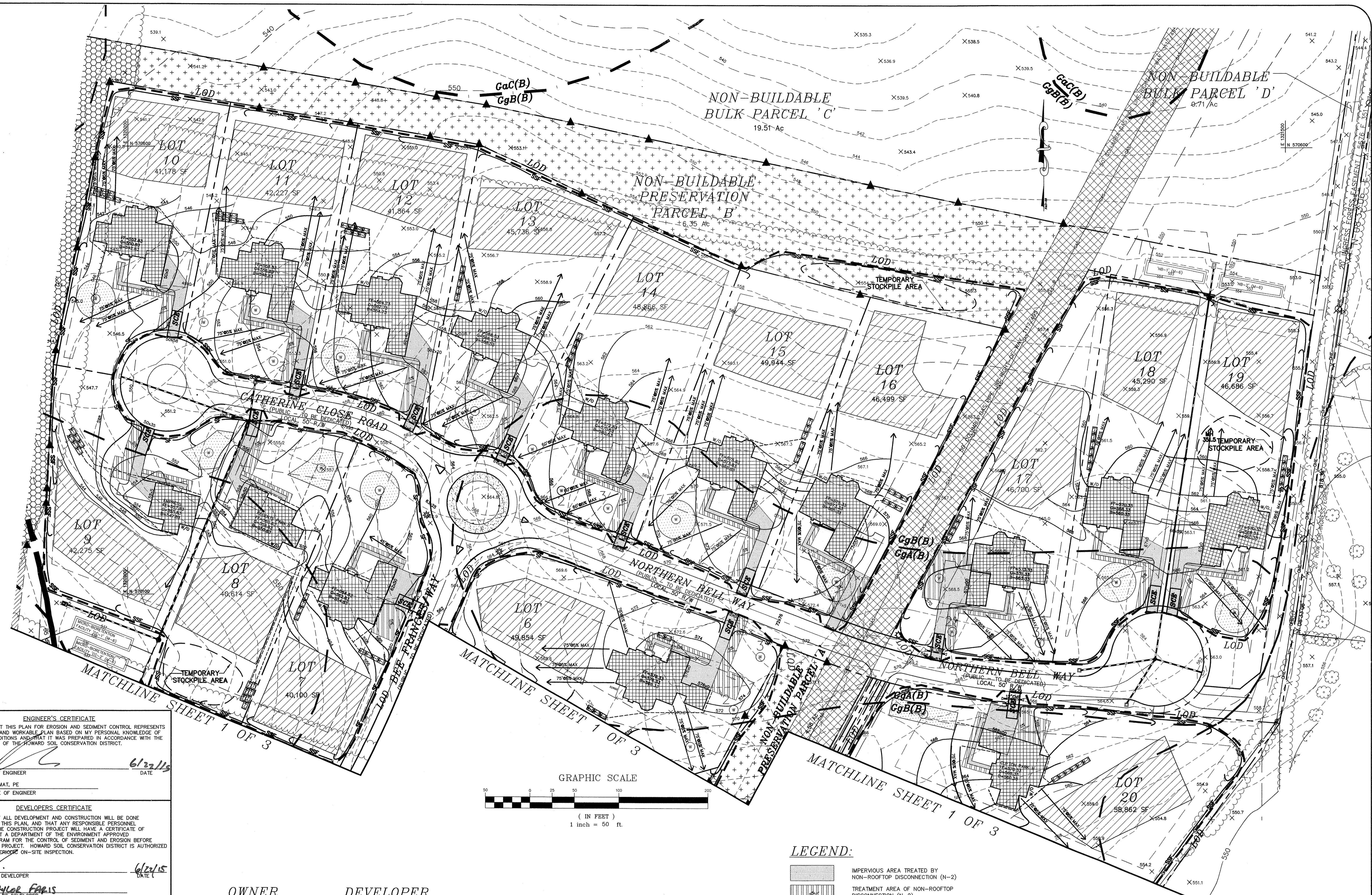
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7350-B Grace Drive, Columbia, Maryland 21044
(410) 997-0296 Fax (410) 997-0296

