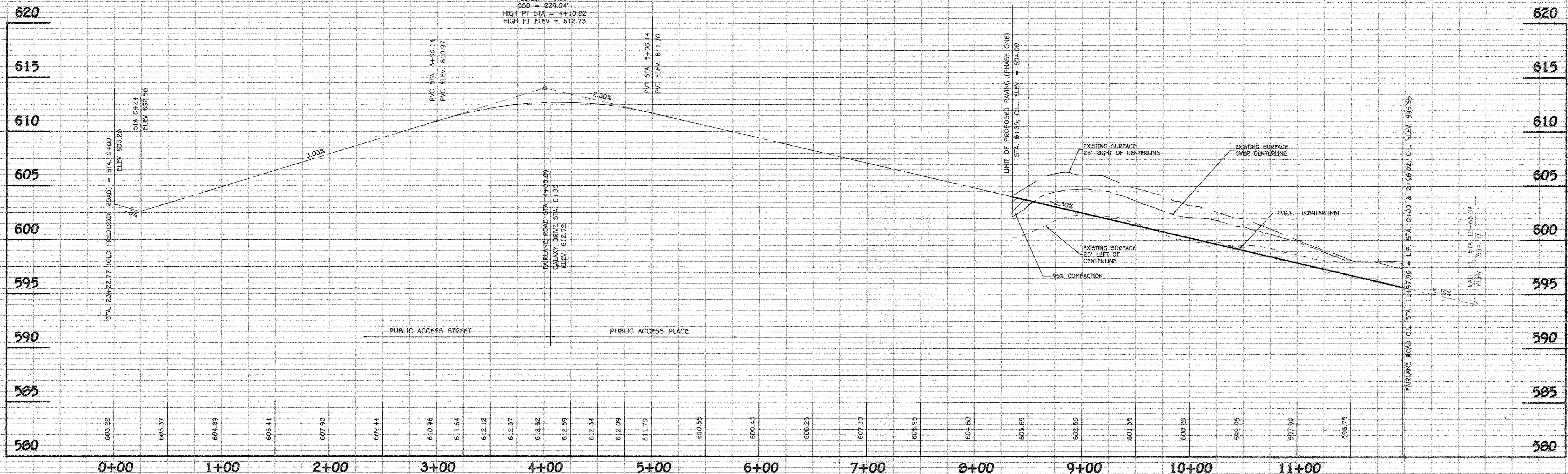


CENTERLINE CURVE DATA

CURVE #	ROAD NAME	STATION	RADIUS	LENGTH	DELTA	CHD LGTH	CHORD
C2	FAIRLANE ROAD	6+95.58 TO 9+52.65	170.00'	257.07'	33°42'12"	233.27'	N86°48'24"E
C3	FAIRLANE ROAD	11+00.11 TO 12+22.15	550.00'	34.04'	03°32'47"	34.04'	N41°42'47"E

VERTICAL CURVE DATA
 PVI STA = 4+00.14
 PVI ELEV = 614.00
 LENGTH = 200.00'
 CORR. = 1.33'
 SSD = 229.04'
 HIGH PT STA = 4+10.82
 HIGH PT ELEV = 612.73

FAIRLANE ROAD
 PUBLIC ROAD
 DESIGN SPEED = 25 M.P.H.



NO. _____ DESCRIPTION _____ DATE _____

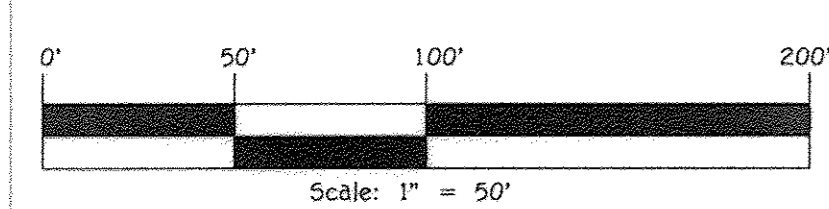
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Kent Se. Looke 3-16-17
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

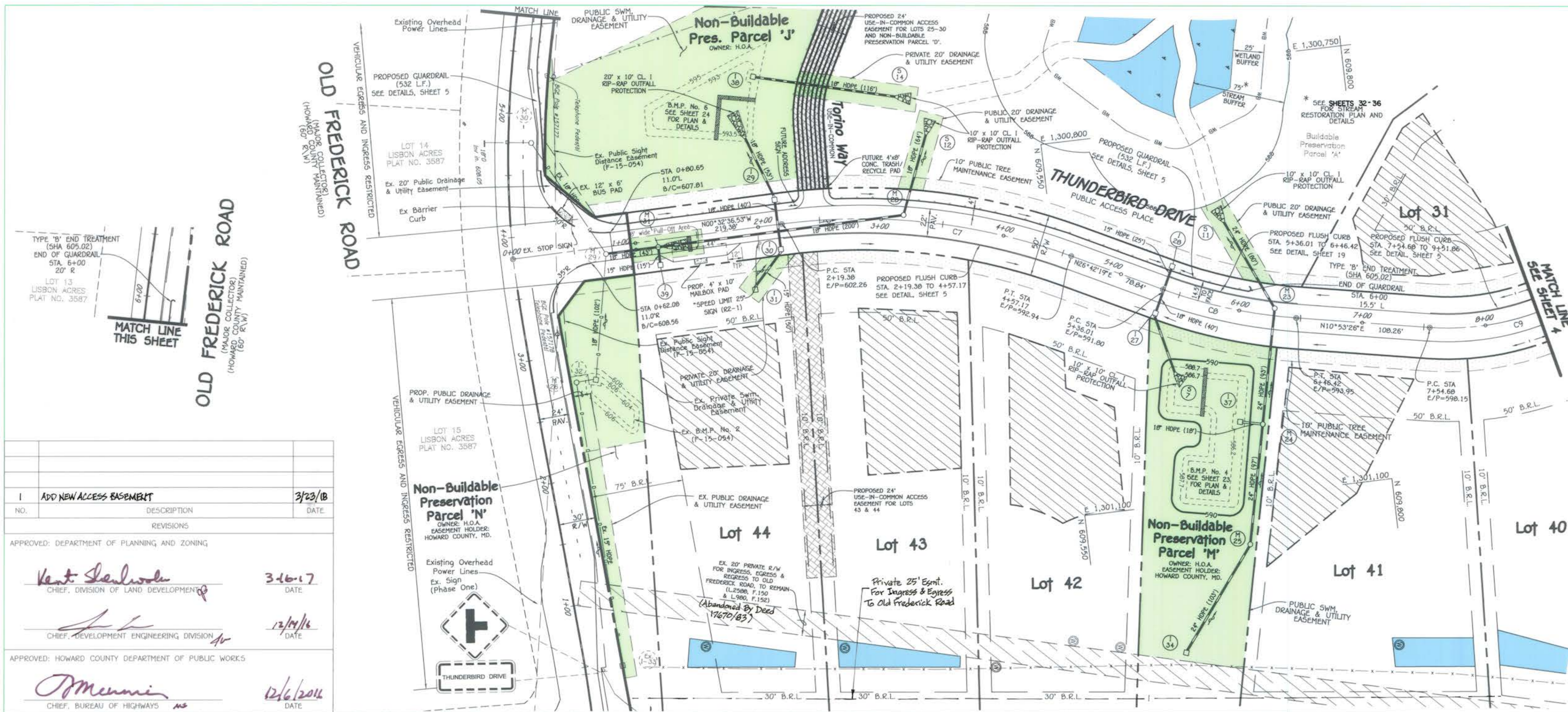
J.L. 12/14/16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

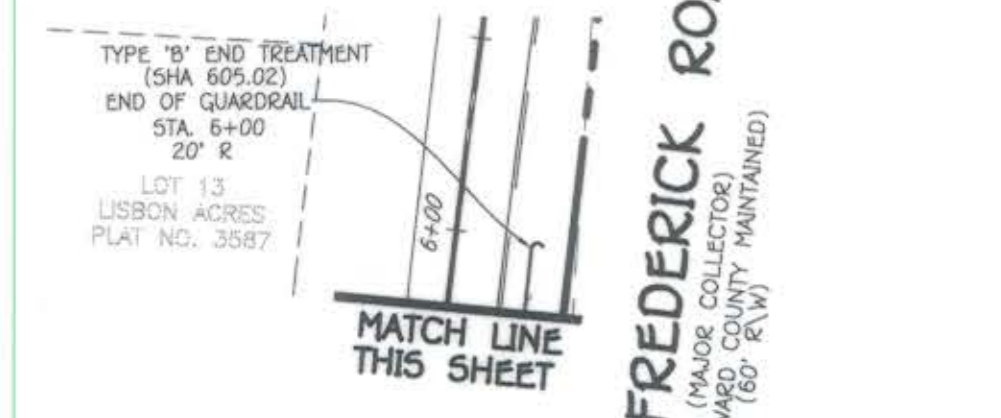
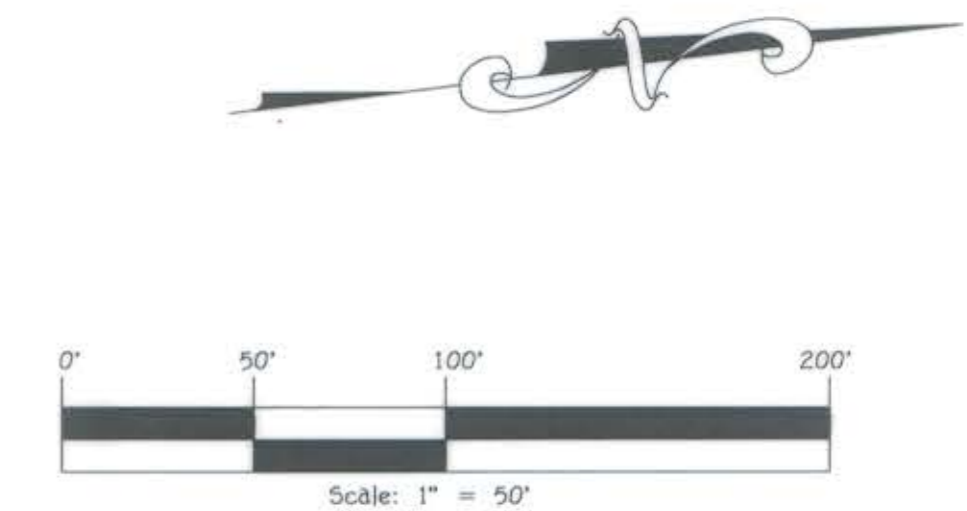
Ormanin 12/16/2016
 CHIEF, BUREAU OF HIGHWAYS DATE



1:\2020\05\06\dwg\Plan\Phase 2\05105 Sheet 2-4 road plans.dwg, 11/10/2016 12:26:36 PM, 11



CURVE #	ROAD NAME	STATION	RADIUS	LENGTH	DELTA	CHD LGTH	CHORD
C7	THUNDERBIRD DRIVE	2+19.38 TO 4+57.17	500.00'	237.79'	22°24'08"	235.56'	N13°04'51"E
C8	THUNDERBIRD DRIVE	5+36.01 TO 6+46.42	400.00'	110.41'	15°01'48"	108.66'	N18°28'36"E
C9	THUNDERBIRD DRIVE	7+54.68 TO 9+51.86	210.00'	197.19'	53°00'01"	190.02'	N16°00'34"W
C10	THUNDERBIRD DRIVE	9+51.86 TO 11+01.59	330.00'	149.73'	25°09'64"	148.45'	N29°54'41"W
C11	THUNDERBIRD DRIVE	12+31.10 TO 13+18.78	110.50'	87.68'	45°46'39"	85.40'	N05°49'08"E



NO.	DESCRIPTION	DATE
1	ADD NEW ACCESS EASEMENT	3/23/18

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Kent Seals 3/26/17
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 12/19/16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature] 12/6/2016
 CHIEF, BUREAU OF HIGHWAYS

FAIRLANE FARM PHASE TWO
 LOTS 19-44
 BUILDABLE PRESERVATION PARCELS 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'J' THRU 'N'

A Resubdivision of Non-Buildable Bulk Parcels 'G' & 'H' And A Revision To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'X', Non-Buildable Preservation Parcels 'J' Thru 'G', Parcel 'F' And Non-Buildable Bulk Parcels 'I' And 'N' "

ZONED: RC-DEO
 TAX MAP NO.: B GRID NO.: 2, PAR.: 8
 TAX MAP NO.: B GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

THUNDERBIRD DRIVE
 PLAN AND PROFILE

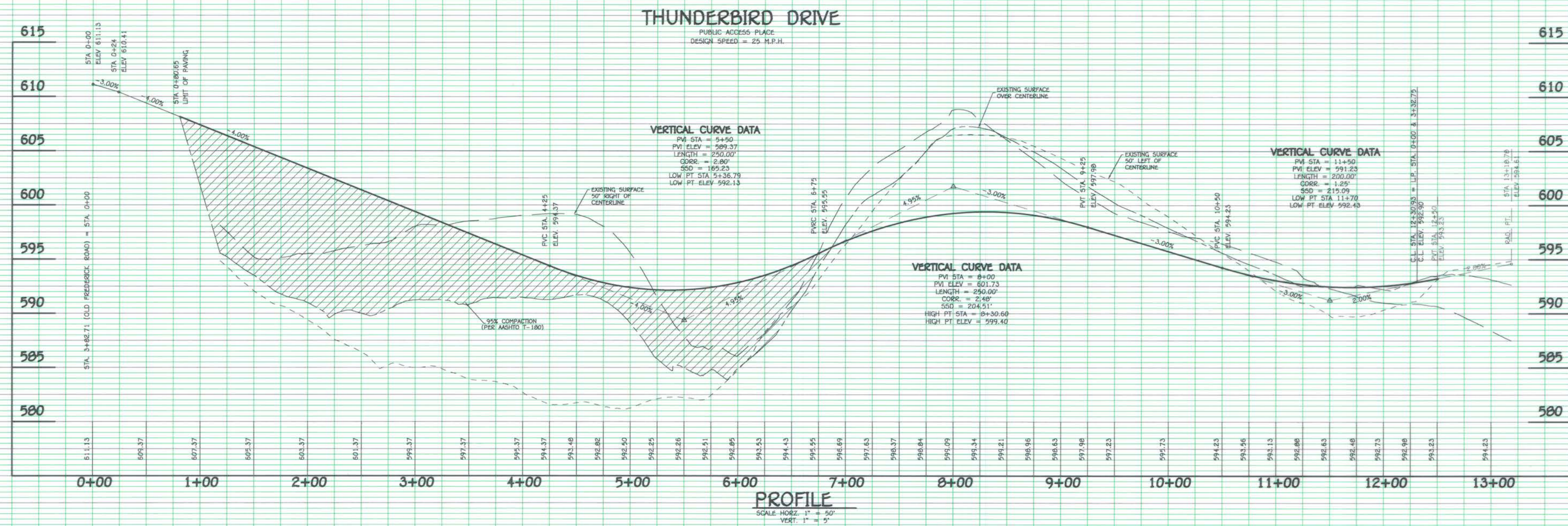
OWNER
 DASHWOOD, LLC
 c/o ESTATE OF FRANCIS JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DONALD ROAD
 WOODBINE, MD 21797
 410-977-1327

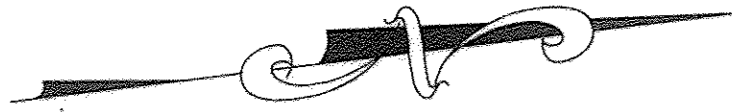
DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8018 FOREST STREET
 SUITE 300
 ELICOTT CITY, MARYLAND 21043
 (410)-922-4600

SCALE: AS SHOWN DATE: NOV. 11, 2016 DWG. NO. 3 OF 36
 DES. R.A.I./J.C.L. DRN. J.C.L. CHK. A.M.V.

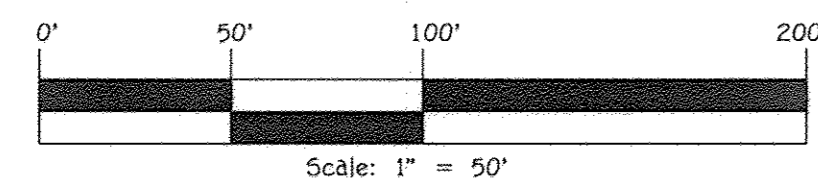
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 3872 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461 - 2895

ALDO M. VITUCCI, P.E.
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

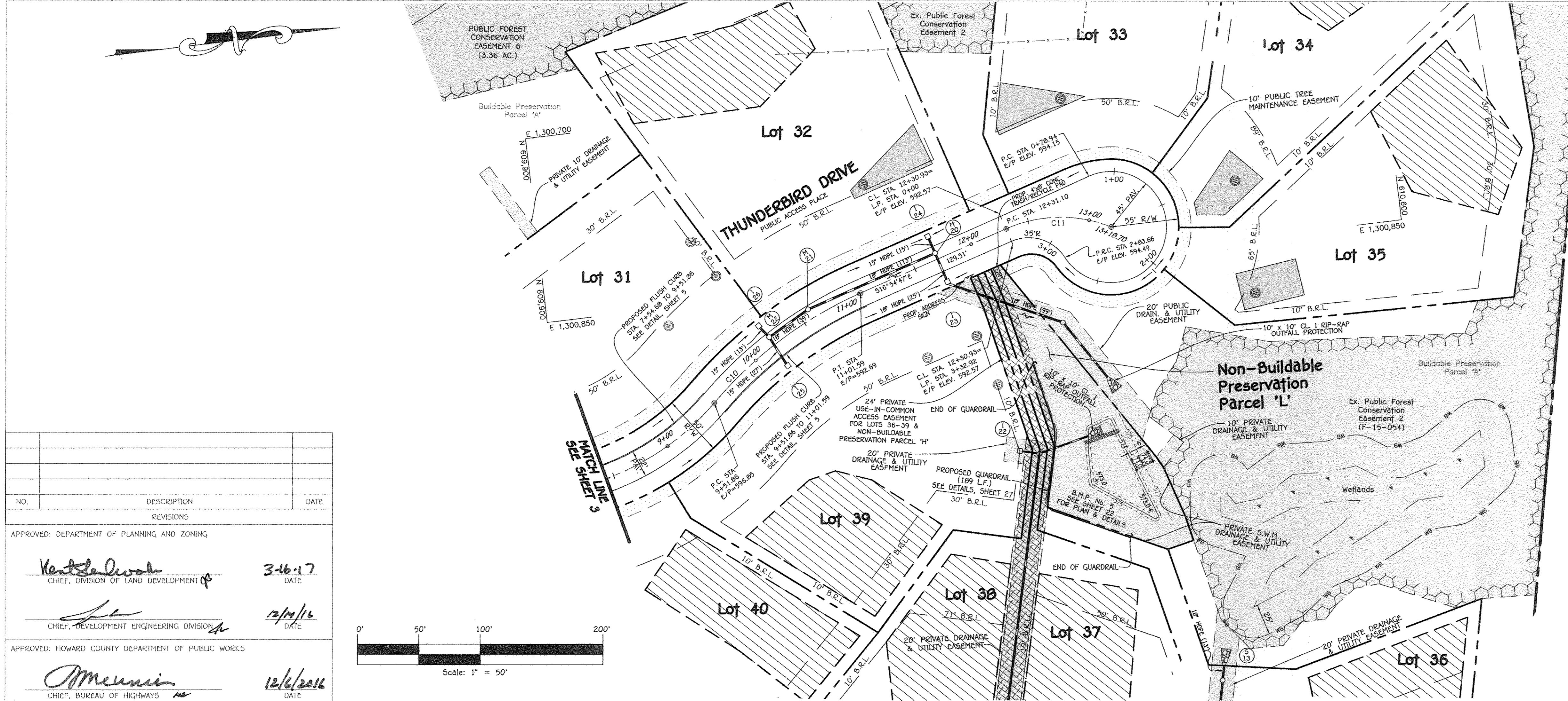




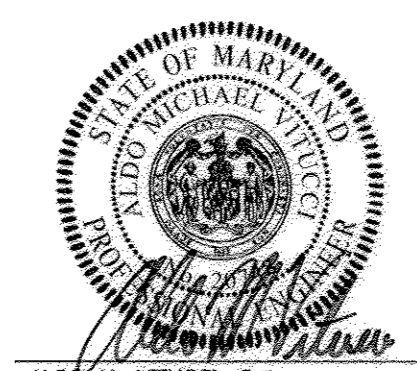
NO.	DESCRIPTION	DATE
REVISIONS		
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>Kent Sandwick</i>	3-16-17	DATE
<i>[Signature]</i>	12/14/16	DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS		
<i>Amennin</i>	12/6/2016	DATE



CENTERLINE CURVE DATA							
CURVE #	ROAD NAME	STATION	RADIUS	LENGTH	DELTA	CHD LGTH	CHORD
C7	THUNDERBIRD DRIVE	2+19.38 TO 4+57.17	500.00'	237.79'	22°24'08"	235.56'	N13°04'51"E
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C11	THUNDERBIRD DRIVE	12+31.10 TO 13+18.78	110.50'	87.68'	45°46'39"	85.40'	N05°49'08"E



B.M.P. No. 5 (F-6)
 810-RETENTION FACILITY
 (TO BE OWNED BY THE FAIRLANE FARM HOMEOWNERS ASSOCIATION AND JOINTLY MAINTAINED)



FAIRLANE FARM PHASE TWO
 LOTS 19-44,
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'

A Subdivision of Non-Buildable Sub Parcels 'I' & 'N' And A Revision To Buildable Preservation Parcel 'A', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'I' Thru 'L', Parcel 'M' And Non-Buildable Sub Parcels 'N' And 'O'"

ZONED: RC-DEO
 TAX MAP NO.: B GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

THUNDERBIRD DRIVE PLAN AND PROFILE
FAIRLANE ROAD PROFILE

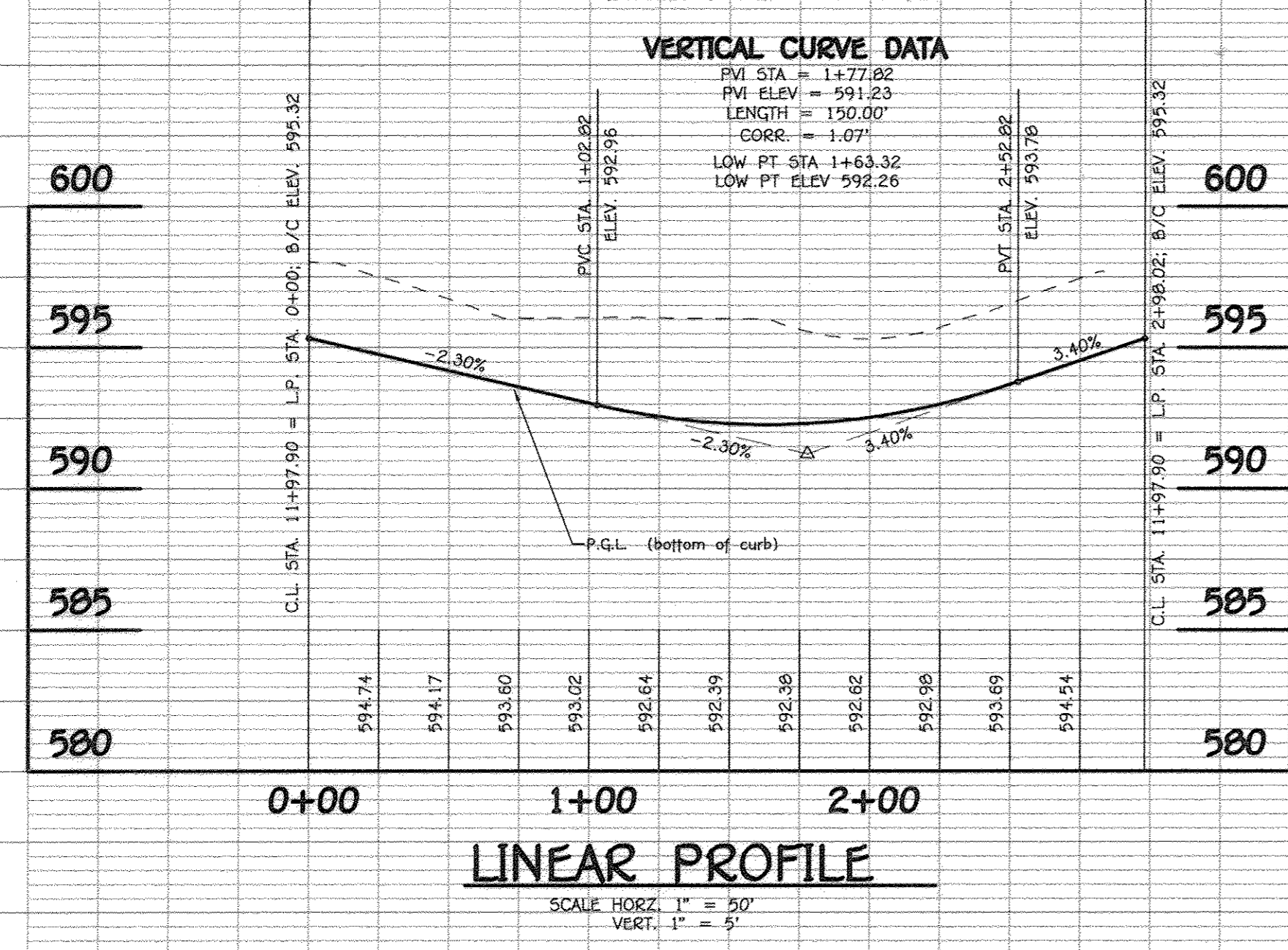
OWNER
 DMS/COOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DWIG G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUNWALL ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8318 FOREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600

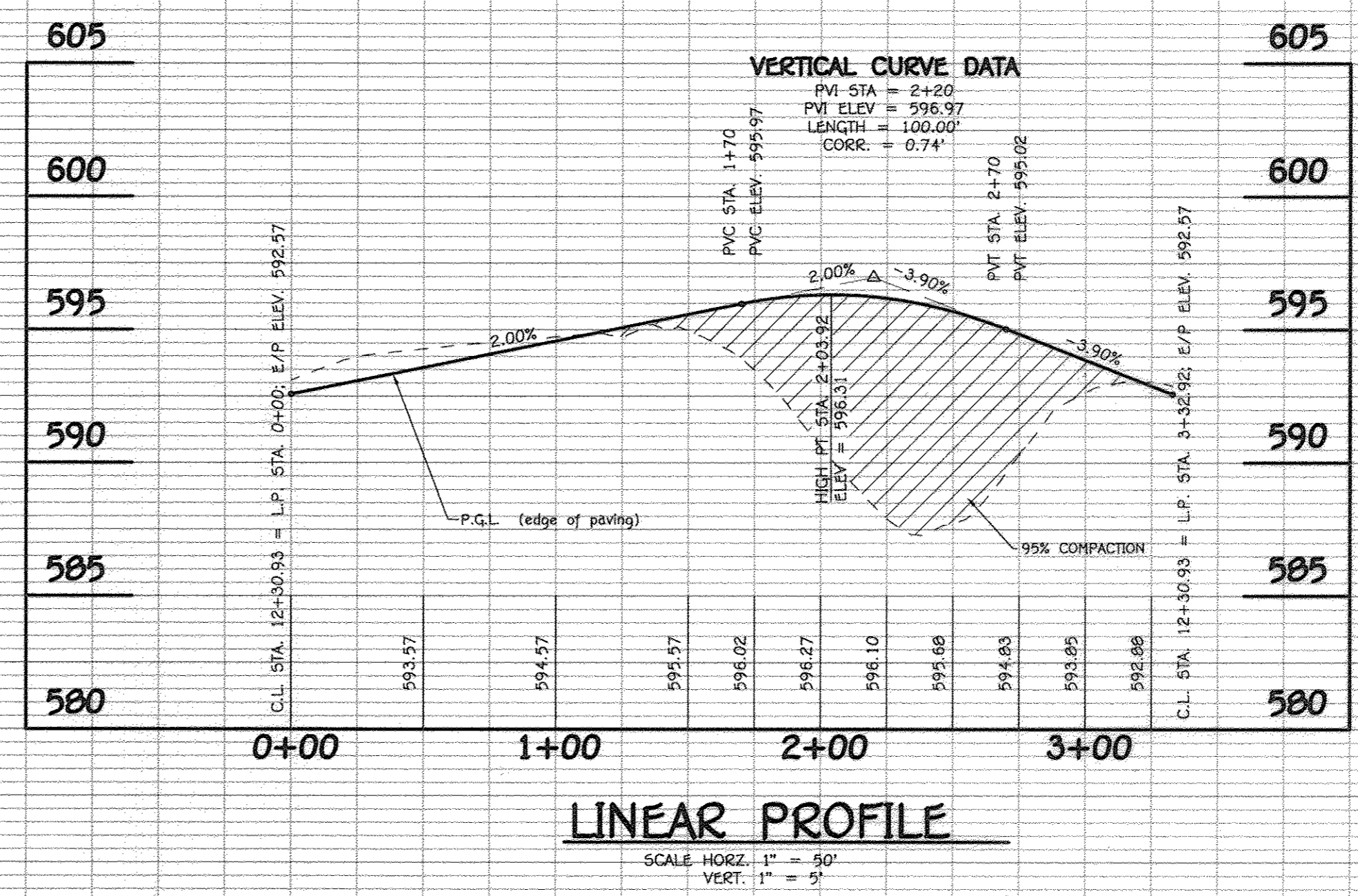
SCALE: AS SHOWN DATE: NOV. 11, 2016 DWG. NO. 4 OF 36
 DES. R.A.I./J.C.L. DRN. J.C.L. DATE CHK. A.M.V.

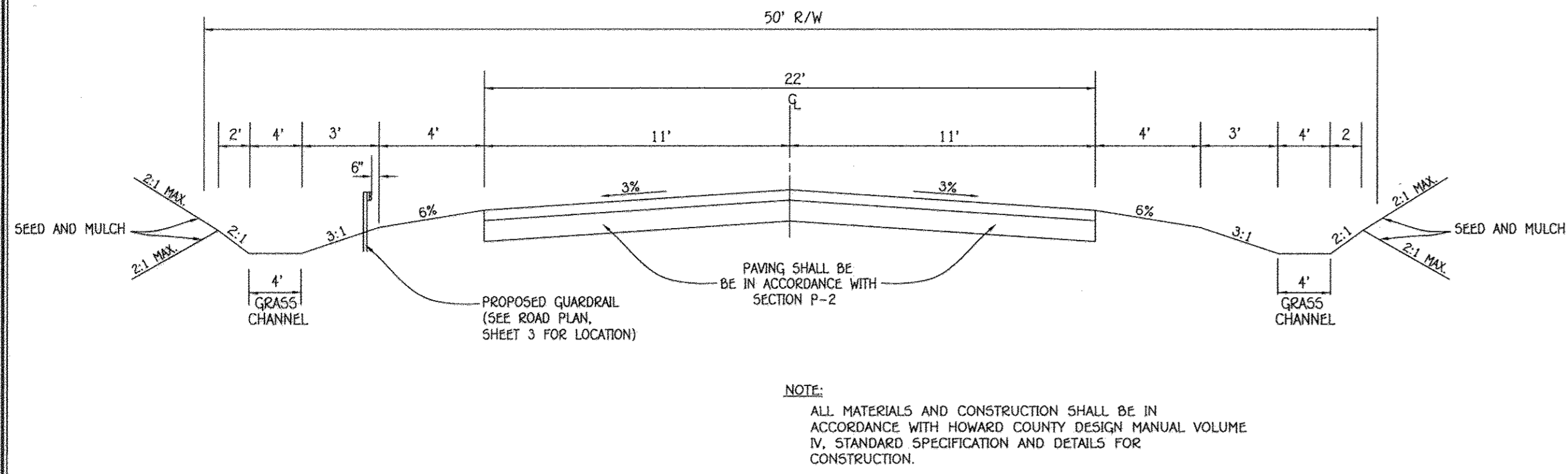
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING, CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK 10772 BALTIMORE NATIONAL FIRE
 ELLICOTT CITY, MARYLAND 21040
 (410) 481-2295

FAIRLANE ROAD



THUNDERBIRD DRIVE



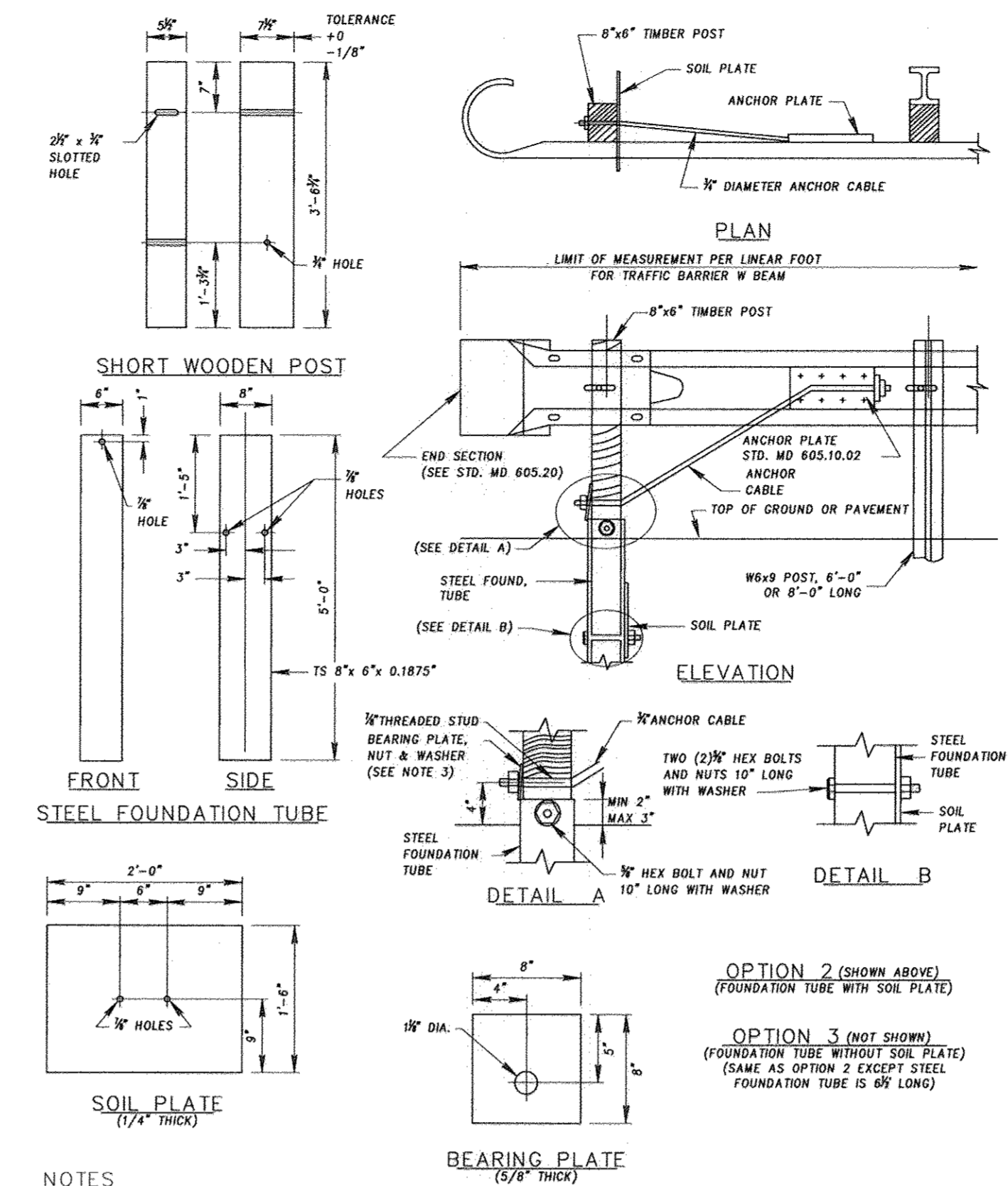


TYPICAL PUBLIC ACCESS PLACE ROADWAY SECTION
NO SCALE

NOTE:
ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.

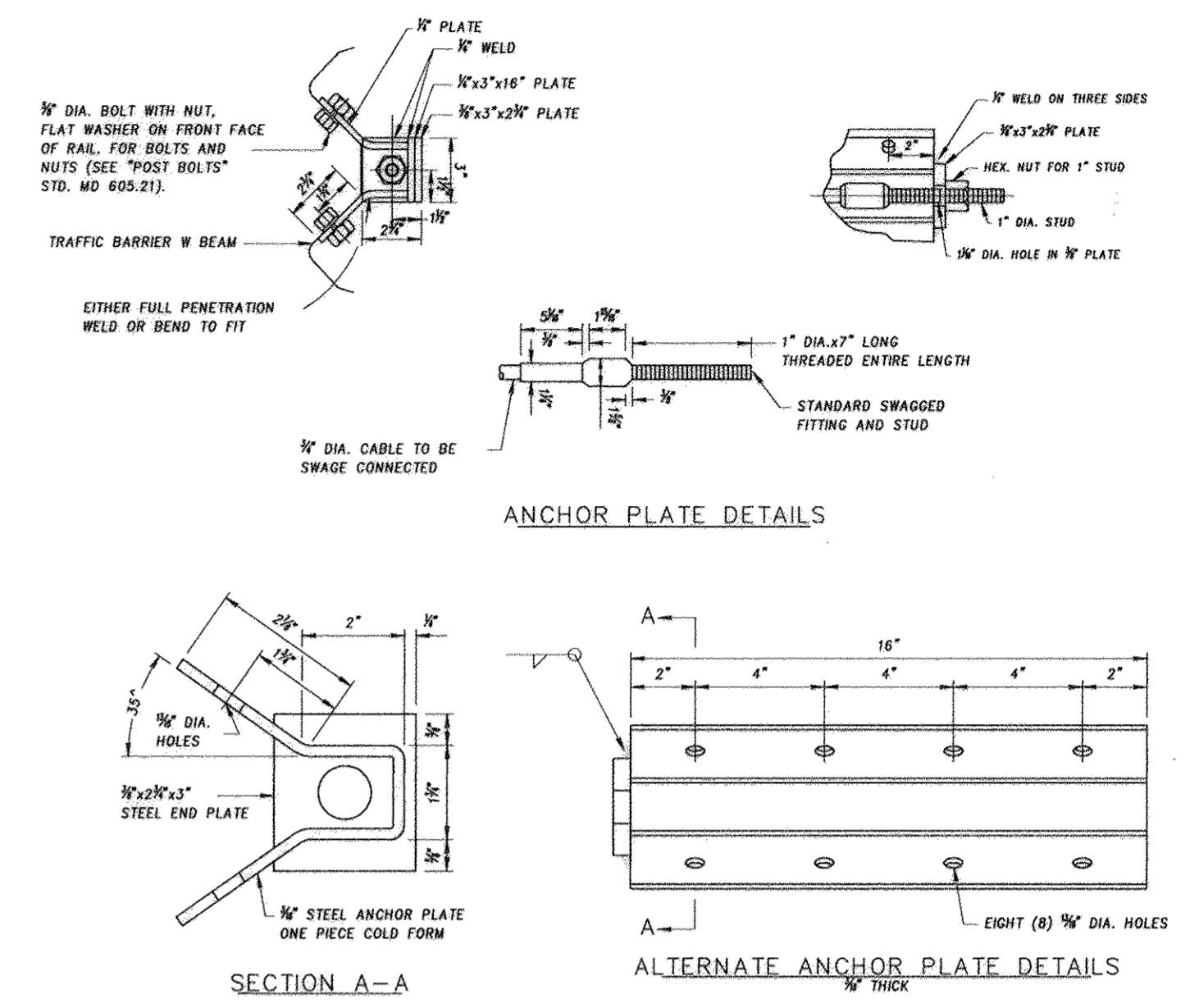
DETAIL R-2.01

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)							
		3 TO <5			5 TO <7			>7	
P-2	PARKING DRIVE ASILES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	PAVEMENT MATERIAL (INCHES)							
			HMA SUPERPAVE FINAL SURFACE	1.5	1.5	1.5	1.5	1.5	1.5
	HMA SUPERPAVE INTERMEDIATE SURFACE	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	HMA SUPERPAVE BASE	2.0	2.0	2.0	3.5	2.0	2.0	2.0	2.0
	GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0



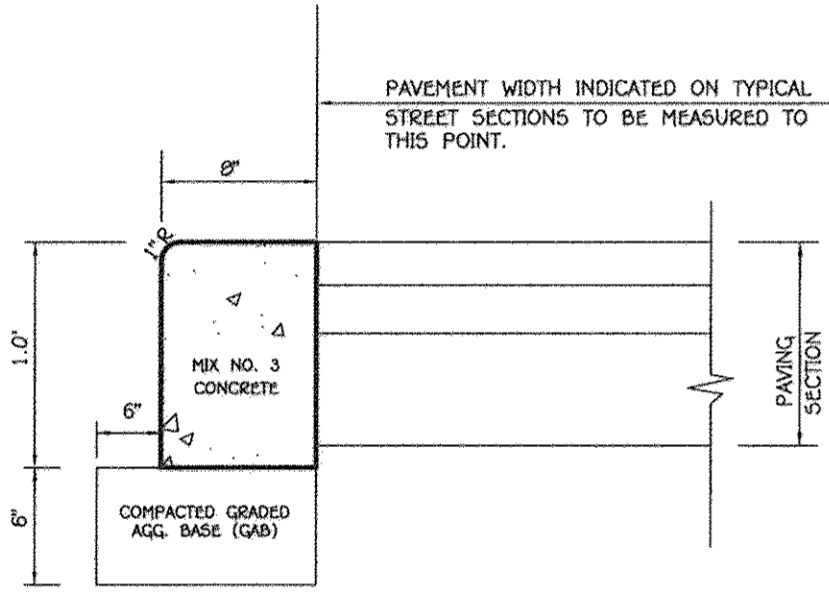
NOTES

- NOTES ON STD. MD 605.10 APPLY TO OPTION 2 & 3.
- IF THE FOUNDATION TUBE AND SOIL PLATE (OPTION 2) ARE DRIVEN INTO THE SOIL, PROPER CARE SHOULD BE TAKEN TO ENSURE THAT THE SOIL PLATE FASTENERS ARE NOT BROKEN DURING THE DRIVING PROCESS.
- SECURE BEARING PLATE WITH 16 PENNY GALVANIZED NAIL TO PREVENT ROTATION OF PLATE.
- SAME AS MD 605.01 NOTE 6.

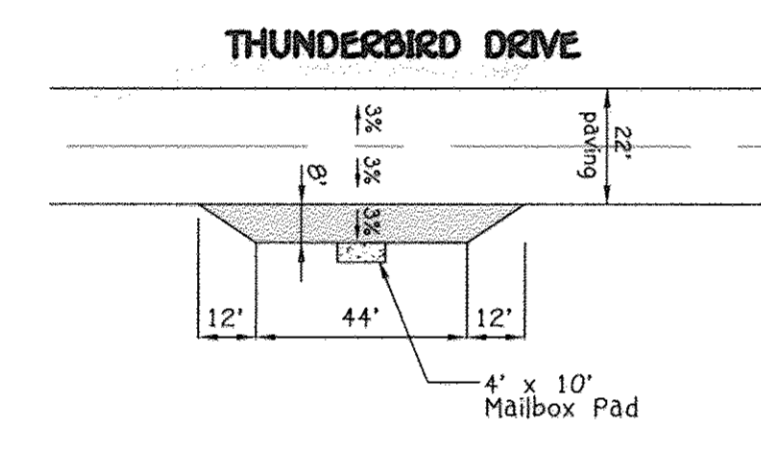


NOTE

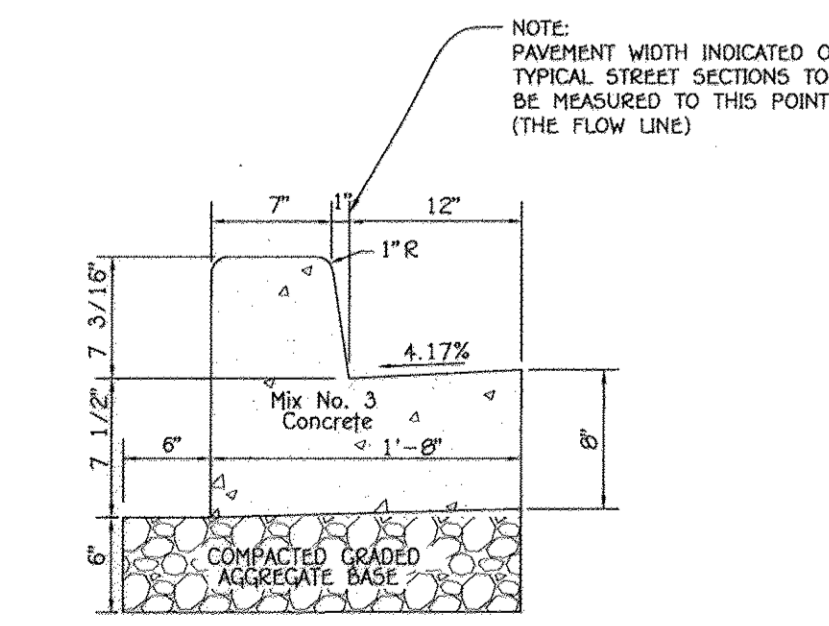
- FOR MOUNTING DETAILS SEE STD. MD 605.10.