Project	15-005	Date	JUNE 2015
Illustration	MM	Illustration	MM
Scale	1" = 50'	Approval	RJH

NO. 1	ADD THIS PLAN TO THE SET	DATE	JULY 2015
NO. 2	ADD THIS PLAN TO THE SET	DATE	JULY 2015

GREENBERRY, LOTS 1 THRU 25
 AND NON-BUILDABLE PRESERVATION PARCELS A, B AND H, NON-BUILDABLE BULK PARCELS C, D, E, AND G, AND BUILDABLE PRES. PARCEL F,
 AND NON-BUILDABLE PRESERVATION PARCELS A, B AND H, NON-BUILDABLE BULK PARCELS C, D, E, AND G, AND BUILDABLE PRES. PARCEL F,
 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 TAX MAP 28, PARCEL 48
GRADING AND SEDIMENT CONTROL PLAN

MILDENBERG & ASSOC., INC.
 Engineers Planners Surveyors
 7350-B Grace Drive, Columbia, Maryland 21044
 (410) 997-0236 Ext. (410) 997-0236 Fax



ENGINEER'S CERTIFICATE
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.
 SIGNATURE OF ENGINEER: [Signature]
 DATE: 6/22/15
 R. JACOB HIKMAT, PE
 PRINTED NAME OF ENGINEER

DEVELOPERS CERTIFICATE
 I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.
 SIGNATURE OF DEVELOPER: [Signature]
 DATE: 6/22/15
 Taylor Foris
 PRINTED NAME OF DEVELOPER

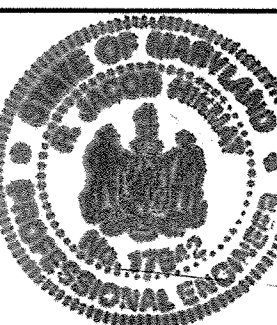
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 [Signature]
 HOWARD SOIL CONSERVATION DISTRICT
 APPROVED: DEPARTMENT OF PLANNING AND ZONING

OWNER
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DEVELOPER
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 9720 PATUXENT WOODS DRIVE
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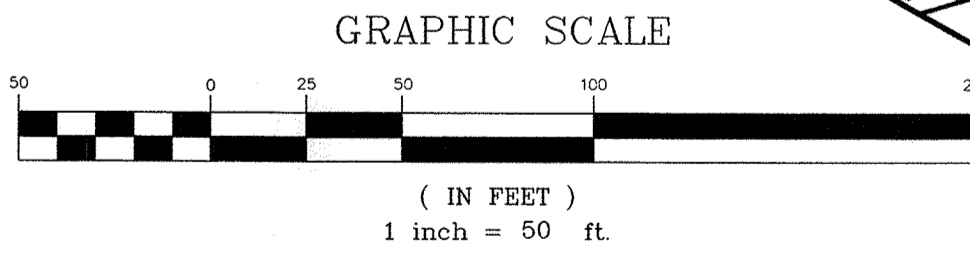
CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature]
 DATE: 8/11/15

CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature]
 DATE: 8/11/15



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP. DATE 09/03/16.
 R. JACOB HIKMAT, P.E.
 DATE: 6/22/15

THERE IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET



- LEGEND:**
- [Symbol] IMPERVIOUS AREA TREATED BY NON-ROOFTOP DISCONNECTION (N-2)
 - [Symbol] TREATMENT AREA OF NON-ROOFTOP DISCONNECTION (N-2)
 - [Symbol] IMPERVIOUS AREA TREATED BY ROOFTOP DISCONNECTIONS (N-1) AND DRYWELLS (M-5)
 - [Symbol] ROOFTOP DISCONNECTIONS (N-1)
 - [Symbol] DRYWELL (M-5)
 - [Symbol] ROOF LEADER
 - [Symbol] LIMIT OF DISTURBANCE
 - [Symbol] SILT FENCE
 - [Symbol] SUPER SILT FENCE
 - [Symbol] SCE STABILIZED CONSTRUCTION ENTRANCE