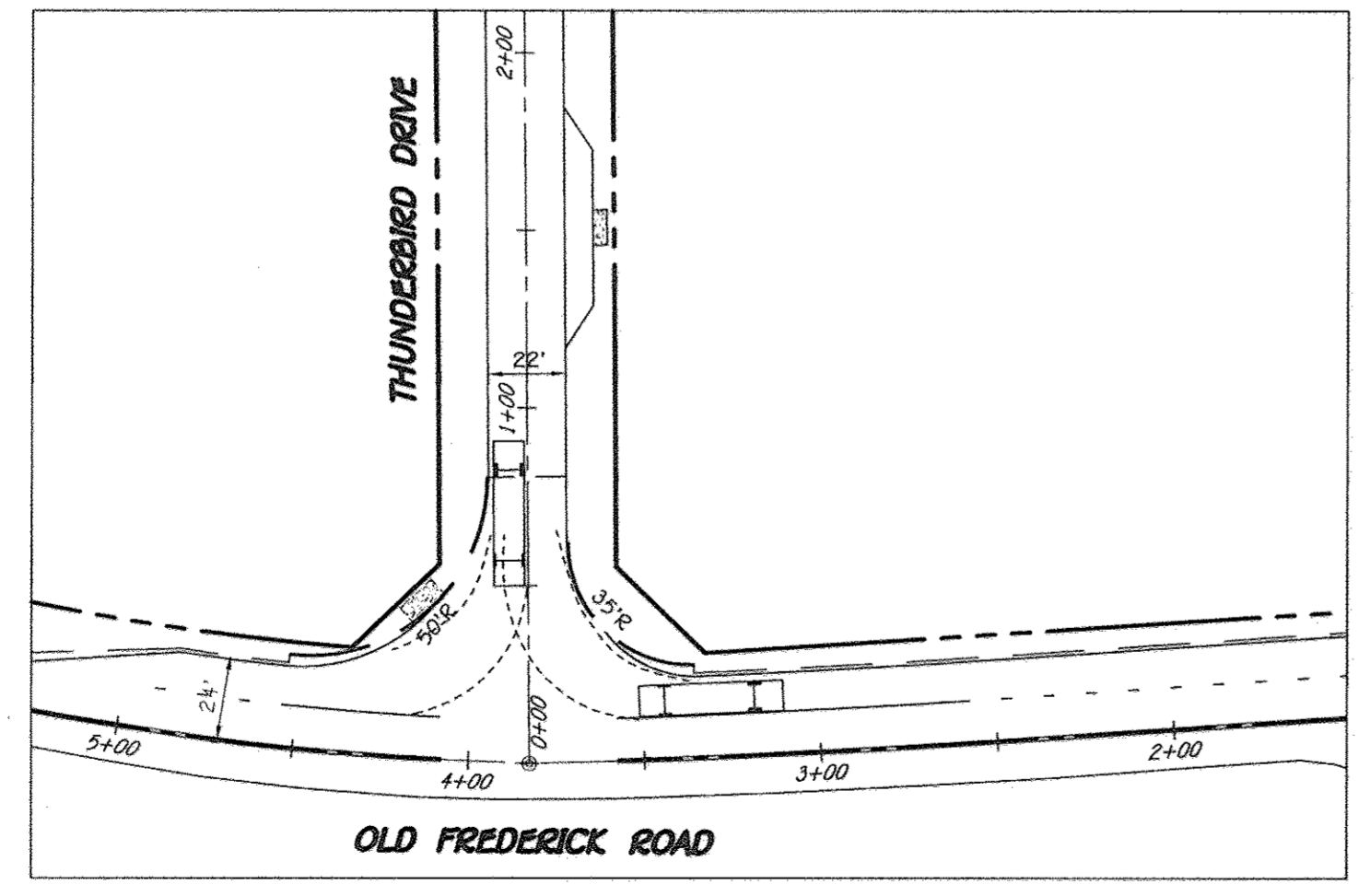
FLUSH CURB
NO SCALE DETAIL R-3.07



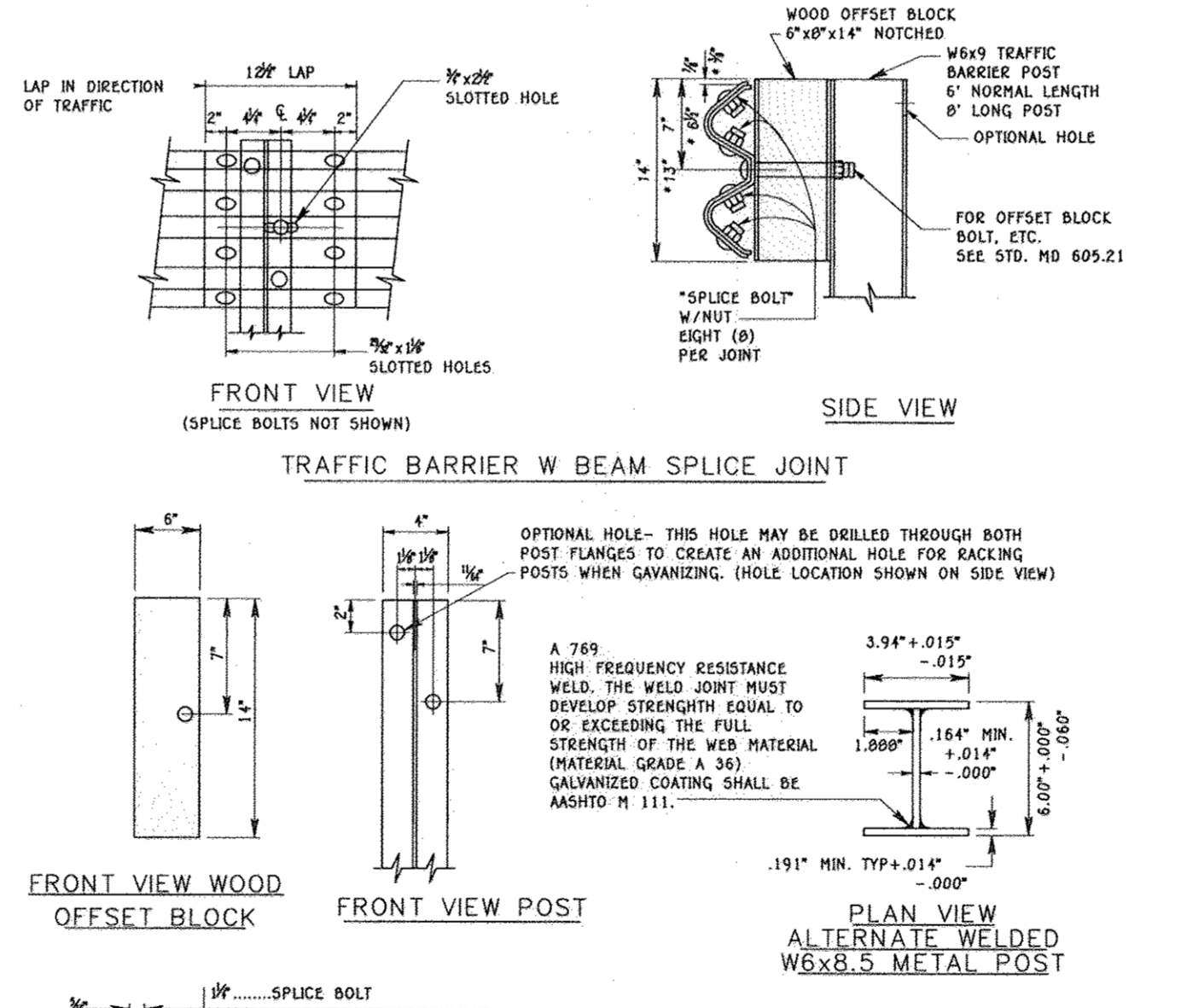
TYPICAL MAILBOX PULL-OFF AREA
SCALE: 1" = 40'



7\"/>



BUS TURNING MOVEMENTS
SCALE: 1" = 50'



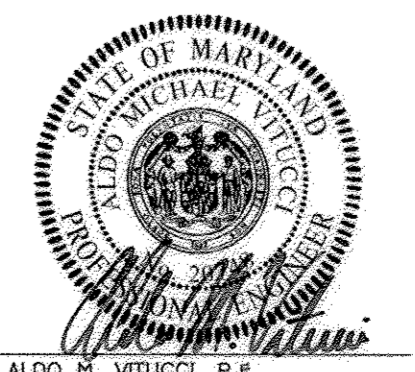
NOTES

- EXCEPT FOR THE DIMENSIONS SHOWN ON THE ALTERNATE WELDED W6x8.5 METAL POST PLAN VIEW, ALL DIMENSIONS FOR HOLES, HOLE SPACING, LENGTHS, ETC. WILL REMAIN THE SAME AS THEY ARE FOR THE W6x9 POSTS AND WOOD OFFSET BLOCKS.
- FOR COMPOSITE OFFSET BLOCKS SEE NOTE 5 ON MD 605.21.
- POSTS SHALL BE SPACED 6'-3" C/C, UNLESS OTHERWISE STATED ON THE PLANS OR DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER W BEAM METAL POST, W BEAM SPLICE AND WOOD OFFSET BLOCK
NOT TO SCALE MD 605.23

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS *M. M. M.* 12/6/16 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT *K. S.* 3-16-17 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION *J. S.* 12/14/16 DATE

NO.	REVISIONS DESCRIPTION	DATE



ALDO N. VITUCCI, P.E.
 DATE: 11/14/16
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

ROADWAY & GUARDRAIL DETAILS
FAIRLANE FARM
PHASE TWO
 LOTS 19-44,
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Resubdivision of Non-Buildable Bulk Parcels 'C' & 'H' And A Deviation to Buildable Preservation Parcel 'A', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'I' Thru 'N', Parcel 'P' And Non-Buildable Bulk Parcels 'C' And 'H'"
 ZONED: RC-DEO
 TAX MAP NO.: 5 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 9 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 5 OF 36

DESIGN CERTIFICATION

I hereby certify that this plan has been designed in accordance with current Maryland Erosion and Sediment Control Laws, Regulations and Standards, that it represents a true and correct copy based on my personal knowledge of the site, and that it complies with the requirements of the Howard Soil Conservation District.

Designer's Signature: *[Signature]* DATE: 11/14/16
 ALDO M. VITUGCI, P.E.
 Printed Name: ALDO M. VITUGCI, P.E.
 HO Registration No.: 20749
 P.E., E.L.S., or S.L.A. (circle one)

OWNER/DEVELOPER CERTIFICATION

"I/We certify that any clearing, grading, construction or development will be done pursuant to this approved erosion and sediment control plan, including inspecting and maintaining controls and that the responsible personnel involved in the construction project will have a certificate of training at a Maryland Department of the Environment (MDE) approved training program for the control of erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE."

Owner/Developer's Signature: *[Signature]* DATE: 11/14/16
 Joseph Ruten, Developer
 Printed Name & Title: Joseph Ruten, Developer

Approved: This Plan is Approved For Soil Erosion And Sediment Control by the Howard Soil Conservation District.
 Signature: *[Signature]* DATE: 11/30/16
 Approved: Department of Planning And Zoning
 Signature: *[Signature]* DATE: 3-16-17
 Chief, Division of Land Development

Chief, Development Engineering Division
 Signature: *[Signature]* DATE: 12/14/16
 Approved: Howard County Department of Public Works
 Signature: *[Signature]* DATE: 12/16/2016
 Chief, Bureau of Highways

SEDIMENT CONTROL LEGEND

- S—S—S— SUPER-SILT FENCE
- S—S—S— SILT FENCE
- S—S—S— STABILIZED CONSTRUCTION ENTRANCE
- S.I.P. (W)
- L.O.D.— LIMIT OF DISTURBANCE
- R.P.S. REMOVABLE PUMPING STATION
- F.B. FILTER BAG
- TYPE A-2 EARTH DIKE



STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 License No. 20749
 Rev. No. 2, 5/24/16

REVISIONS

NO.	DESCRIPTION	DATE
1	ADD ACCESS EASEMENT TO ADJACENT PROPERTIES & EXPAND LIMIT OF DISTURBANCE	3/23/16
2	REVISE HOUSE & GRADING ON LOT 42	5/18/16
3	REVISE HOUSE GRADING ON LOT 41	6/22/16
4	REV. HOUSE & GRADING ON LOT 28	8/20/16
5	REV. HOUSE, GRADING, & SWM LOTS 27 & 29	11/2/16
6	REV. HOUSES, GRADING, & SWM FOR LOTS 25, 26, & 30	2/13/17
7	REV. LOTS 27 & 44 TO SHOW FINAL HOUSE & GRADING	4/27/17

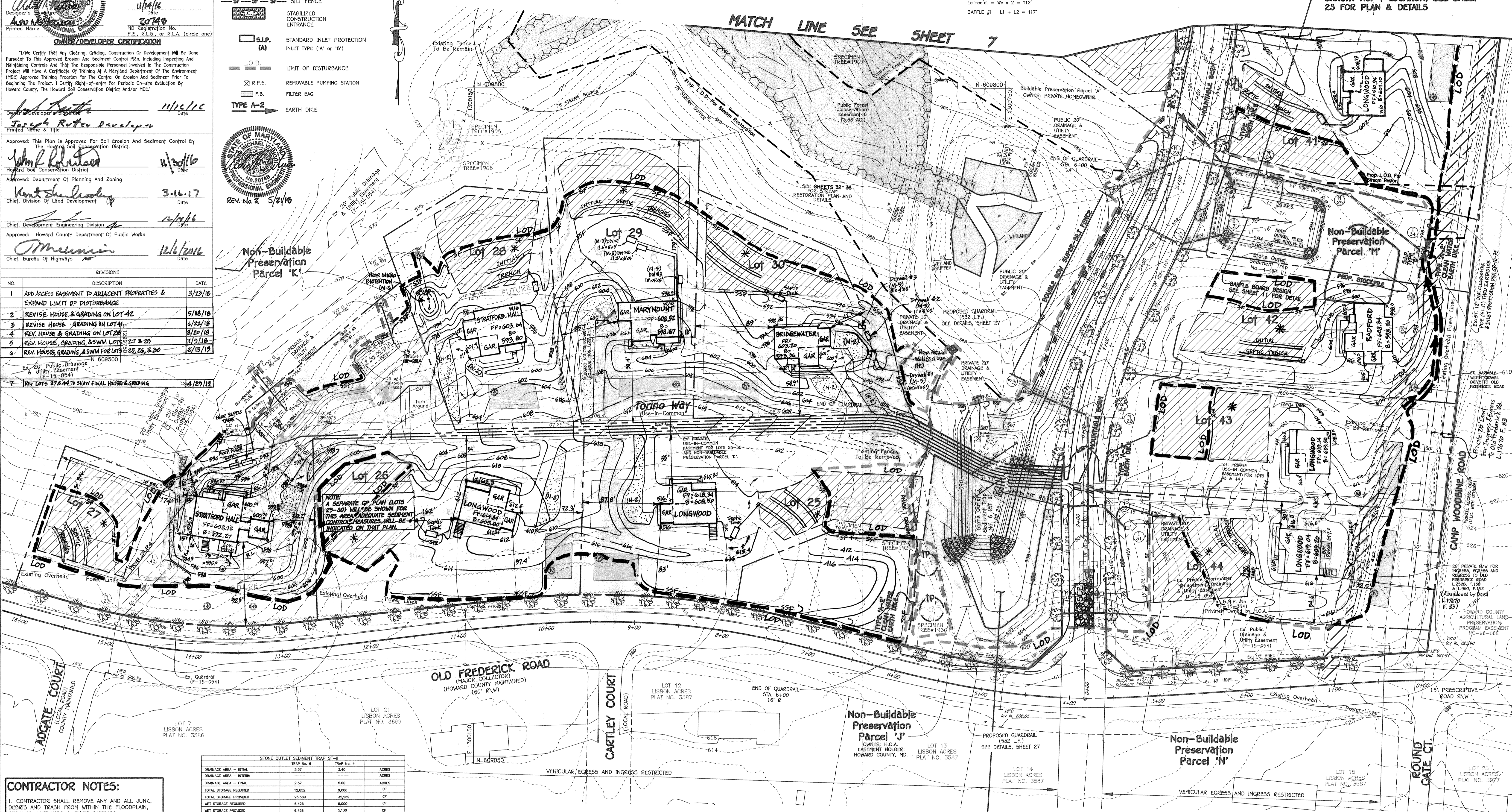
* NOTE: THE SILT FENCE SHOWN WITHIN EACH PRIVATE SEPTIC FIELD IS TO BE INSTALLED WITH THE GP-18-35 FOR THE CONSTRUCTION OF THE HOUSE & SEPTIC SYSTEM FOR THAT SPECIFIC LOT.

BAFFLE DESIGN

TOP OF BAFFLE EL. 585.25
 $W = (A/2)^2 = (6.233/2)^2 = 9.6$
 $L = \text{req'd} = W \times 2 = 19.2$
 BAFFLE #1 L1 + L2 = 11'7"

NOTE: THERE CAN BE NO DISTURBANCE EXCEEDING 20 ACRES AT ANYTIME.

NOTE: FOR B.M.P. No. 4 (F-6) AT S.O.S.T. No. 4 LOCATION, SEE SHEET 23 FOR PLAN & DETAILS



CONTRACTOR NOTES:

- CONTRACTOR SHALL REMOVE ANY AND ALL JUNK, DEBRIS AND TRASH FROM WITHIN THE FLOODPLAIN, STREAMS, WETLANDS & THEIR BUFFERS.
- SHOULD THE STOCKPILE EXCEED 15 FT. IN HEIGHT IT MUST BE BENCHED.
- EARTH DIKES CROSSING THE ROADWAYS ARE TO BE CONNECTED TO MACADAM BERMS AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- ANY ROADSIDE SWALE OR DITCH LOCATED IN FILL SHALL BE COMPACTED TO 95% COMPACTION TO AVOID EROSION IN THESE AREAS.

STONE OUTLET SEDIMENT TRAP S1-B

	TRAP NO. 6	TRAP NO. 4	
DRAINAGE AREA - INITIAL	3.57	3.40	ACRES
DRAINAGE AREA - INTERIM	3.57	3.40	ACRES
DRAINAGE AREA - FINAL	2.57	5.00	ACRES
TOTAL STORAGE REQUIRED	12,852	9,000	CF
TOTAL STORAGE PROVIDED	26,589	32,289	CF
NET STORAGE REQUIRED	6,426	9,000	CF
NET STORAGE PROVIDED	6,426	5,130	CF
DRY STORAGE REQUIRED	11,306	20,034	CF
DRY STORAGE PROVIDED	17,792	25,168	CF
TRAP BOTTOM ELEVATION	582.25	584.00	FT
TRAP BOTTOM DIMENSIONS	53 x 115	45 x 83	FT x FT
WEIR CREST (DRY STORAGE) ELEVATION	584.25	585.50	FT
OUTLET (NET STORAGE) ELEVATION	583.38	585.10	FT
CLEANOUT ELEVATION	582.80	584.50	FT
TOP OF EMBANKMENT ELEVATION	587.00	589.50	FT
SIZE SLOPE	2:1	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	8'	4'	FT
OUTLET PROTECTION - LENGTH	10'	10'	FT
OUTLET PROTECTION - WIDTH	15'	15'	FT
OUTLET PROTECTION - DEPTH	15"	15"	IN

ROOFLEADER NOTE:

AN OVERFLOW OUTFALL (SURCHARGE) SHALL BE PROVIDED AT EACH DOWNSPOUT PRIOR TO CONNECTION TO THE UNDERGROUND ROOFLEADER. SEE DETAIL, SHEET 21.

HOUSE CONSTRUCTION NOTES:

- THIS HOWARD (SCD) STANDARD SEDIMENT CONTROL PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION FOR THIS PROJECT.
- HOUSES MAY NOT BE BUILT USING THIS DRAWING.

NOTE: FOR B.M.P. No. 6 (F-6) AT S.O.S.T. No. 6 LOCATION, SEE SHEET 24 FOR PLAN & DETAILS

NOTE: AT NO TIME CAN THERE ANY LAND DISTURBANCE IN EXCESS OF 20 ACRES.

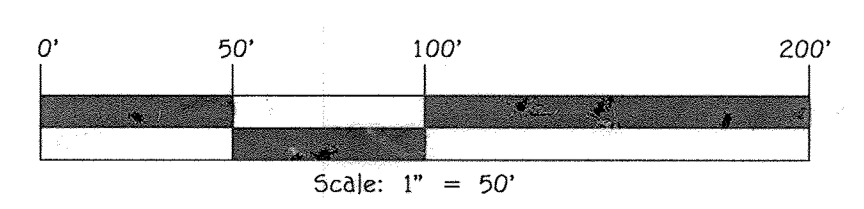
BAFFLE DESIGN

TOP OF BAFFLE EL. 583.40
 $W = (A/2)^2 = (4.272/2)^2 = 4.6$
 $L = \text{req'd} = W \times 2 = 9.2$
 BAFFLE #1 L1 + L2 = 9'5"
 BAFFLE #1 L3 + L4 + L5 = 9'5"

FISHER COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK • 10272 BALDWIN NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2895

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 OVAL ROAD
 WOODBINE, MD 211797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8318 FORREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600



ALDO M. VITUGCI, P.E.
 DATE: 11/14/16
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
FAIRLANE FARM
PHASE TWO
 LOTS 19-44
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Resubdivision of Non-Buildable Bulk Parcels 'C' & 'T' And A Revision To Buildable Preservation Parcel 'X' Recorded as Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'X', Non-Buildable Preservation Parcels 'B' Thru 'E', Parcel 'I' And Non-Buildable Bulk Parcels 'G' And 'H'.
 ZONED: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 6 OF 36



DESIGN CERTIFICATION
 I hereby certify that this plan has been designed in accordance with current Maryland Erosion Control Regulations and standards, that it represents a professional engineering design based on my personal knowledge of the site, and that I am duly licensed as a Professional Engineer under the laws of the State of Maryland.
 Designer's Signature: *[Signature]* Date: 11/14/16
 Printed Name: ALDO M. VITUCCI, P.E. MD Registration No. 20746

OWNER/DEVELOPER CERTIFICATION
 I/We certify that any clearing, grading, construction or development will be done pursuant to this approved erosion and sediment control plan, including inspecting and maintaining controls and that the responsible personnel involved in the construction project will have a certificate of training at a Maryland Department of the Environment (MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE.
 Owner/Developer's Signature: *[Signature]* Date: 11/15/16
 Printed Name & Title: Joseph Ruffalo, Developer

Approved: This Plan is Approved For Soil Erosion And Sediment Control By The Howard Soil Conservation District.
 Howard Soil Conservation District: *[Signature]* Date: 11/30/16
 Approved: Department of Planning And Zoning
 Chief, Division of Land Development: *[Signature]* Date: 3-16-17
 Chief, Development Engineering Division: *[Signature]* Date: 2/14/16
 Approved: Howard County Department of Public Works
 Chief, Bureau of Highways: *[Signature]* Date: 12/6/2016

REVISIONS

NO.	DESCRIPTION	DATE
1	ADD ACCESS ESM. TO ADJACENT PROPERTIES & EXPAND LIMIT OF DISTURBANCE	3/23/18
2	REV. HOUSE & GRADING LOTS 31, 39, & 40	5/18/18
3	REV. HOUSE & GRADING IN LOT 32	6/22/18

STONE/RIPRAP OUTLET SEDIMENT TRAP 01-II, TRAP NO. 5

DESCRIPTION	AMOUNT	UNITS
DRAINAGE AREA - INITIAL	2.26	ACRES
DRAINAGE AREA - FINAL	3.44	ACRES
TOTAL STORAGE REQUIRED	6,192	CF
TOTAL STORAGE PROVIDED	17,116	CF
NET STORAGE REQUIRED	3,096	CF
NET STORAGE PROVIDED	3,096	CF
DRY STORAGE REQUIRED 1-YR.	11,781	CF
DRY STORAGE PROVIDED	14,897	CF
EXISTING GROUND ELEVATION AT OUTLET (NET STORAGE ELEVATION)	574.00	FT
TRAP BOTTOM ELEVATION	573.00	FT
TRAP BOTTOM DIMENSIONS	24 x 60	FT x FT
TRAP LENGTH	14	FT
WIRE CREST (DRY STORAGE) ELEVATION	577.50	FT
CLEANOUT ELEVATION	573.50	FT
TOP OF CURBMENT ELEVATION	578.00	FT
SIDE SLOPE	2:1	HW SLOPE
GRANULARITY TOP WIDTH	4'	FT
OUTLET PROTECTION - LENGTH	10'	FT
OUTLET PROTECTION - DEPTH	18"	IN

REVISIONS (CONT.)

NO.	DESCRIPTION	DATE
4	REVISE HOUSE & GRADING LOT 33	8/20/18
5	REV. LOT 34, SHOWING FINAL HOUSE, SWM & GRADING	11/9/18
6	REV. TO SHOW FINAL HSE, SWM, & GRADING FOR LOTS 35, 36, & 38	2/12/19
7	REV. SEPTIC LOT 37	4/29/19

ROOFLEADER NOTE:
 AN OVERFLOW OUTFALL (SURCHARGE) SHALL BE PROVIDED AT EACH DOWNSPOUT PRIOR TO CONNECTION TO THE UNDERGROUND ROOFLEADER. SEE DETAIL SHEET 21.

CONTRACTOR NOTES:
 1. CONTRACTOR SHALL REMOVE ANY AND ALL JUNE, DEBRIS AND TRASH FROM WITHIN THE FLOODPLAIN, STREAMS, WETLANDS & THEIR BUFFERS.
 2. SHOULD THE STOCKPILE EXCEED 15 FT. IN HEIGHT IT MUST BE BENCHED.
 3. EARTH DIKES CROSSING THE ROADWAYS ARE TO BE CONNECTED TO MACADAM BEAMS AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 4. ANY ROADSIDE SWALE OR DITCH LOCATED IN FILL SHALL BE COMPACTED TO 95% COMPACTION TO AVOID EROSION IN THESE AREAS.

FAIRLANE FARM - DRIVEWAY CULVERTS

LOT	SLOPE (%)	Q10 (cfs)	DW Pipe Size
2	2.67	0.52	Standard
3	2.50	1.11	Standard
4	2.00	0.27	Standard
5	2.00	0.85	Standard
6	4.00	0.27	Standard
7	T.O.V.C.	U.I.C. Dr.	No Pipe
8	T.O.V.C.	U.I.C. Dr.	No Pipe
9	T.O.V.C.	U.I.C. Dr.	No Pipe
10	T.O.V.C.	U.I.C. Dr.	No Pipe
11	0.36	0.27	Standard
12	4.00	1.52	Standard
13	At 1-10	Down Hill	No Pipe
14	At 1-11	Down Hill	No Pipe
15	1.74	1.25	Standard
16	N/A	U.I.C. Dr.	No Pipe
17	N/A	U.I.C. Dr.	No Pipe
18	N/A	U.I.C. Dr.	No Pipe
19	Sump	At DW	No Pipe
20	Sump	U.I.C. Dr.	No Pipe
21	Sump	At DW	No Pipe
22	Sump	At DW	No Pipe
23	2.10	1.04	Standard
24	2.00	0.52	Standard
25	N/A	U.I.C. Dr.	No Pipe
26	N/A	U.I.C. Dr.	No Pipe
27	N/A	U.I.C. Dr.	No Pipe
28	N/A	U.I.C. Dr.	No Pipe
29	N/A	U.I.C. Dr.	No Pipe

*NOTE: THE SILT FENCE SHOWN WITHIN EACH PRIVATE SEPTIC FIELD IS TO BE INSTALLED WITH THE GP-18-35 FOR THE CONSTRUCTION OF THE HOUSE & SEPTIC SYSTEM FOR THAT SPECIFIC LOT.