GRADING SHOWN ON THESE PLANS DID NOT INCLUDE THE RESIDENTIAL LOTS; THEREFORE, THE STORMWATER DESIGN FOR THE LOTS IS CONCEPTUAL AND FINAL DESIGN WILL BE SHOWN WITH THE INDIVIDUAL LOT BUILDING PERMIT. DECLARATION OF COVENANTS WILL BE CORRECTED AS NEEDED AND MARK THE ASSOCIATED PLOT PLAN

(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 6 INCHES BY MEANS OF SUITABLE AGRICULTURAL EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPER MOUNTED CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENEED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACED WITH ROLLERS 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 GRANDED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOESS ARE TO 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.
 - b. SOIL CONTAINS A SUFFICIENT NITROGEN LEVEL TO PERMIT ADEQUATE NITROGEN PENETRATION.
 - c. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ONE OR MORE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - d. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENEED TO A DEPTH OF 3 TO 5 INCHES.
 - e. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF SOIL TESTS.
 - f. 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 BRUSH THE AREA TO REMOVE 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 PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY EXPOSED 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 ACID THAT LIME TREATMENT 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, SILTY 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 AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CONCRETE, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROTTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERBERIS, GRASS, GRASS, JOHNSON GRASS, NUT SEDGE, PIGEON WING, HITCHER, OR OTHERS AS SPECIFIED.
 - b. 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 2 TO 4 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 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 AND SEEDBED PREPARATION.
7. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 - a. 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 RESULTS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.
 - b. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FINE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE 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.
 - c. LIME MATERIALS MUST BE GRAIND LIMESTONE (HYDRATED OR BURNED LIME) BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GRIND 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.
 - d. 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.
 - e. WHERE THE SUBSOIL IS EITHER HIGHLY ACID OR COMPOSED OF HEAVY CLAYS, SPREAD GRAIND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

OWNER
ROBERT B. WILLIAMS
C/O MILDENBERG, BOENDER AND ASSOC.
7350-B GRACE DRIVE
COLUMBIA, MARYLAND 21044
(410)997-0296

DEVELOPER
NVHOMES
9720 PATUXENT WOODS DRIVE
COLUMBIA, MARYLAND 21046
(410)379-5956

ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

6/12/15
DATE

SIGNATURE OF ENGINEER
R. JACOB HIKMAT, PE

PRINTED NAME OF ENGINEER

DEVELOPER'S CERTIFICATE

I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM AND THAT THE CONTROL AND SEDIMENTATION BEFORE BEGINNING THE PROJECT. HOWARD SOIL CONSERVATION DISTRICT IS AUTHORIZED TO CONDUCT PERIODIC ON-SITE INSPECTION.