NOTE: AT NO TIME CAN THERE BE ANY LAND DISTURBANCE IN EXCESS OF 20 ACRES.

HOUSE CONSTRUCTION NOTES:
 1. THIS HOWARD (SCD) STANDARD SEDIMENT CONTROL PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION FOR THIS PROJECT.
 2. HOUSES MAY NOT BE BUILT USING THIS DRAWING.

STATE OF MARYLAND PROFESSIONAL ENGINEER
 ALDO M. VITUCCI, P.E. DATE: 11/14/16
 *Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20746, Expiration Date 2-22-17.

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
FAIRLANE FARM
PHASE TWO
 LOTS 19-44,
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Re-division of Non-Buildable Bulk Parcels 'Q' & 'R' And A Revision To Buildable Preservation Parcel 'A', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' Thru 'C', Parcel 'F' And Non-Buildable Bulk Parcels 'G' And 'H'."
 ZONED: RC-DEO
 TAX MAP NO.: 0 GRID NO.: 2, PAR.: 0
 TAX MAP NO.: 0 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 7 OF 36

SEDIMENT CONTROL LEGEND

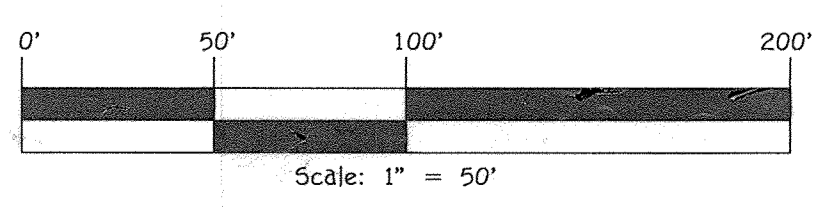
- SUPER-SILT FENCE
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- S.I.P. (A) STANDARD INLET PROTECTION INLET TYPE 'A' OR 'B'
- L.O.D. LIMIT OF DISTURBANCE
- R.P.S. REMOVABLE PUMPING STATION
- F.B. FILTER BAG

BAFFLE DESIGN
 TOP OF BAFFLES EL. 576.00
 $W = (A/2)^2 \times (3.634/2)^2 = 43'$
 $L = \text{req'd.} = W \times 2 = 86'$
 BAFFLE #1 L1 + L2 + L3 = 94'
 BAFFLE #2 L4 + L5 + L6 = 89'

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PRICE
 ELICOTT CITY, MARYLAND 21142
 (410) 461-2895

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUNWALL ROAD
 WOODBINE, MD 21197
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8318 FORREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21143
 (410)-922-4600



DESIGN CERTIFICATION
 I hereby certify that this Plan Has Been Designed In Accordance With Current Maryland Erosion Control Laws, Regulations And Standards, That It Represents A True And Accurate Representation Based On My Personal Knowledge Of The Site, And That I Am A Licensed Professional Engineer With The Requirements Of The Howard Soil Conservation District.

Designer: *[Signature]* Date: 11/16/16
 Printed Name: ALDO M. VITUGI, P.E. No. 20749
 MD Registration No. P.E., R.L.S., or R.L.A. (circle one)

OWNER/DEVELOPER CERTIFICATION
 "I/We Certify That Any Clearing, Grading, Construction Or Development Will Be Done Pursuant To This Approved Erosion And Sediment Control Plan, Including Inspecting And Maintaining Controls And That The Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Training At A Maryland Department Of The Environment (MDE) Approved Training Program For The Control On Erosion And Sediment Prior To Beginning The Project. I Certify Right-of-entry For Periodic On-site Evaluation By Howard County, The Howard Soil Conservation District And/or MDE."

Owner/Developer's Signature: *[Signature]* Date: 11/16/16
 Printed Name & Title: Joseph Rutter, Developer

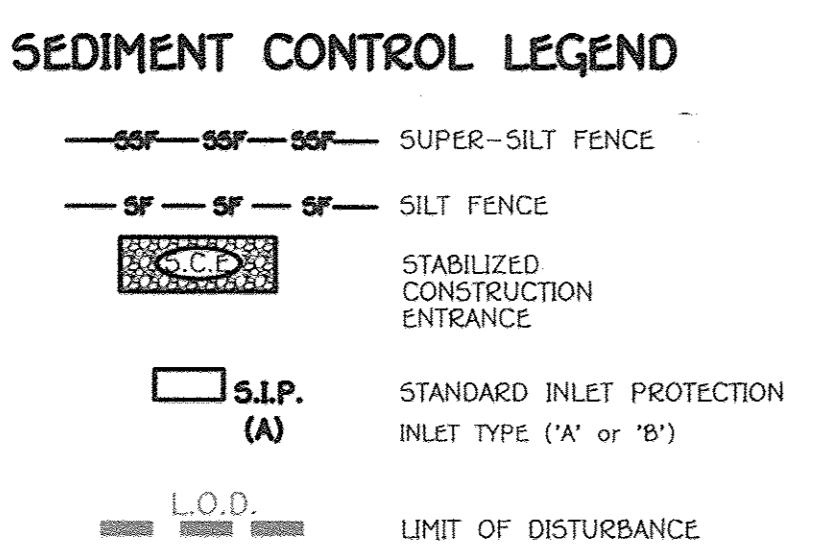
Approved: This Plan is Approved For Soil Erosion And Sediment Control By The Howard Soil Conservation District.
 Howard Soil Conservation District: *[Signature]* Date: 11/30/16
 Approved: Department Of Planning And Zoning: *[Signature]* Date: 3-16-17
 Chief, Division Of Land Development
 Chief, Development Engineering Division: *[Signature]* Date: 12/14/16
 Approved: Howard County Department Of Public Works: *[Signature]* Date: 12/16/2016
 Chief, Bureau Of Highways

NO.	DESCRIPTION	DATE
1	EXPAND LIMIT OF DISTURBANCE	3/23/18
2	REV. HOUSE & GRADING ON LOT 24 PER PLOT PLAN	4/12/18
3	REV. GRADING & LOD ON PARCEL ON PARCEL A	5/18/18

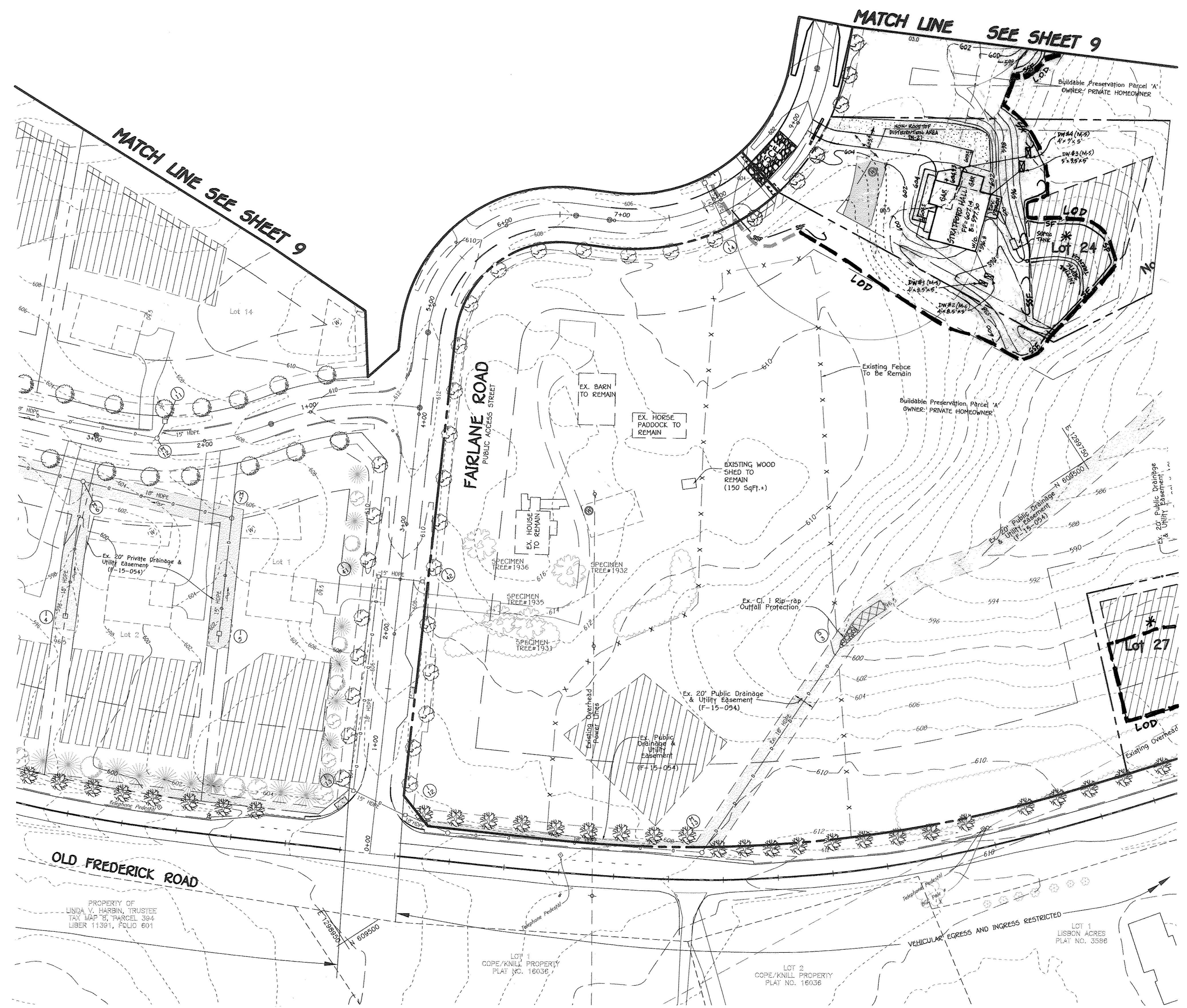
CONTRACTOR NOTES:

- CONTRACTOR SHALL REMOVE ANY AND ALL JUNK, DEBRIS AND TRASH FROM WITHIN THE FLOODPLAIN, STREAMS, WETLANDS & THEIR BUFFERS.
- SHOULD THE STOCKPILE EXCEED 15 FT. IN HEIGHT IT MUST BE BENCHED.
- EARTH DIKES CROSSING THE ROADWAYS ARE TO BE CONNECTED TO MACADAM BERMS AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- ANY ROADSIDE SWALE OR DITCH LOCATED IN FILL SHALL BE COMPACTED TO 95% COMPACTION TO AVOID EROSION IN THESE AREAS.

ROOFLEADER NOTE:
 A OVERFLOW OUTFALL (SURCHARGE) SHALL BE PROVIDED AT EACH DOWNSPOUT PRIOR TO CONNECTION TO THE UNDERGROUND ROOFLEADER. SEE DETAIL SHEET 21.



STOCKPILE NOTE:
 SHOULD THE STOCKPILE EXCEED 15 FT. IN HEIGHT IT MUST BE BENCHED.



* NOTE: THE SILT FENCE SHOWN WITHIN EACH PRIVATE SEPTIC FIELD IS TO BE INSTALLED WITH THE GR. 18-35 FOR THE CONSTRUCTION OF THE HOUSE & SEPTIC SYSTEM FOR THAT SPECIFIC LOT.

NOTE: AT NO TIME CAN THERE BE ANY LAND DISTURBANCE IN EXCESS OF 20 ACRES.

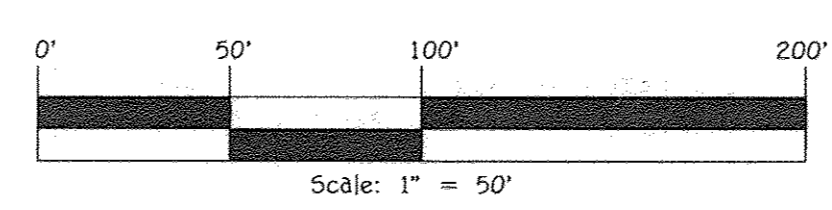
HOUSE CONSTRUCTION NOTES:

- THIS HOWARD (SCD) STANDARD SEDIMENT CONTROL PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION FOR THIS PROJECT.
- HOUSES MAY NOT BE BUILT USING THIS DRAWING.

FISHER, COLLINS & CARTER, INC.
 CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 30722 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 481-2995

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUVALL ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8310 FORREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600



ALDO M. VITUGI, P.E.
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20749, Expiration Date 2-22-17."

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
FAIRLANE FARM
PHASE TWO
 LOTS 19-44,
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Resubdivision of Non-Buildable Bulk Parcels 'Q' & 'R' And A Revision To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' Thru 'U', Parcel 'V' And Non-Buildable Bulk Parcels 'Q' And 'R'"
 ZONED: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2; PAGE: 6
 TAX MAP NO.: 8 GRID NO.: 3; PAGE: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 8 OF 36

DESIGN CERTIFICATION
 I hereby certify that this Plan has been designed in accordance with current Maryland Erosion Laws, Regulations and Standards, that it represents a true and accurate plan based on my personal knowledge of the site, and that it is designed in accordance with the requirements of the Howard Soil Conservation District.

11/14/16
 Date
 20749
 Registration No.
 P.E., R.L.S., or R.L.A. (circle one)
ALDO M. VITUCCI, P.E.
 Professional Engineer

OWNER/DEVELOPER CERTIFICATION
 I/We certify that any clearing, grading, construction or development will be done pursuant to this approved erosion and sediment control plan, including inspecting and maintaining controls and that the responsible personnel involved in the construction project will have a Certificate of Training at a Maryland Department of the Environment (MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE.

11/16/16
 Date
Joseph R. Butler, Developer
 Printed Name & Title

Approved: This Plan is Approved For Soil Erosion And Sediment Control By The Howard Soil Conservation District.
John R. Roberts 4/30/16
 Date
 Howard Soil Conservation District

Approved: Department Of Planning And Zoning
Kent Steadley 3.16.17
 Date
 Chief, Division Of Land Development

Approved: Department Of Public Works
Michael J. McMeekin 12/6/2011
 Date
 Chief, Bureau Of Highways

REVISIONS

NO.	DESCRIPTION	DATE
1	EXPAND LIMIT OF DISTURBANCE	2/23/16
2	REV. HOUSE & GRADING ON LOTS 19, 20, & 22 PER PLOT PLAN	4/12/16
3	REV. HOUSE & GRADING LOT 23	5/18/16
4	REV. HOUSE & GRADING (LOT 21), REV. SEPTIC (LOT 19, 20, LOD LOT 19)	7/9/16

SEDIMENT CONTROL LEGEND

— 30' — 30' — 30' — SUPER-SILT FENCE
 — 5' — 5' — 5' — SILT FENCE
 STABILIZED CONSTRUCTION ENTRANCE
 S.I.P. (A) STANDARD INLET PROTECTION INLET TYPE 'A' OR 'B'
 — L.O.D. — LIMIT OF DISTURBANCE

HOUSE CONSTRUCTION NOTES:

- THIS HOWARD (SCD) STANDARD SEDIMENT CONTROL PLAN MAY NOT BE USED TO OBTAIN PERMITS FOR HOUSE CONSTRUCTION FOR THIS PROJECT.
- HOUSES MAY NOT BE BUILT USING THIS DRAWING.

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 3

DRAINAGE AREA - INITIAL	1.25	ACRES
DRAINAGE AREA - INTERIM	—	ACRES
DRAINAGE AREA - FINAL	2.42	ACRES
TOTAL STORAGE REQUIRED	6,712.00	CF
TOTAL STORAGE PROVIDED	14,000 @ 280.00	CF
WET STORAGE REQUIRED	4,356	CF
WET STORAGE PROVIDED	4,356	CF
DRY STORAGE REQUIRED	4,356	CF
DRY STORAGE PROVIDED	6,712	CF
EXISTING GROUND ELEVATION AT OUTLET (WEIR STORAGE ELEVATION)	577.50	FT
TRAP BOTTOM ELEVATION	576.00	FT
TRAP BOTTOM DIMENSIONS	15' x 15'	FT x FT
WEIR LENGTH	10	FT
WEIR CREST (DRY STORAGE) ELEVATION	576.90	FT
CLEANOUT ELEVATION	576.90	FT
TOP OF EMBANKMENT ELEVATION	582.00	FT
SIDE SLOPE	2:1	H:V RATIO
EMBANKMENT TOP WIDTH	4	FT
OUTLET PROTECTION - LENGTH	10	FT
OUTLET PROTECTION - DEPTH	19	IN

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2992



BAFFLE DESIGN
 TOP OF BAFFLES EL. 579.00
 $We = (A/2)^2 = (4.427/2)^2 = 4.7'$
 $Lo req'd. = We \times 2 = 9.4'$
 BAFFLE #1 L1 + L2 = 10.7'

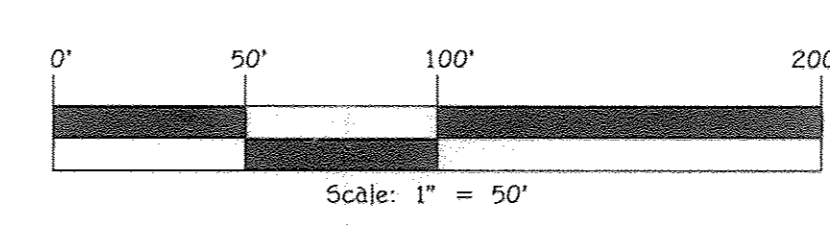
NOTE: FOR B.M.P. No. 3 (F-1) AT S.O.S.T. No. 3 LOCATION, SEE SHEET 21 FOR PLAN & DETAILS

ROOFLEADER NOTE:
 A OVERFLOW OUTFALL (SURCHARGE) SHALL BE PROVIDED AT EACH DOWNSPOUT PRIOR TO CONNECTION TO THE UNDERGROUND ROOFLEADER. SEE DETAIL, SHEET 21.

NOTE: AT NO TIME CAN THERE BE ANY LAND DISTURBANCE IN EXCESS OF 20 ACRES.

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUNALL ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8318 FOREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600



ALDO M. VITUCCI, P.E.
 I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.

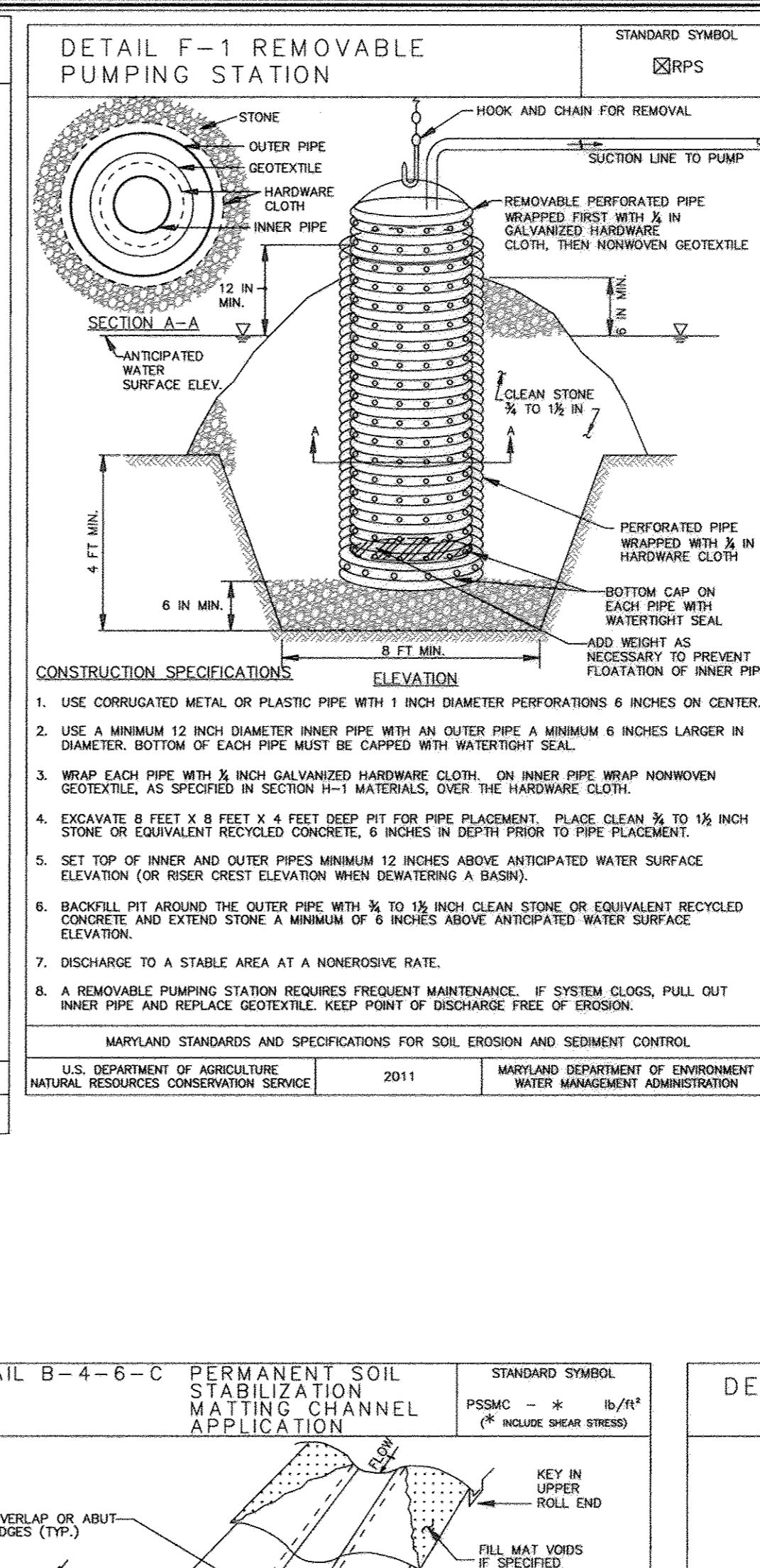
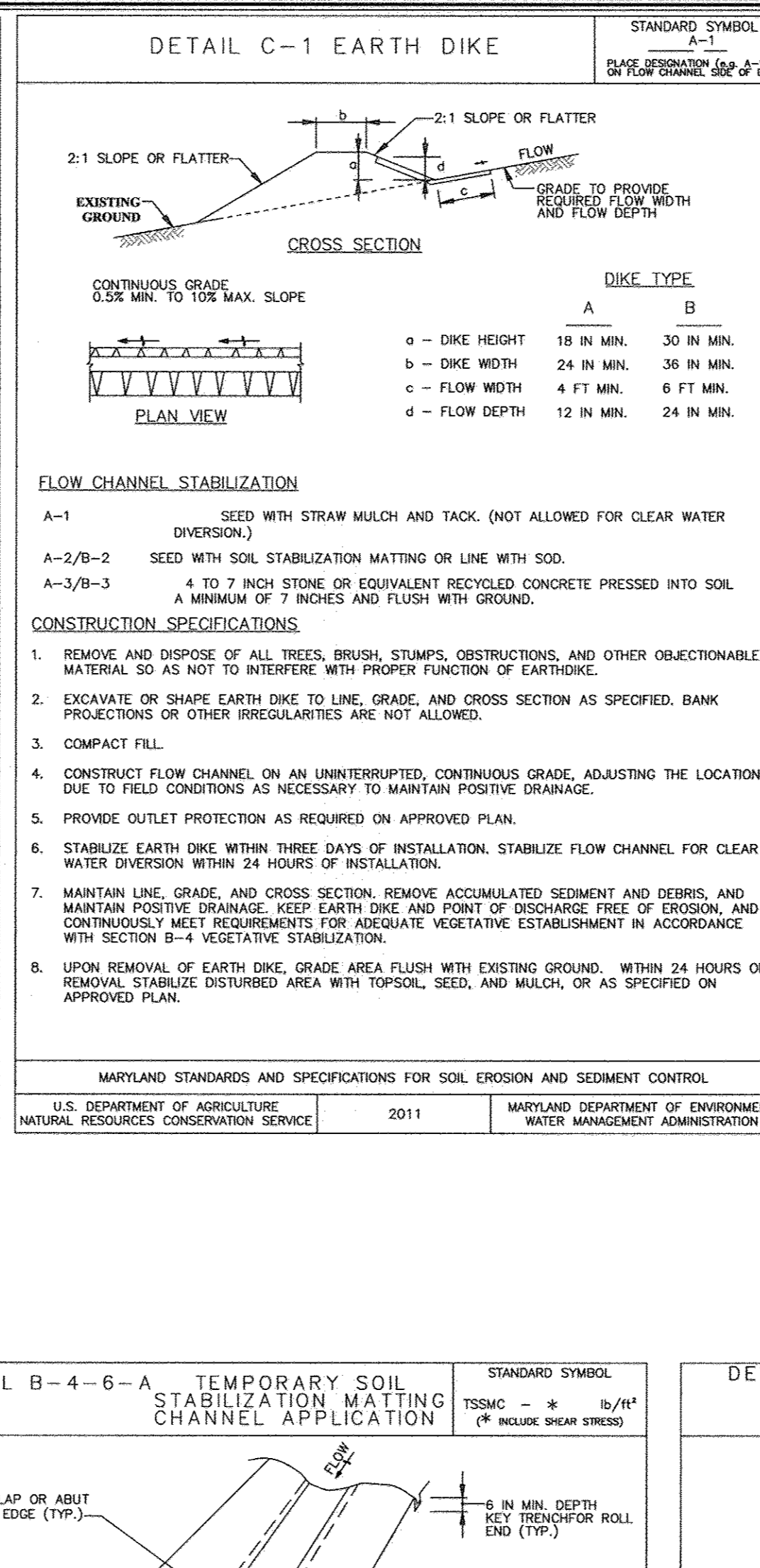
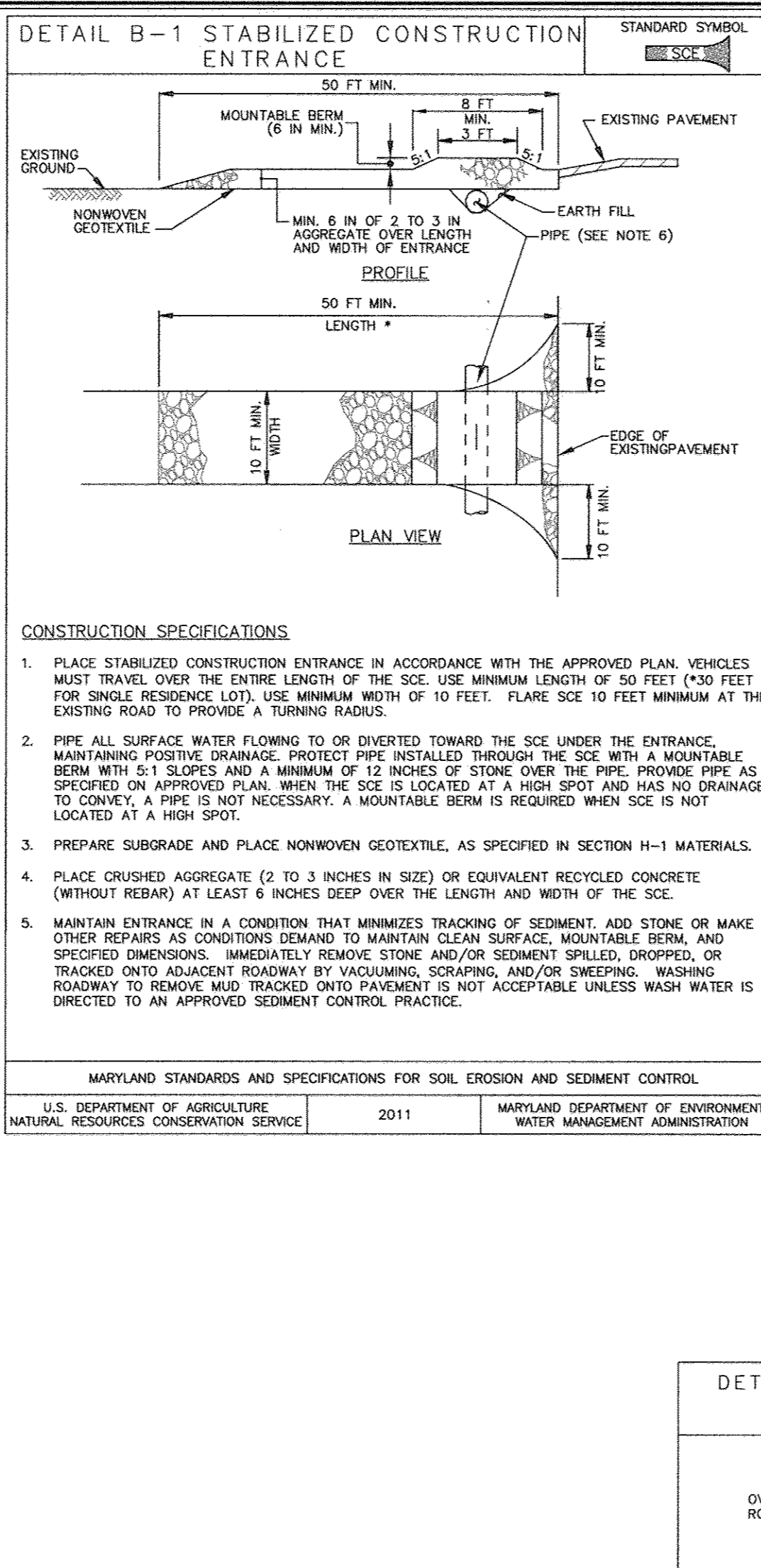
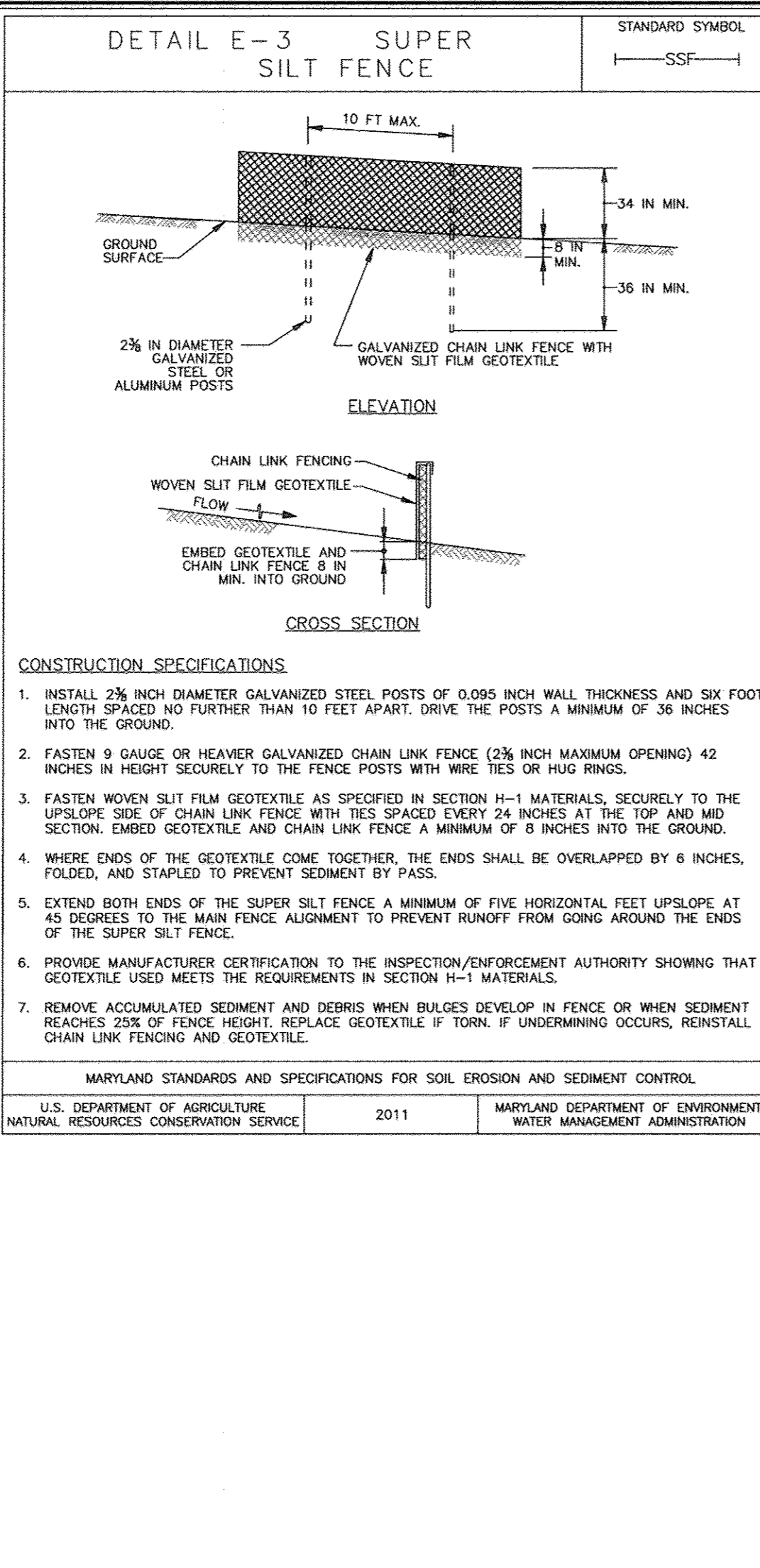
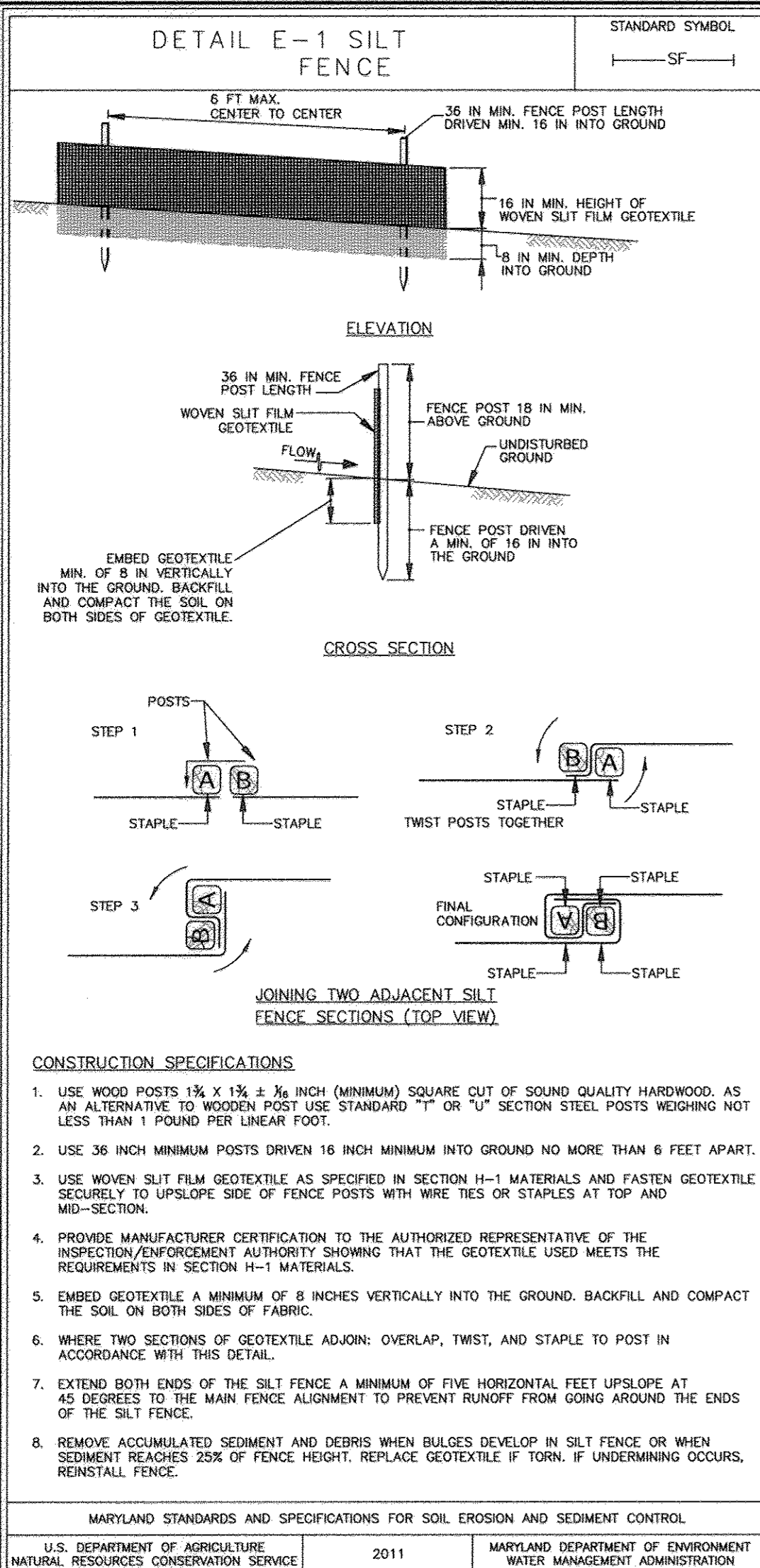
STREET TREE, GRADING & SEDIMENT CONTROL PLAN
FAIRLANE FARM
PHASE TWO
 LOTS 19-24
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'T' THRU 'N'

A Resubdivision of Non-Buildable Bulk Parcels 'G' & 'H' And A Revision To Buildable Preservation Parcel 'A', Recorded As "Fairlane Farm Phase One Lots 1, Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'T' Thru 'G', Parcel 'N' And Non-Buildable Bulk Parcels 'G' And 'H'"

ZONED: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 9 OF 36

CONTRACTOR NOTES:

- CONTRACTOR SHALL REMOVE ANY AND ALL JUNK, DEBRIS AND TRASH FROM WITHIN THE FLOODPLAIN, STREAMS, WETLANDS & THEIR BUFFERS.
- SHOULD THE STOCKPILE EXCEED 15 FT. IN HEIGHT IT MUST BE BENCHED.
- EARTH DIKES CROSSING THE ROADWAYS ARE TO BE CONNECTED TO MACADAM BERMS AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- ANY ROADSIDE SWALE OR DITCH LOCATED IN FILL SHALL BE COMPACTED TO 95% COMPACTION TO AVOID EROSION IN THESE AREAS.



DESIGN CERTIFICATION

I hereby certify that this Plan has been designed in accordance with Current Maryland Erosion and Sediment Control Laws, Regulations and Standards, that it represents a Practical and Workable Plan Based on My Personal Knowledge of the Site, and that it was prepared in accordance with the Standards of the Howard Soil Conservation District.

Designer's Signature: *Almo M. Vitucci* Date: 11/14/16
Printed Name: **ALMO M. VITUCCI** MD Registration No. 20748 P.E., R.L.S., or R.L.A. (circle one)

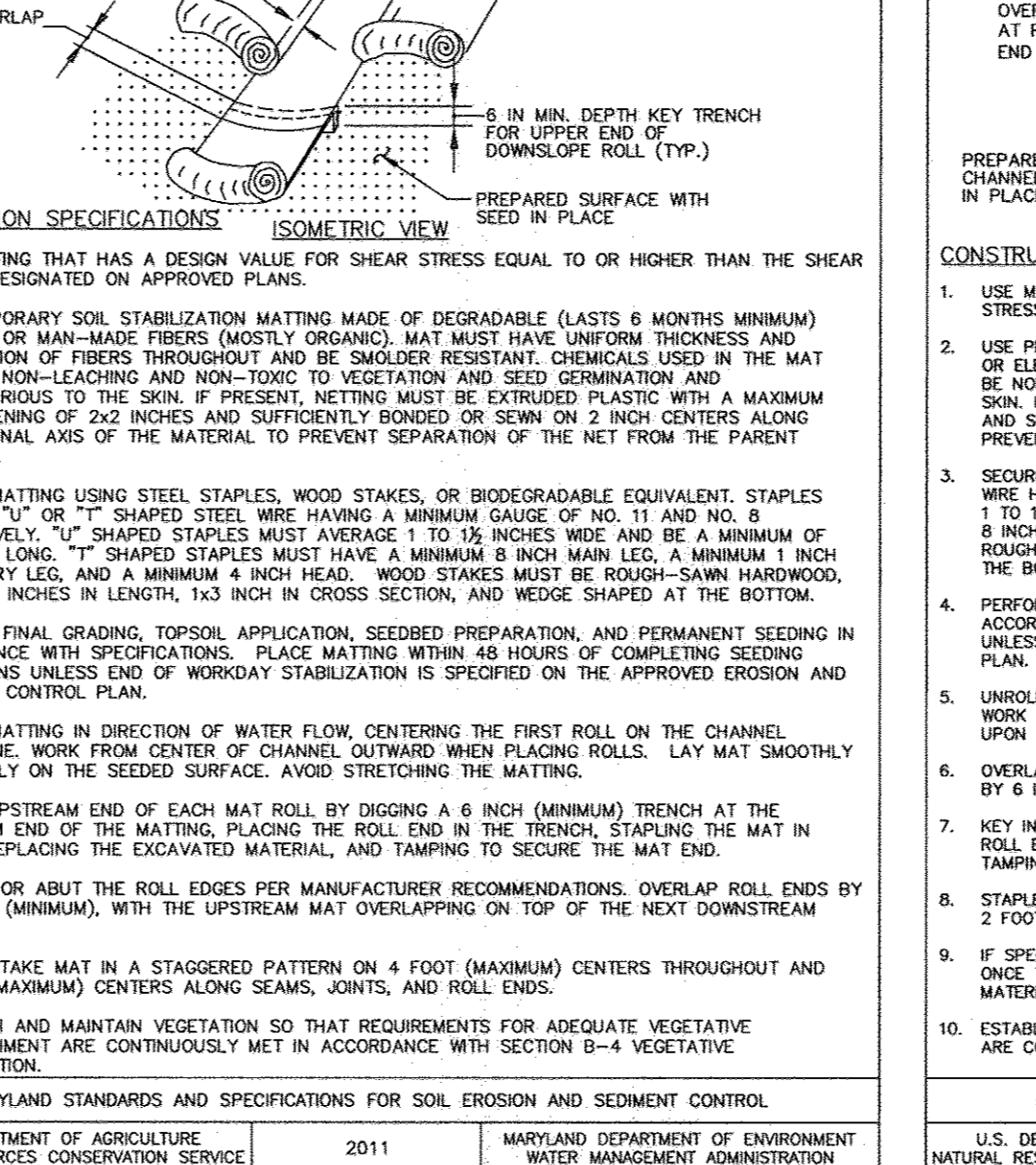
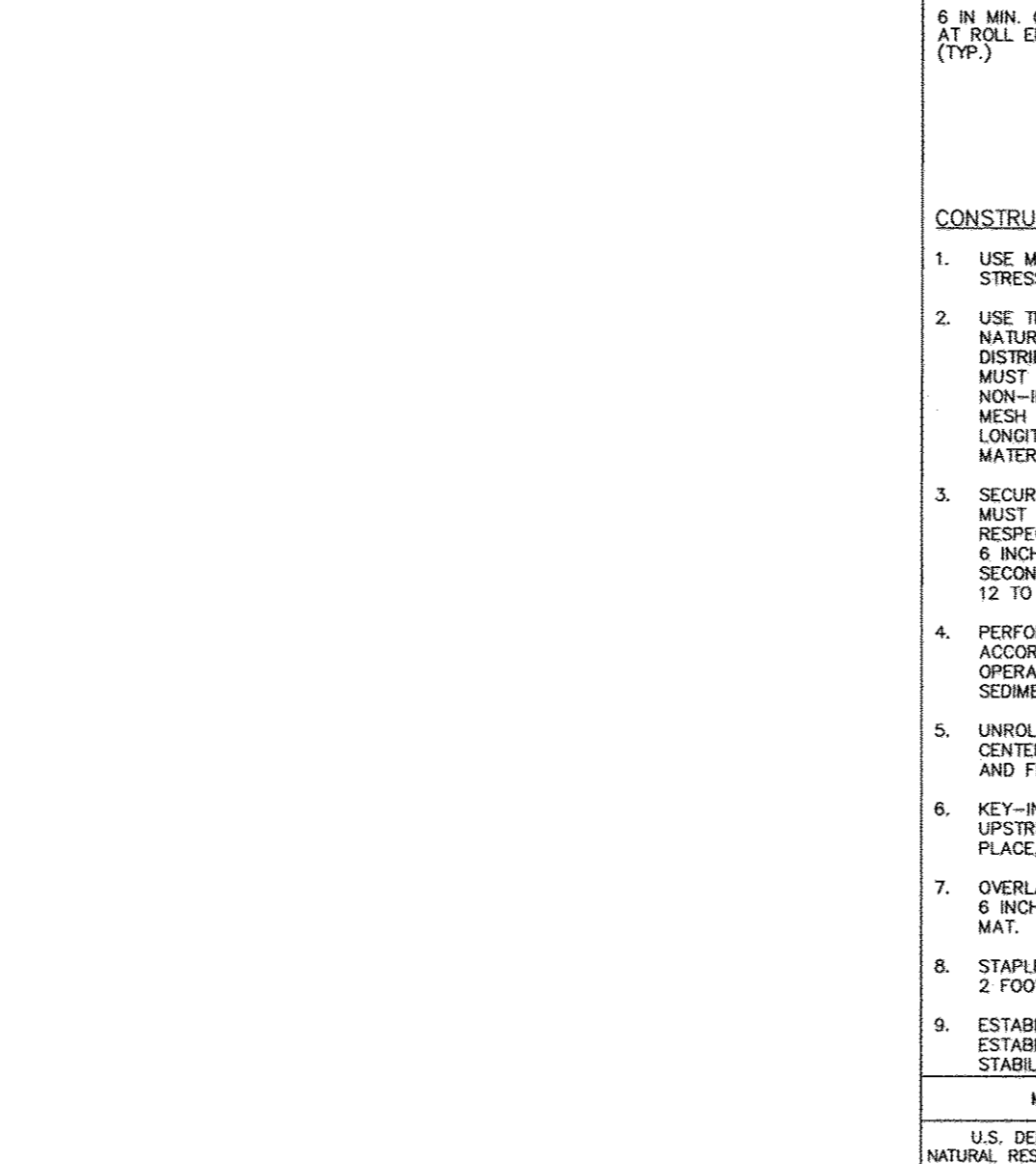
OWNER/DEVELOPER CERTIFICATION

"I/we certify that any Clearing, Grading, Construction or Development will be Done Pursuant to This Approved Erosion and Sediment Control Plan, including Inspecting and Maintaining Controls and That the Responsible Personnel Involved in the Construction Project will Have a Certificate of Training At a Maryland Department of the Environment (MDE) Approved Training Program for the Control on Erosion and Sediment Prior to Beginning the Project. I certify Right-of-entry for Periodic On-site Evaluation by Howard County, The Howard Soil Conservation District And/or MDE."