6/22/15
DATE

SIGNATURE OF DEVELOPER
Tinae Falls

PRINTED NAME OF DEVELOPER

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

6/23/15
DATE

HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE 6/23/15

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE 6/23/15

(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 SUCH MATERIAL ON ANY PURPOSE. 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 THAW.
 - 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. SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STEERALS OR OTHER CHEMICALS USED FOR WEED CONTROL UNLESS 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.
 - b. INCORPORATED SEEDING: AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1.
 - c. PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - d. 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.
 - e. DRILL OR CULTRIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - f. MULCHING: SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING THE SEED. MULCH MUST BE FIRM AFTER PLANTING.
 - g. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - h. 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 TOTAL NITROGEN, 100 POUNDS PER ACRE; TOTAL SOLUBLE NITROGEN: P₂O₅ (PHOSPHORUS), 200 POUNDS PER ACRE; K₂O (POTASSIUM), 200 POUNDS PER ACRE.
 - ii. LIME: USE ONLY GRAIND 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 BURNED OR HYDRATED LIME WHEN HYDROSEEDING.
 - iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTING.
 - iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - a. STRAW CONSISTING OF THOROUGHLY DRIED 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, MOULDY, CAVED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN USDA-NRCS AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO UNIFORM FIBROUS PHYSICAL STATE.
 - c. WCFM IS TO BE DYED GREEN OR OTHER COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - d. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - e. 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 AND FERTILIZER. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WCFM MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - f. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - g. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 1/2 TO 3/4 INCHES; MOISTURE CONTENT OF 40 TO 45 PERCENT; PH RANGE OF 4.0 TO 8.5; ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
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.
 - d. ANCHORING
 - i. 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:
 1. 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.
 2. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 150 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.
 3. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AKRO-TACK), DCA-70, PETROSECT, TERRA TACK, WERRA PINKER OR OTHER MANUFACTURED BINDERS ARE TO BE HEAVIER AT THE EDGES WHERE WIND OR WATER ACTION MAY BE MOST EFFECTIVE. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND OR WATER ACTION MAY BE MOST EFFECTIVE. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND OR WATER ACTION MAY BE MOST EFFECTIVE. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND OR WATER ACTION MAY BE MOST EFFECTIVE.
 4. 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.

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID) 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 REDISTURBANCE, 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 AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-4-3), TEMPORARY SEEDING (SEC. B-4-4-4) AND MULCHING (SDCB-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
6. SITE ANALYSIS:

TOTAL AREA OF SITE:	26.63 ACRES
AREA TO BE DISTURBED:	26.63 ACRES
AREA TO BE MOORED OR PAVED:	23.26 ACRES
AREA TO BE VEGETATIVELY STABILIZED:	23.26 ACRES
TOTAL CUT:	20,200 CU. YDS.
TOTAL FILL:	20,200 CU. YDS.

 OFFSITE WASTE/BORROW AREA LOCATION:
 THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY. CONTRACTOR IS REQUIRED TO PROVIDE HIS OWN QUANTITIES FOR MEASUREMENT AND EROSION HAZARD.
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
9. 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 CONTROL STRUCTURES, BUT BEFORE PROCEEDING WITH ANY OTHER EROSION AND SEDIMENT CONTROL BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL IS OBTAINED.
10. 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 WORKING DAY, WHICHEVER IS SHORTER. ANY CHANGES TO THE CONSTRUCTION PROGRAM MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCESSING WITH CONSTRUCTION.
11. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM SIZE OF 20 AC. PER GRADING UNIT) AND PROCEED TO A SUBSEQUENT GRADING UNIT. OTHER GRADING UNITS ARE TO BE SEQUENCED AND STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-4-3), TEMPORARY SEEDING (SEC. B-4-4-4) AND MULCHING (SDCB-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM SIZE OF 20 AC. PER GRADING UNIT) AND PROCEED TO A SUBSEQUENT GRADING UNIT. OTHER GRADING UNITS ARE TO BE SEQUENCED AND STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-4-3), TEMPORARY SEEDING (SEC. B-4-4-4) AND MULCHING (SDCB-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP. DATE 09/03/16.

6/23/15
DATE

R. JACOB HIKMAT, P.E.

THIS IS NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

(B-4-5) STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOIL WITH PERMANENT VEGETATION.

PURPOSE
TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER OF DISTURBED AREAS.

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 OF MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE B.3) AND BASED IN THE SITE CONDITION OR PURPOSE. FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY.
 - b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DINES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD GUIDE, SECTION 342-CRITICAL AREA PLANTING.
 - c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
 - d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FROM FERTILIZER (40-0-0-01) AT 3 1/2 POUNDS PER 1000 S.F. (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 DESIRE 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 OF MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY.
 - c. KENTUCKY BLUEGRASS: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 S.F. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - d. KENTUCKY BLUEGRASS/PERENIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENIAL RYEGRASS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 S.F. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - e. TALL FESCUE/KENTUCKY BLUEGRASS: FULL MIXTURE: FOR USE IN DROUGHT AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MAINTENANCE IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 65 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 PERCENT PER 1000 S.F. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - f. 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 RATES 1 1/2 TO 3 POUNDS PER 1000 S.F.
- 3. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURE**
 - a. WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDNESS ZONES: 5B,6A)
 - b. CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 6B)
 - c. SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 7A, 7B)
- 4. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES. LEVEL AND BAKE THE AREA TO PREPARE A PROPER SEEDBED. REMOVE STONE AND DEBRIS OVER 1.5 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASS WILL BE EASY AND DIFFICULTY.**
- 5. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NET SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH 0.5 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 SEASON, OR ON ADVERSE SITES.**