Owner's/Developer's Signature: *Joseph Rutter Perlepp* Date: 11/15/16
Printed Name & Title: **Joseph Rutter Perlepp**

Approved: This Plan is Approved For Soil Erosion and Sediment Control By The Howard Soil Conservation District.
Howard Soil Conservation District
John P. Robertson Date: 11/30/16
Approved: Department of Planning and Zoning
Vetle Leub Date: 3/16/17
Chief, Division of Land Development
Approved: Howard County Department of Public Works
M. Mennin Date: 12/6/2016
Chief, Bureau of Highways

NO.	REVISIONS	DESCRIPTION	DATE



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10712 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 461 - 2099

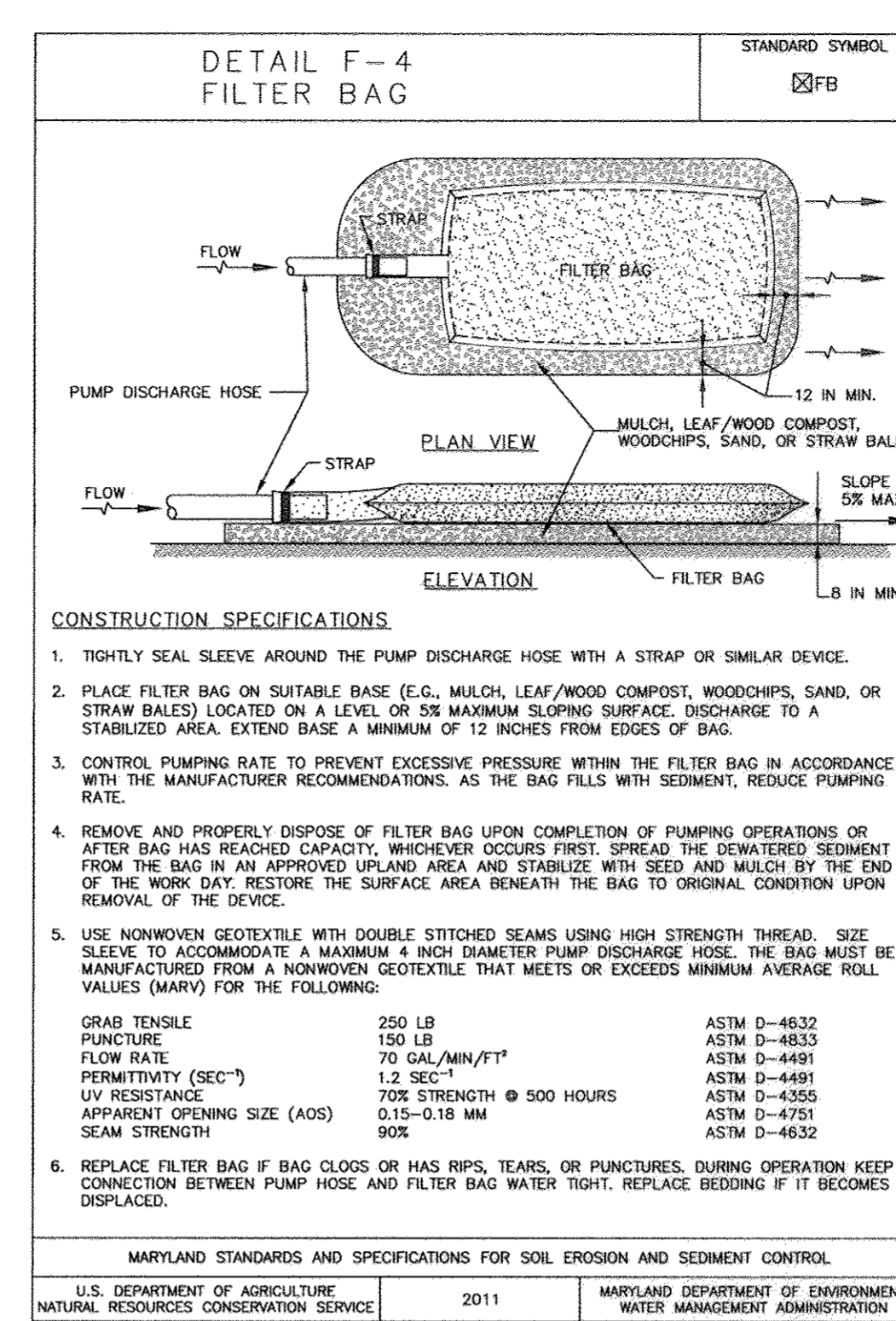
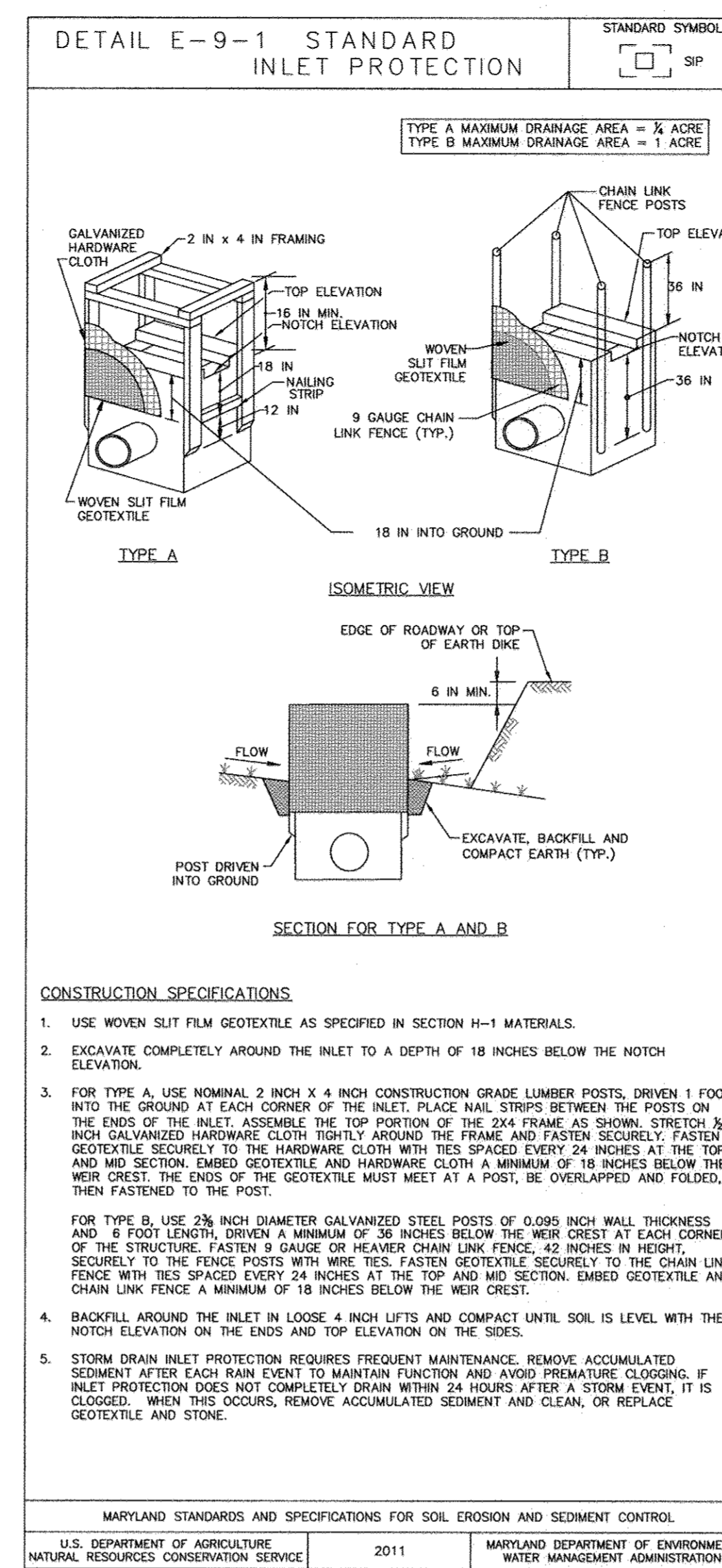
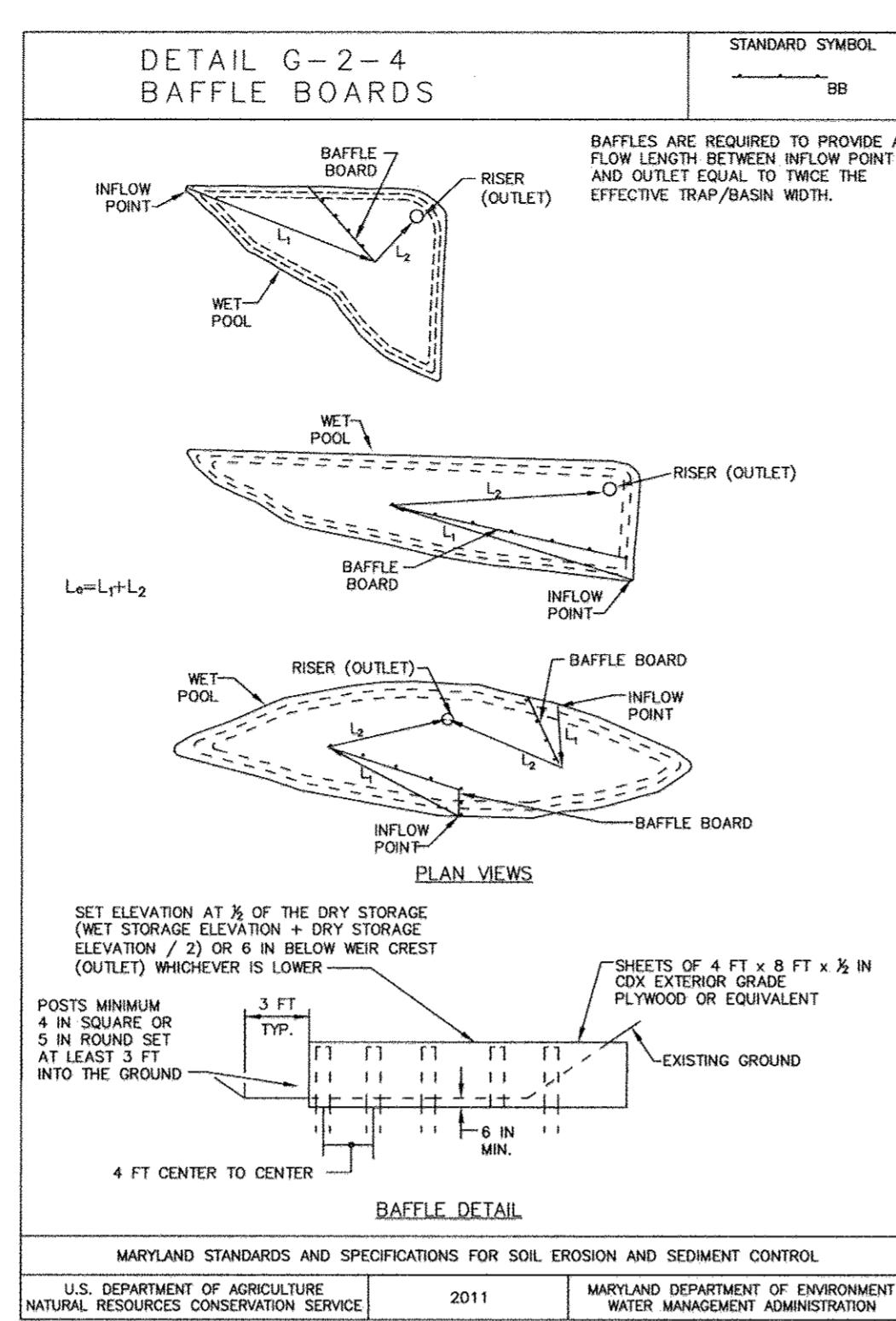
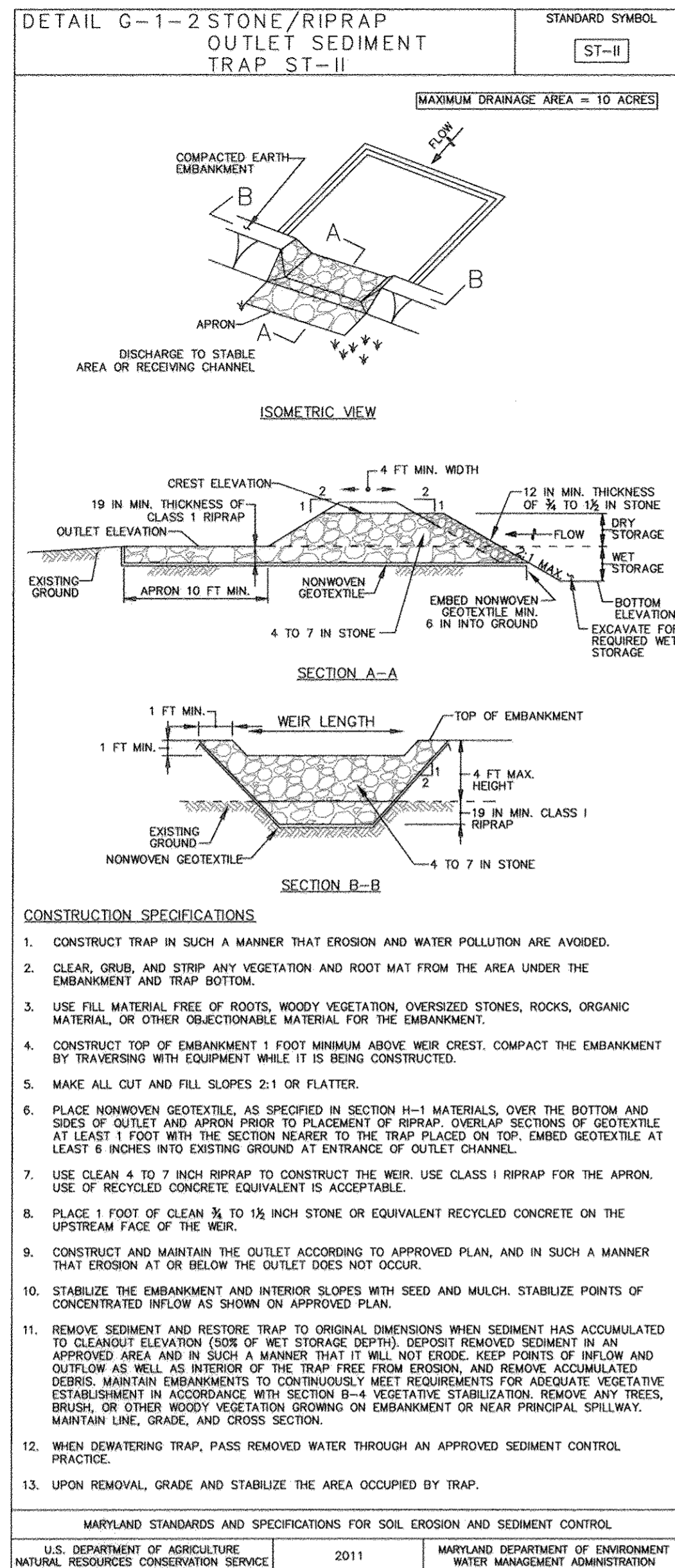
OWNER
DAISYCOOP, LLC
c/o ESTATE OF FRANCES JEAN SCHULTE
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410-977-1327

DEVELOPER
LAND DESIGN & DEVELOPMENT
8310 FOREST STREET
SUITE 200
ELICOTT CITY, MARYLAND 21043
(410)-922-4600

STATE OF MARYLAND
ALDO M. VITUCCI, P.E.
11/14/16
Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.

SEDIMENT AND EROSION CONTROL NOTES & DETAILS
FAIRLANE FARM PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcels 'C' & 'A' And A Revision to Buildable Preservation Parcel 'A', Recorded As 'Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' Thru 'C', Parcel 'I' And Non-Buildable Bulk Parcels 'G' And 'H' -
ZONED: RC-DEE
DATE: 11/14/16
TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 11 OF 36

SEDIMENT AND EROSION CONTROL NOTES & DETAILS
FAIRLANE FARM PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcels 'C' & 'A' And A Revision to Buildable Preservation Parcel 'A', Recorded As 'Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' Thru 'C', Parcel 'I' And Non-Buildable Bulk Parcels 'G' And 'H' -
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TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 11 OF 36



DESIGN CERTIFICATION

I hereby certify that this plan has been designed in accordance with Current Maryland Erosion and Sediment Control Laws, Regulations and Standards, that it represents a practical and workable plan based on my personal knowledge of the site, and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Designer's Signature: *Aldo M. Vitucci* Date: 11/14/16
Printed Name: Aldo M. Vitucci Date: 11/14/16
Professional Registration No. P.E., E.I.T.S., or R.L.A. (circle one): 20749

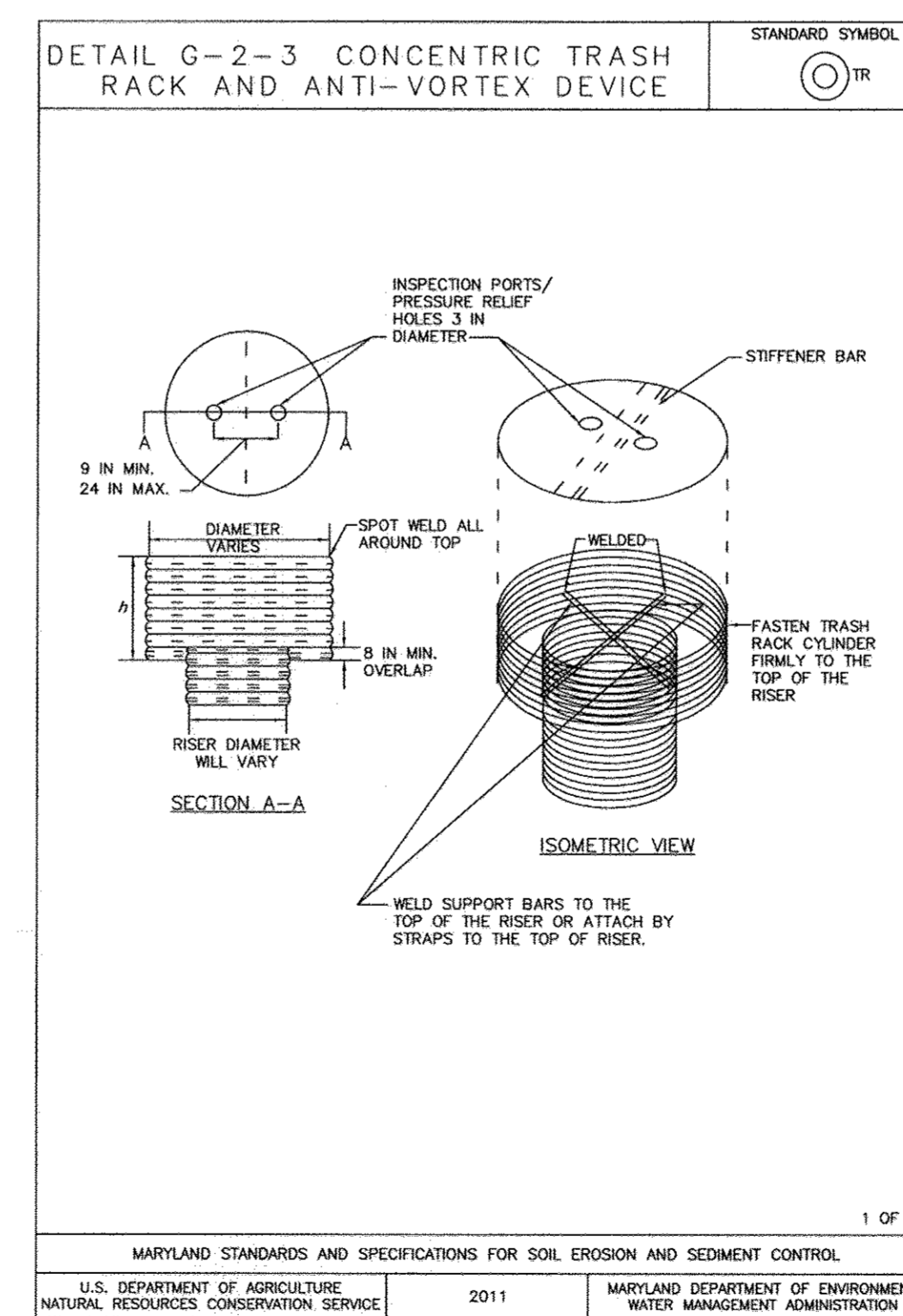
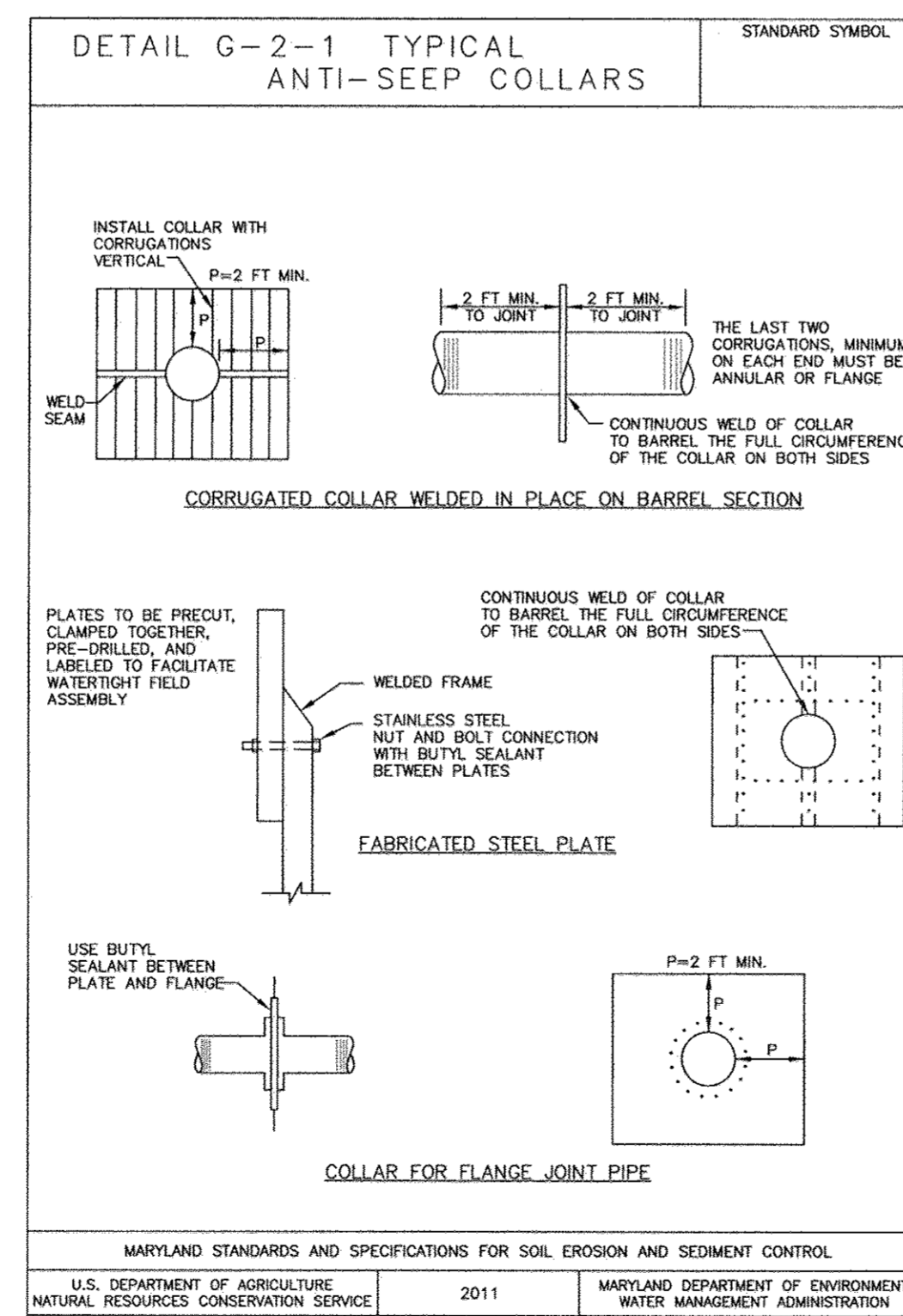
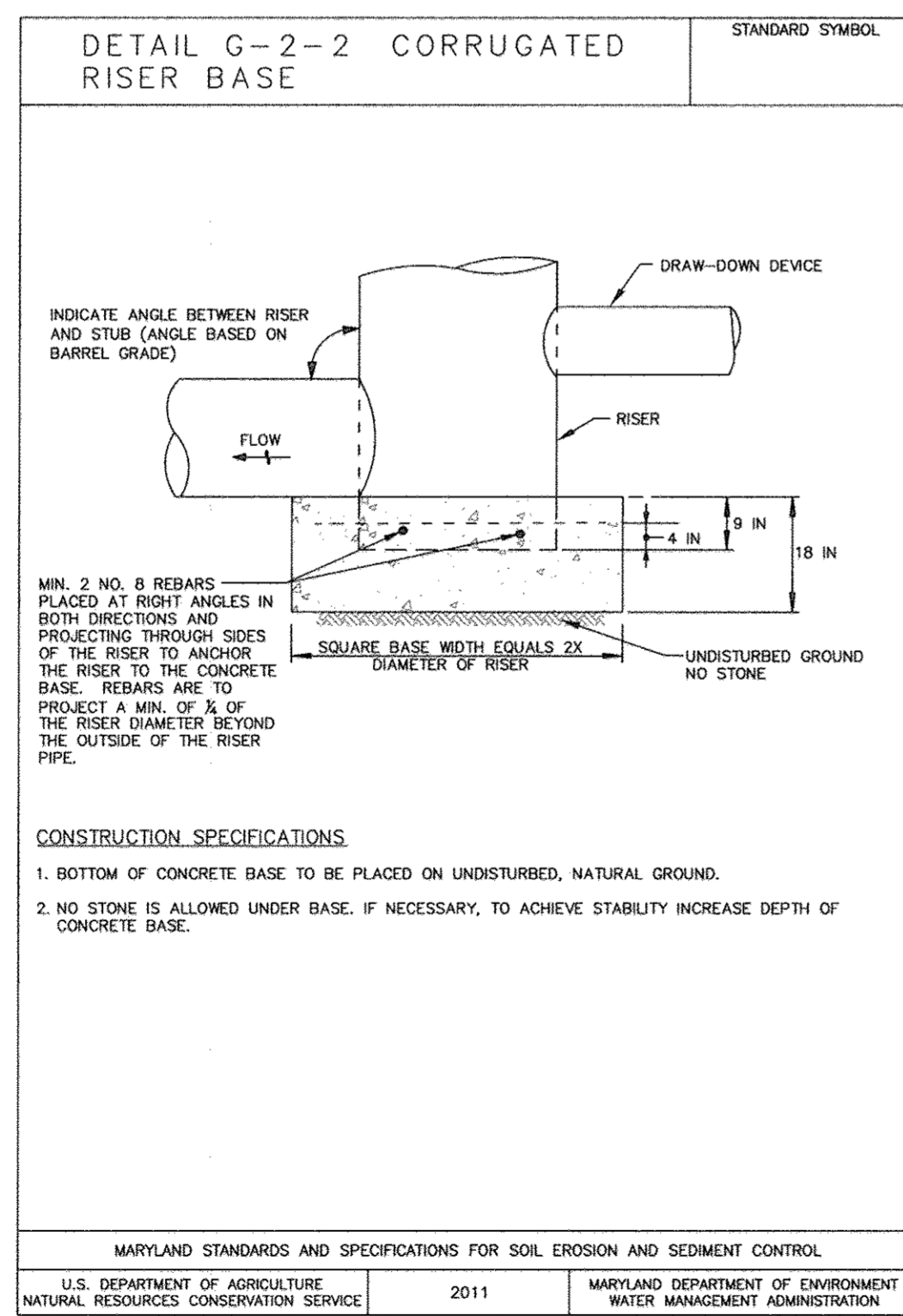
OWNER/DEVELOPER CERTIFICATION

"I/We Certify That Any Clearing, Grading, Construction Or Development Will Be Done Pursuant To This Approved Erosion And Sediment Control Plan, Including Inspecting And Maintaining Controls And That The Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Training At A Maryland Department Of The Environment (MDE) Approved Training Program For The Control On Erosion And Sediment Prior To Beginning The Project. I Certify Right-of-entry For Periodic On-site Evaluation By Howard County, The Howard Soil Conservation District And/or MDE."