PERMANENT SEEDING SUMMARY

HARDNESS ZONE (FROM FIGURE B.3): 6b
SEED MIXTURE (FROM TABLE B.3): 8

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P ₂ O ₅	K ₂ O	
1	TALL FESCUE	100	MARCH 1-MAY 15 AUG 15-OCT 15	1/4"-1/2"	45 LBS. PER ACRE (1 LB./1000 SF)	90 LBS. PER ACRE (2 LB./1000 SF)	90 LBS. PER ACRE (2 LB./1000 SF)	2 TONS / ACRE (30 LB. / 1000 SF)

MIXTURES 1, 4-7, 9, AND 10 FROM TABLE B.3 OF THE 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MAY BE USED.

(B-4-8) STANDARDS AND SPECIFICATION FOR STOCKPILE AREA

DEFINITION
A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE
TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

CONDITIONS WHERE PRACTICE APPLIES
STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

CRITERIA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
2. THE FOOTPRINT OF STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.
3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.
4. ACCESS TO THE STOCKPILE AREA FROM THE UPGRADE SIDE.
5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DITCH SUCH AS A 3" EARTH DIKE, TEMPORARY SMALL OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING A CONCENTRATED FLOW IN A NON-EROSIVE MANNER.
6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.
7. STOCKPILE MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.
8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE
THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION, IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

TEMPORARY SEEDING FOR SITE STABILIZATION

PLANT SPECIES	SEEDING RATE	SEEDING DEPTH (INCHES)	RECOMMENDED SEEDING DATED BY PLANT HARDNESS ZONE			
			5B AND 6A	6B	7A AND 7B	
COOL SEASON GRASSES						
ANNUAL RYEGRASS (LOULUN PERENNE SSP. MULTIFLORUM)	40	1.0	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
BARLEY (HORDEUM VULGARE)	96	2.2	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
OATS (AVENA SATIVA)	72	1.7	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
WHEAT (TRITICUM AESTIVUM)	120	2.8	0.5	MAR 15 TO MAY 31; AUG 1 TO SEP 30	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO NOV 30
CEREAL RYE (SECALE ITALICA)	112	2.8	0.5	MAR 15 TO MAY 31; AUG 1 TO OCT 31	MAR 1 TO MAY 15; AUG 1 TO OCT 15	FEB 15 TO APR 30; AUG 15 TO DEC 15
WARM SEASON GRASSES						
FOXTAIL MILLET (SETARIA ITALICA)	30	0.7	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14
PEARL MILLET (PENISTEMON GLAUCUM)	20	0.5	0.5	JUN 1 TO JUL 31	MAY 16 TO JUL 31	MAY 1 TO AUG 14

PERMANENT SEEDING SUMMARY

HARDNESS ZONE (FROM FIGURE B.3): 6b
SEED MIXTURE (FROM TABLE B.3): 8

NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P ₂ O ₅	K ₂ O	
1	TALL FESCUE	100	MARCH 1-MAY 15 AUG 15-OCT 15	1/4"-1/2"	45 LBS. PER ACRE (1 LB./1000 SF)	90 LBS. PER ACRE (2 LB./1000 SF)	90 LBS. PER ACRE (2 LB./1000 SF)	2 TONS / ACRE (30 LB. / 1000 SF)

MIXTURES 1, 4-7, 9, AND 10 FROM TABLE B.3 OF THE 2011 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MAY BE USED.

(B-4-4) STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOIL WITH VEGETATION FOR UP TO 6 MONTHS