Owner/Developer Signature: *John K. Schultz* Date: 11/15/16
Printed Name & Title: John K. Schultz, Howard Soil Conservation District

Approved: Department Of Planning And Zoning
Chief, Division Of Land Development: *John K. Schultz* Date: 3-16-17
Chief, Development Engineering Division: *John K. Schultz* Date: 11/14/16
Approved: Howard County Department Of Public Works
Chief, Bureau Of Highways: *John K. Schultz* Date: 12/6/2016

REVISIONS		
NO.	DESCRIPTION	DATE



DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

STANDARD SYMBOL: CTR

RISER DIAM. (IN)	IRISH BACK CYLINDER			MINIMUM SIZE SUPPORT BAR	MINIMUM TOP	
	DIAM. (IN)	THICKNESS (GAUGE)	h (IN)		THICKNESS (GAUGE)	STIFFENER
12	18	16	14	#6 REBAR	16	N/A
15	21	16	15	#6 REBAR	16	N/A
18	27	16	16	#6 REBAR	16	N/A
21	30	16	19	#6 REBAR	16	N/A
24	36	16	21	#6 REBAR	14	N/A
27	42	16	21	#6 REBAR	14	N/A
36	54	14	25	#6 REBAR	12	N/A
42	60	14	27	#6 REBAR	12	N/A
48	72	12	29	1 1/2 IN PIPE OR 1 1/2 x 1 1/2 x 1/4 ANGLE	10	N/A
54	78	12	33	1 1/2 IN PIPE OR 1 1/2 x 1 1/2 x 1/4 ANGLE	8	N/A
60	90	12	37	1 1/2 IN PIPE OR 1 1/2 x 1 1/2 x 1/4 ANGLE	8	2 x 2 x 1/4 ANGLE
66	96	10	41	2 IN PIPE OR 2 x 2 x 3/8 ANGLE	8	2 x 2 x 1/4 ANGLE
72	102	10	44	2 IN PIPE OR 2 x 2 x 3/8 ANGLE	8	2 1/2 x 2 1/2 x 1/4 ANGLE
78	114	10	47	2 1/2 IN PIPE OR 2 x 2 x 3/8 ANGLE	8	2 1/2 x 2 1/2 x 1/4 ANGLE
84	120	10	50	2 1/2 IN PIPE OR 2 1/2 x 2 1/2 x 1/4 ANGLE	8	2 1/2 x 2 1/2 x 3/8 ANGLE

NOTE: THE ABOVE TRASH RACK AND ANTI-VORTEX DEVICE INFORMATION IS FOR CORRUGATED METAL PIPE ONLY. CONCRETE RISERS MUST MEET THE REQUIREMENTS OF MD 37B.

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

PIPE OUTLET SEDIMENT TRAP #3 AND #5 DETAILS

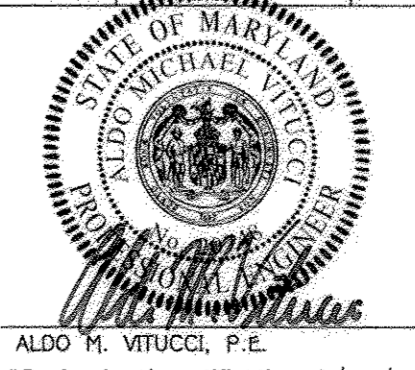
SEDIMENT AND EROSION CONTROL NOTES & DETAILS

FAIRLANE FARM PHASE TWO

LOTS 19-44
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'

A Resubdivision of Non-Buildable Bulk Parcels 'G' & 'H' And A Revision To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'I' Thru 'C', Parcel 'F' And Non-Buildable Bulk Parcels 'G' And 'H' ZONED: RC-DEO

TAX MAP NO.: 0 GRID NO.: 2, PAR.: 0
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 12 OF 36

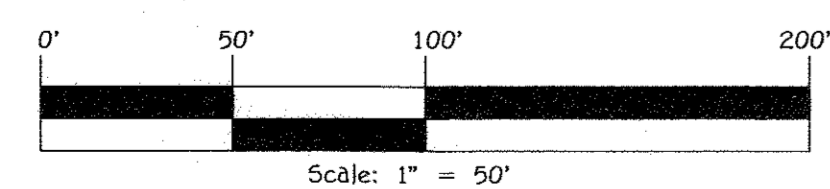


FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PARK
ELICOTT CITY, MARYLAND 21046
(410) 461-2999

OWNER
DAISYCOOP, LLC
c/o ESTATE OF FRANCES JEAN SCHULTE
DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
2215 DUVALL ROAD
WOODBINE, MD 21797
410-977-1327

DEVELOPER
LAND DESIGN & DEVELOPMENT
8310 FORREST STREET
SUITE 200
ELICOTT CITY, MARYLAND 21043
(410)-922-4600

Approved: Department Of Planning And Zoning		
<i>Karl Schindler</i>	3-16-17	
Chief, Division Of Land Development	Date	
<i>[Signature]</i>	12/04/16	
Chief, Development Engineering Division	Date	
Approved: Howard County Department Of Public Works		
<i>[Signature]</i>	12/6/2016	
Chief, Bureau Of Highways	Date	
REVISIONS		
NO.	DESCRIPTION	DATE
1	ADD ACCESS ESMT. TO ADJACENT PROPERTIES	3/23/18



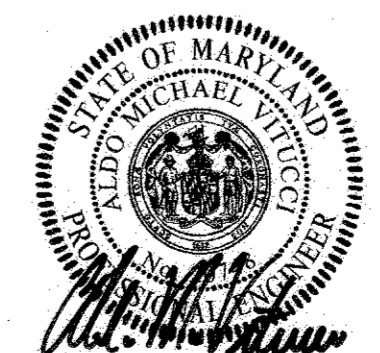
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLSWORTH CITY, MARYLAND 21042
 (410) 461-3099

OWNER
 DMSYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUVAL ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8310 FOREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600

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

[Signature] 11/15/16
 NAME DATE



"Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, expiration date 2-22-17."

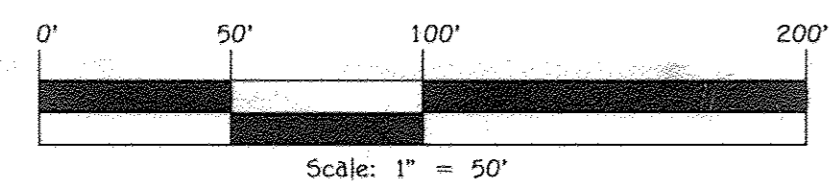
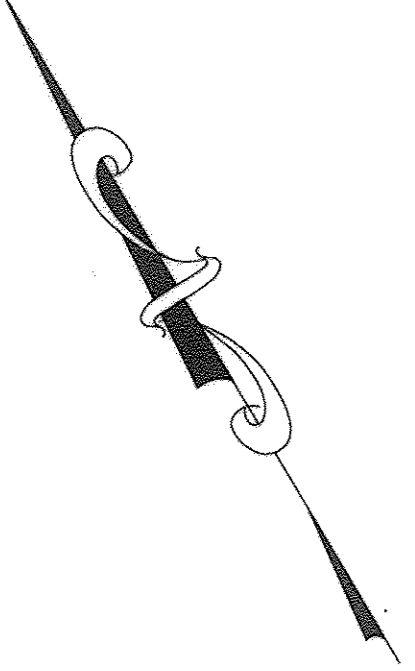
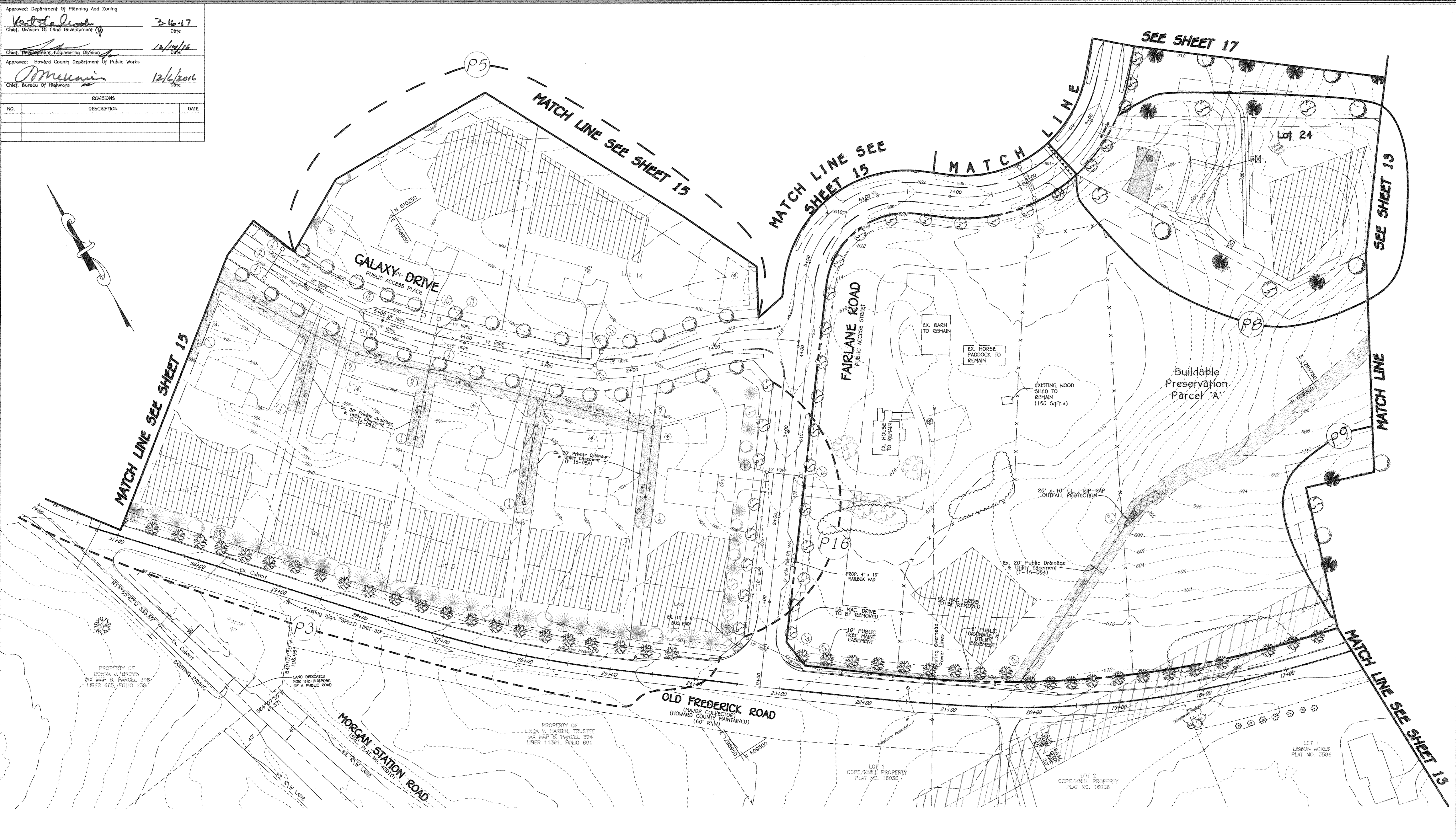
STREET TREE & LANDSCAPE PLAN
FAIRLANE FARM
PHASE TWO
 LOTS 19-44,
BUILDABLE PRESERVATION PARCELS 'K' AND NON-BUILDABLE PRESERVATION PARCELS 'M' THRU 'N'
 A Resubdivision of Non-Buildable Bulk Parcels 'K' & 'M' And A Revision To Buildable Preservation Parcel 'K', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'K', Non-Buildable Preservation Parcels 'M' Thru 'N', Parcel 'P' And Non-Buildable Bulk Parcels 'Q' And 'R'"
 ZONING: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 13 OF 36

Approved: Department Of Planning And Zoning
Veronica... 3-16-17
 Chief, Division of Land Development Date

Chief, Development Engineering Division
... 12/14/16
 Approved: Howard County Department Of Public Works Date

Chief, Bureau Of Highways
... 12/16/2016
 Date

REVISIONS		
NO.	DESCRIPTION	DATE



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10722 BALDORRE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2200

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUVALL ROAD
 WOODBINE, MD 21797
 410-577-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8319 FOREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600

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

[Signature] 11/16/16
 NAME DATE



ALDO M. VITUCCI, P.E.
 DATE 11/16/16
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

STREET TREE & LANDSCAPE PLAN
FAIRLANE FARM
PHASE TWO
 LOTS 19-44
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'

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 ZONED: RC-DEO
 TAX MAP NO.: B GRID NO.: 2, PAR.: B
 TAX MAP NO.: B GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 14 OF 36



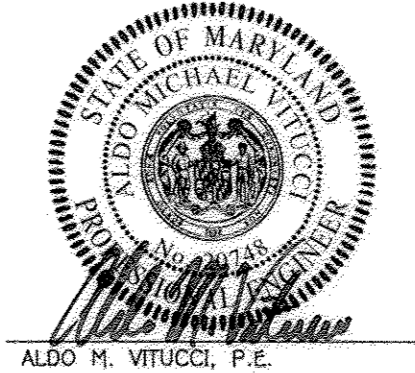
DEVELOPER'S / BUILDER'S CERTIFICATE
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.12.4 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: John R. Schulte DATE: 11/15/16

OWNER
 DASYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUWALL ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8318 FOREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600

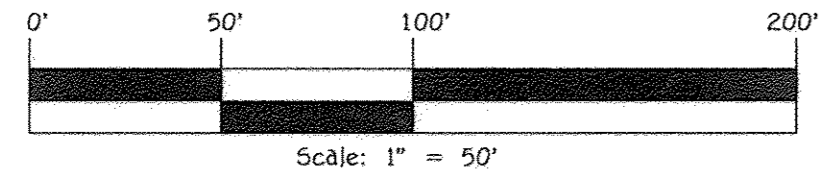
Approved: Department of Planning And Zoning		
<u>Kentle Owen</u>	<u>3-16-17</u>	Date
Chief, Division of Land Development	<u>12/14/16</u>	Date
Approved: Howard County Department of Public Works		
<u>Alfredo</u>	<u>12/6/2016</u>	Date
Chief, Bureau of Highways		
REVISIONS		
NO.	DESCRIPTION	DATE



ALDO M. VITUCCI, P.E. DATE: 11/16/16
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

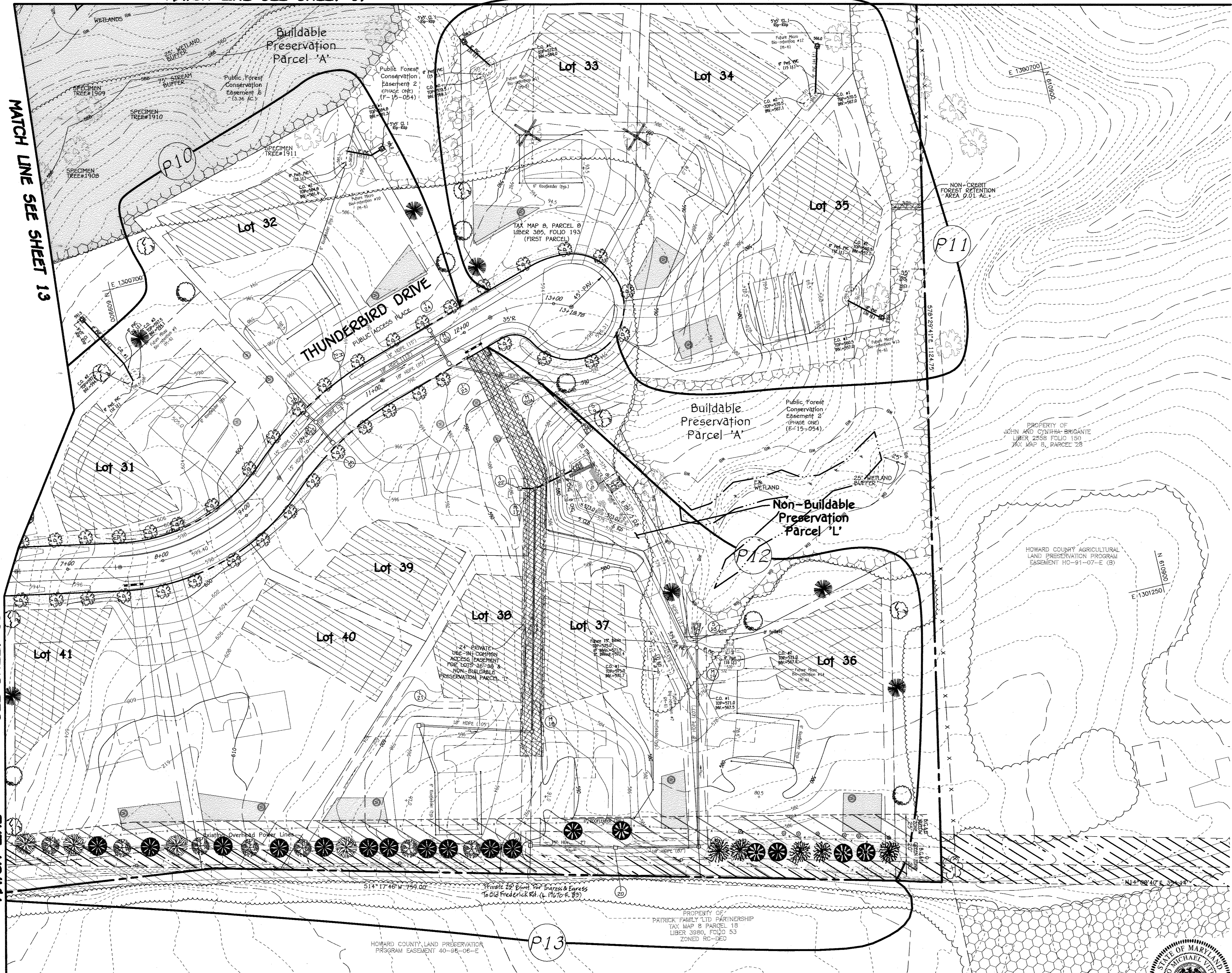
STREET TREE & LANDSCAPE PLAN
FAIRLANE FARM
PHASE TWO
 LOTS 19-44
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
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 ZONED: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 15 OF 36

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE, P.O. BOX 10272, BALTIMORE NATIONAL PLACE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2222

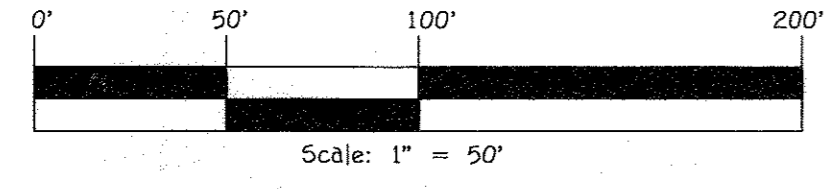


MATCH LINE SEE SHEET 17

Approved: Department Of Planning And Zoning		
Verte De Looze Chief, Division Of Land Development		3-16-17 Date
Approved: Howard County Department Of Public Works		
D. M. Murrain Chief, Bureau Of Highways		12/14/16 Date
REVISIONS		
NO.	DESCRIPTION	DATE
1	ADD ACCESS ESMT. FOR ADJACENT PROPERTIES	3/23/18



MATCH LINE SEE SHEET 13



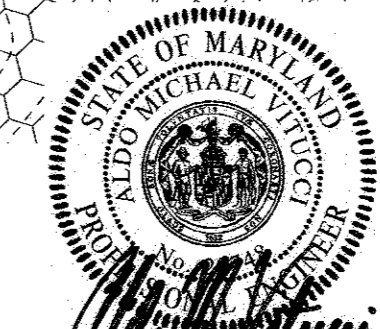
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING, CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - SUITE 200 BALTIMORE NATIONAL FIRE
ELLIOTT CITY, MARYLAND 21114
(410) 461-2295

OWNER
DAISYCOOP, LLC
c/o ESTATE OF FRANCES JEAN SCHULTE
DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
2215 DUNWALL ROAD
WOODBINE, MD 21797
410-977-1327

DEVELOPER
LAND DESIGN & DEVELOPMENT
8310 FORREST STREET
SUITE 200
ELLIOTT CITY, MARYLAND 21043
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DEVELOPER'S / BUILDER'S CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

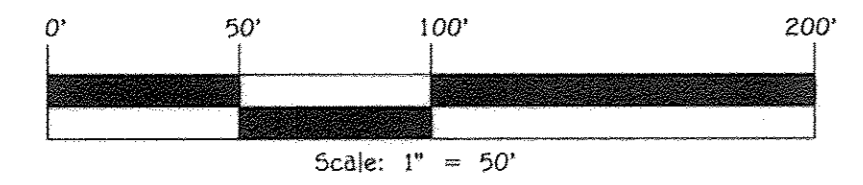
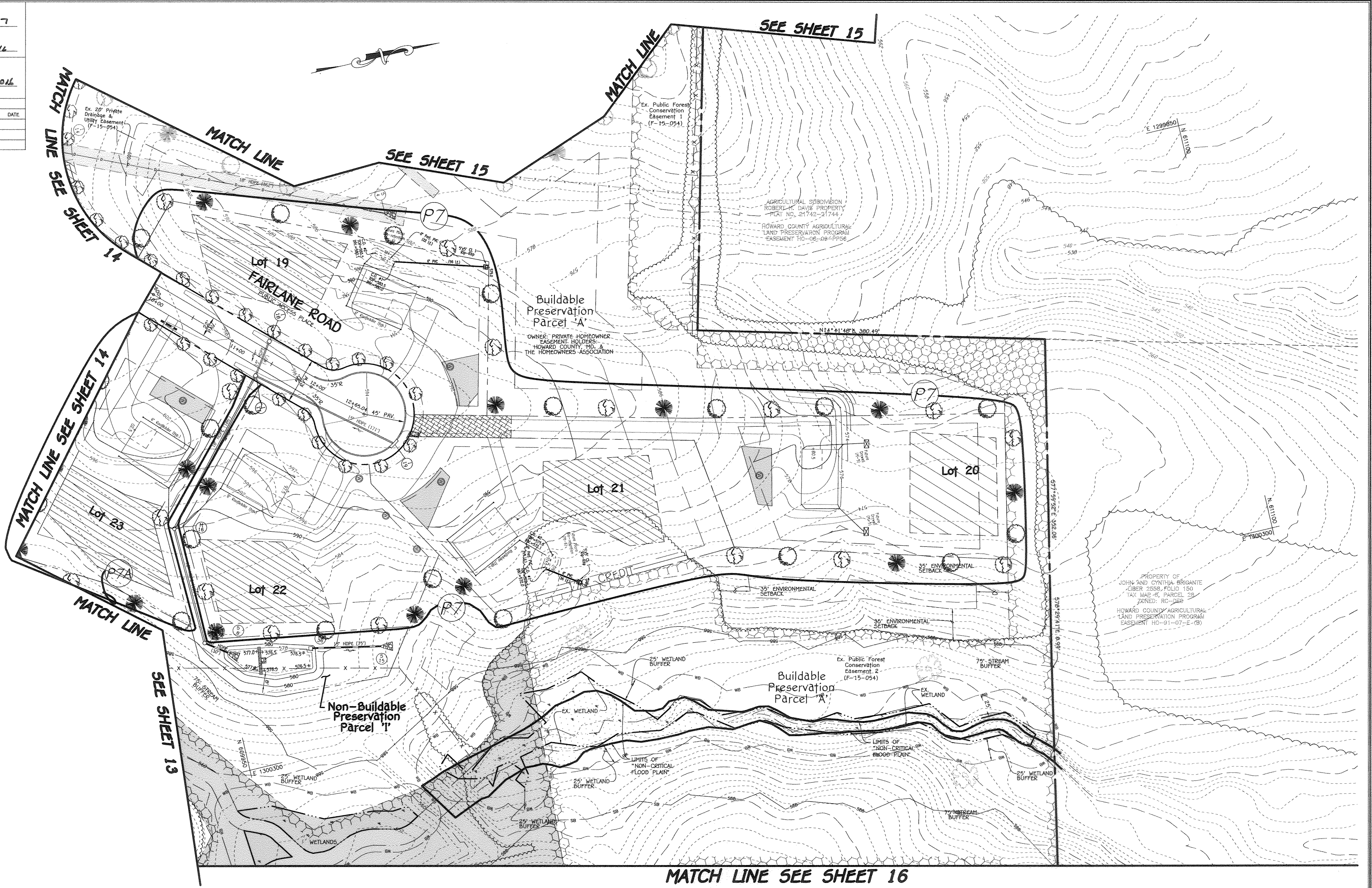
[Signature] 11/15/16
DATE



ALDO VITUCCI, P.E.
DATE 11/16/16
Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland. License No. 20748, Expiration Date 2-22-17.

STREET TREE & LANDSCAPE PLAN
FAIRLANE FARM
PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCELS 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'L' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcels 'C' & 'D' And A Revision To Buildable Preservation Parcel 'A', Recorded As 'Petition Form Phase One Lots 1, Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'L' Thru 'N', Parcel 'I' And Non-Buildable Bulk Parcels 'C' And 'D'
ZONED: RC-DEO
TAX MAP NO.: B GRID NO.: 2, PAR.: B
TAX MAP NO.: B GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 16 OF 36

Approved: Department Of Planning And Zoning		
<i>Kent Seiden</i>	3-16-17	Date
Chief, Division Of Land Development		
<i>J. J. ...</i>	12/14/16	Date
Chief, Development Engineering Division		
Approved: Howard County Department Of Public Works		
<i>M. ...</i>	12/6/2016	Date
Chief, Bureau Of Highways		
REVISIONS		
NO.	DESCRIPTION	DATE



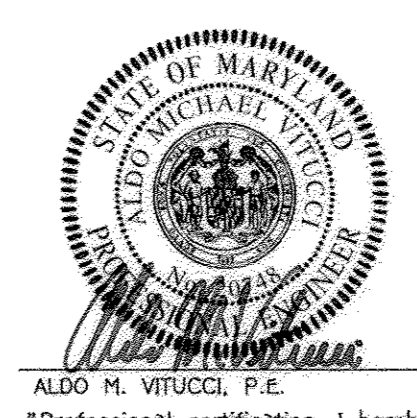
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10072 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 651-2255

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUVALL ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8318 FORREST STREET
 SUITE 200
 ELLICOTT CITY, MARYLAND 21043
 (410)-922-4600

DEVELOPER'S / BUILDER'S CERTIFICATE
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J. J. ...
 DATE: 11/15/16



ALDO H. VITULLI, P.E.
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

11/15/16
 DATE

**STREET TREE & LANDSCAPE PLAN
 FAIRLANE FARM
 PHASE TWO**
 LOTS 19-23
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'

A Resubdivision of Non-Buildable Bulk Parcels 'G' & 'H' And A Revision To Buildable Preservation Parcel 'A', Recorded As "Fairlane Farm Phase One Lots 1 Thru 16, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' Thru 'E', Parcel 'F' And Non-Buildable Bulk Parcels 'G' And 'H'".
 ZONED: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 17 OF 38

Sand Filter Specifications

1. Material Specifications for Sand Filters
The allowable materials for sand filter construction are detailed in Table B.3.1.
2. Sand Filter Testing Specifications

Underground sand filters, facilities within sensitive groundwater aquifers, and filters designed to serve urban hot spots are to be tested for water tightness prior to placement of filter media. Entrances and exits should be plugged and the system completely filled with water to demonstrate water tightness. Water tightness means no leakage for a period of 8 hours.

All overflow weirs, multiple orifices and flow distribution slots are to be field-tested to verify adequate distribution of flows.

3. Sand Filter Construction Specifications

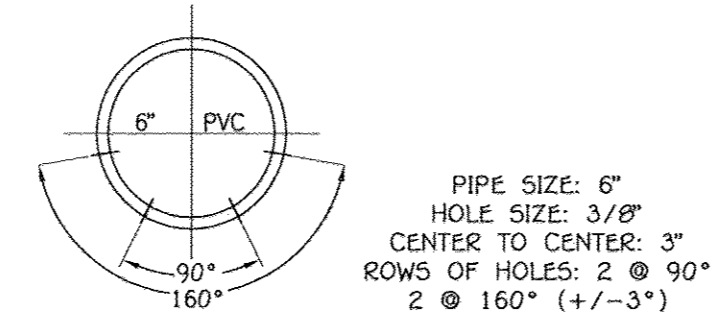
Provide sufficient maintenance access (i.e., 12-foot-wide road with legally recorded easement). Vegetated access slopes are to be a maximum of 10% ; gravel slopes to 15% ; paved slopes to 25%.

Absolutely no runoff is to enter the filter until all contributing drainage areas have been stabilized. Surface of filter bed is to be level.

All underground sand filters should be clearly delineated with signs so that they may be located when maintenance is due.

Surface sand filters may be planted with appropriate grasses; see MAA Approved Species List.

"Pocket" sandfilters (and residential bio-retention facilities treating areas larger than an acre) shall be sized with a "stone" window that covers approximately 10% of the filter area. This "window" shall be filled pea gravel (3/4 inch stone).



SCH 40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE
NO SCALE

NOTES:
UNDERDRAIN PIPE SHALL BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 750, TYPE PS 20 OR AASHTO-M-270) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (e.g., PVC OR HDPE).

PERFORATIONS SHALL BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (No. 4 OR 4 x 4) GALVANIZED HARDWARE CLOTH.

GRAVEL LAYER SHALL BE (No. 57 STONE PREFERRED) AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.

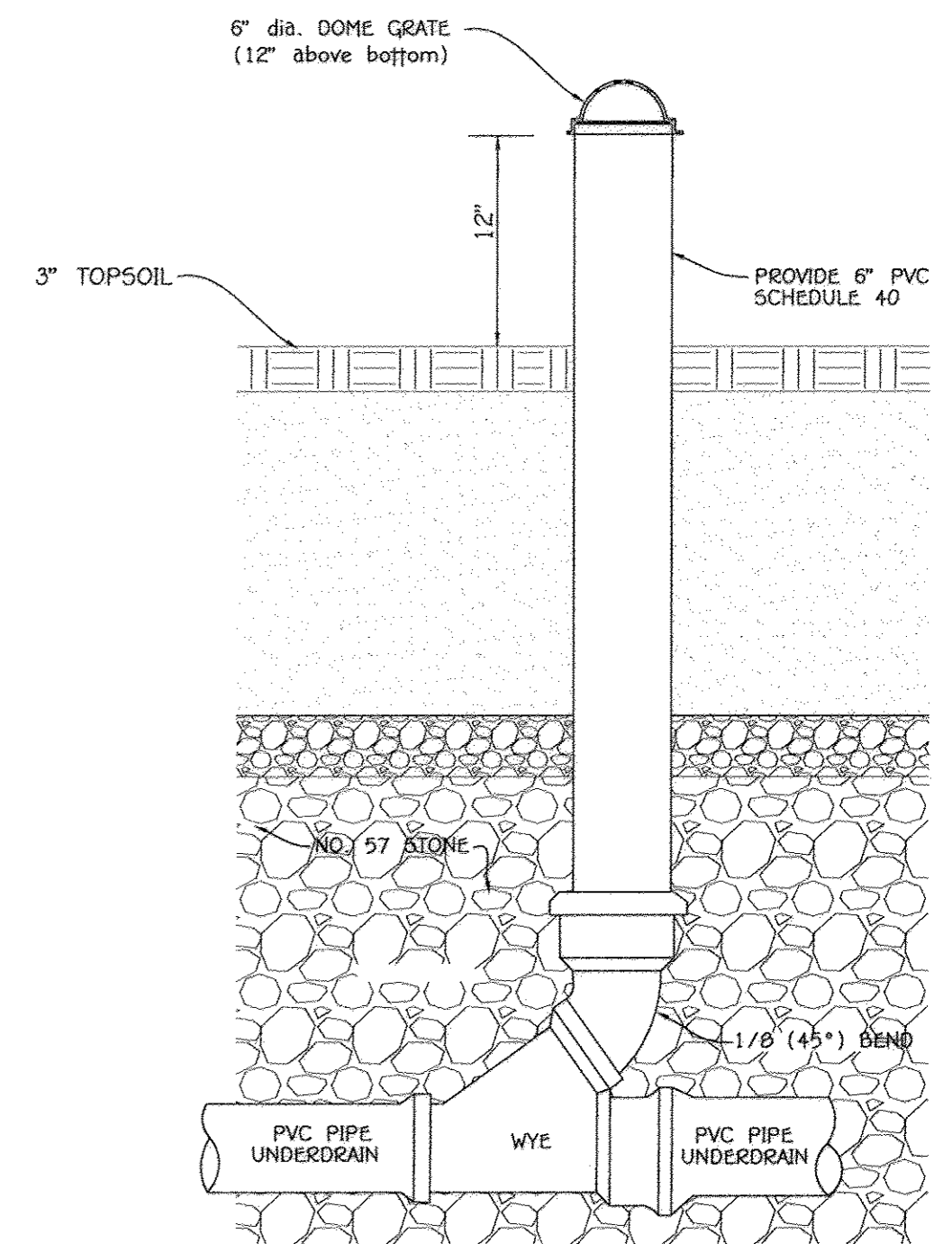
A RIGID, NON PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQ.FT.) TO PROVIDE A CLEANOUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

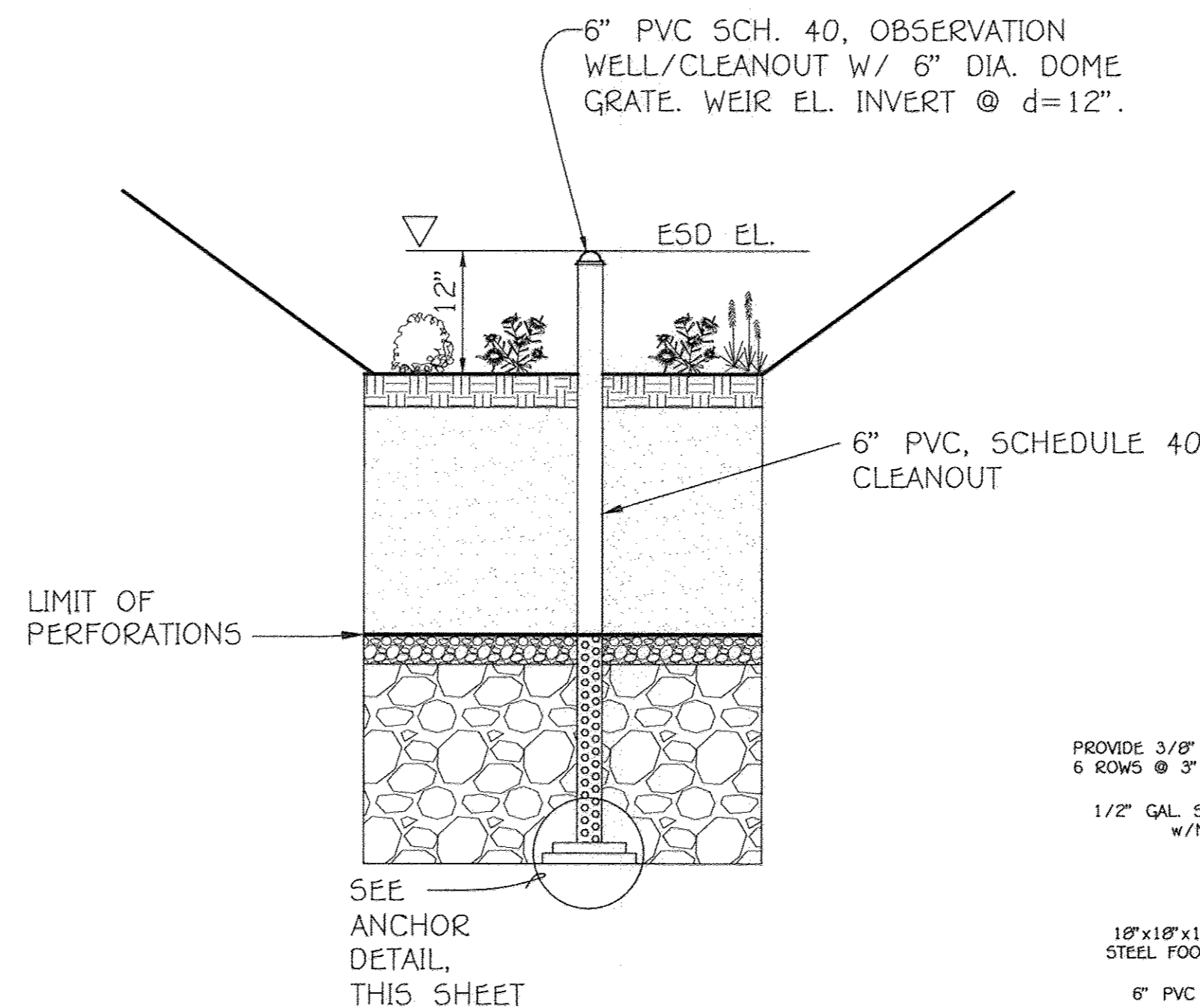
Operation And Maintenance Schedule For Homeowners Association Owned & Maintained Surface Sand Filter (F-1)

1. THE STORMWATER WETLAND FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.
3. FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.
4. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
5. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
6. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.
7. FILTER MATERIAL MUST BE REPLACED WHEN WATER REMAINS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 24 HOURS FOLLOWING A 1 OR 2 YEAR STORM EVENT OR MORE THAN 48 HOURS AFTER A 10 YEAR STORM EVENT.
8. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
9. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
10. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

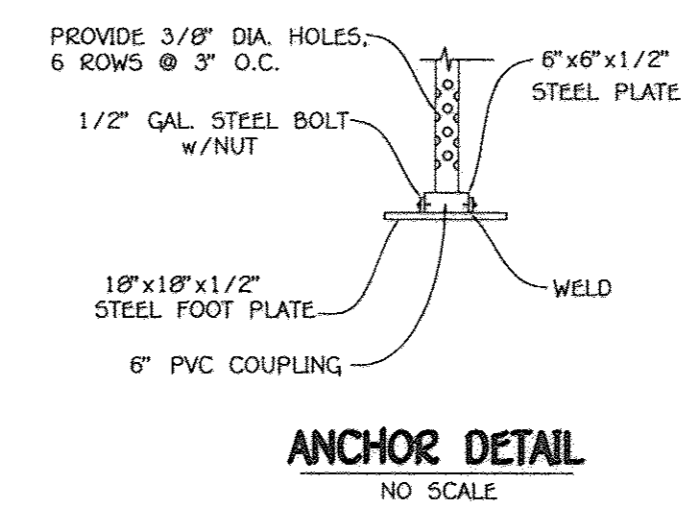
APPROVED: DEPARTMENT OF PUBLIC WORKS		12/6/2016
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		3-16-17
Kurtis Lamb		DATE
CHIEF, DIVISION OF LAND DEVELOPMENT		12/14/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE



Typical Clean-Out Detail
NO SCALE



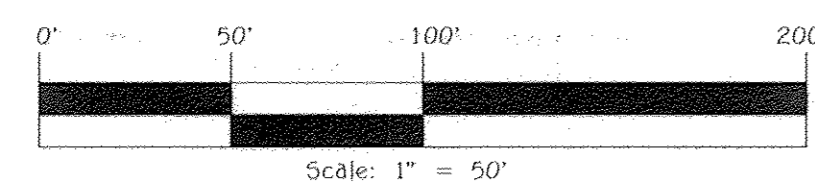
SECTION @ OBSERVATION WELL LOCATION
NOT TO SCALE



ANCHOR DETAIL
NO SCALE

Table B.3.1 Material Specifications for Sand filters

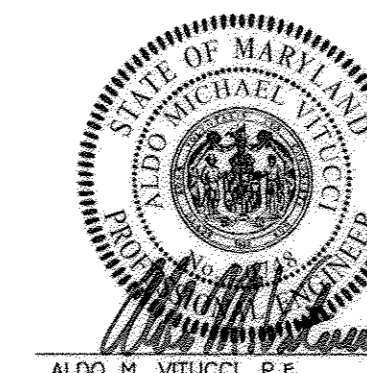
Material	Specifications/Test Method	Size	Notes
sand	clean AASHTO-M-6 of ASTM-C-concrete sand	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are note acceptable. No calcium carbonated or dolomitic sand substitutions are: acceptable. No "rock dust" can be used for sand.
peat	ash content: < 15% pH range: 5.2 to 4.9 loose bulk density 0.12 to 0.15 g/cc	N/a	The material must be reed-seege hemic peat, shredded, uncompacted, uniform, and clean.
leaf compost		N/a	
underdrain gravel	AASHTO-M-43	0.375" to 0.75"	
geotextile fabric (if required)	ASTM-D-4833 (puncture strength lb.) ASTM-D-4632 (Tensile Strength lb.)	0.08" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
impermeable liner (if required)	ASTM-D-4833 (thickness) ASTM-D-412 (tensile strength 1,100 lb., elongation 200%) ASTM-D-624 (Tear resistance - 150 lb./in) ASTM-D-471 (water adsorption: +0 to -2% mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.
underdrain piping	F 750, Type PS 20 or AASHTO-M-270	4" - 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
concrete (cast-in-place)	MSHA Standards and Specs. Section 902, Mix No. 3, f'c = 3500 psi, normal weight, air-entrained	N/a	on-site testing of poured-in-place concrete required. 28 day strength and slump test; all concrete design (cast-in-place or precast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland
concrete (pre-cast)	per pre-cast manufacturer	N/a	SEE ABOVE NOTE
non-rebar steel	ASTM A-36	N/a	structural steel to be hot-dipped galvanized ASTM-A-123



OWNER
DAISYCOOP, LLC
c/o ESTATE OF FRANCES JEAN SCHULTE
DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
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DEVELOPER
LAND DESIGN & DEVELOPMENT
8318 FORREST STREET
SUITE 200
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(410)-922-4600

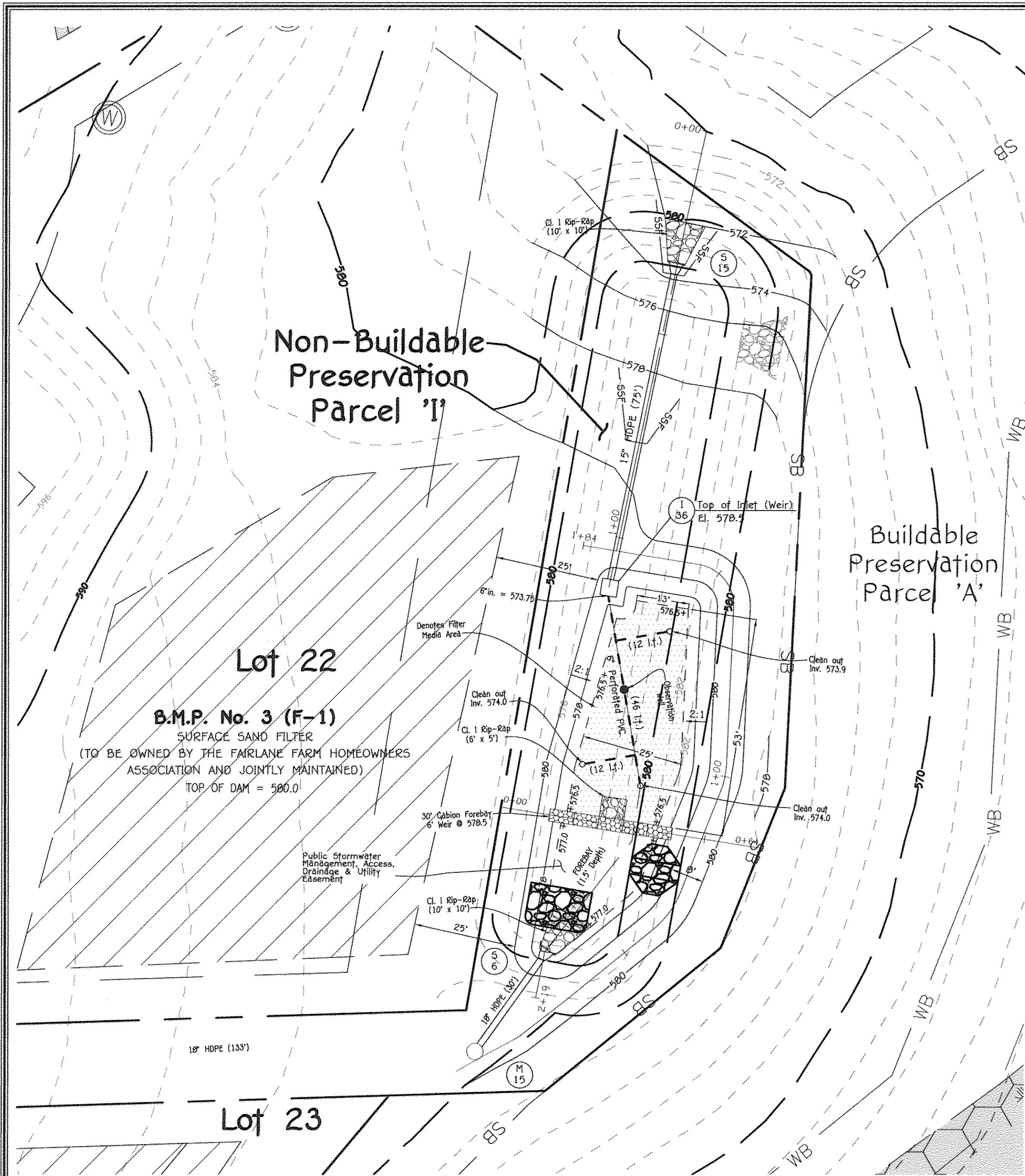
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK • 10772 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21046
(410) 461-2255



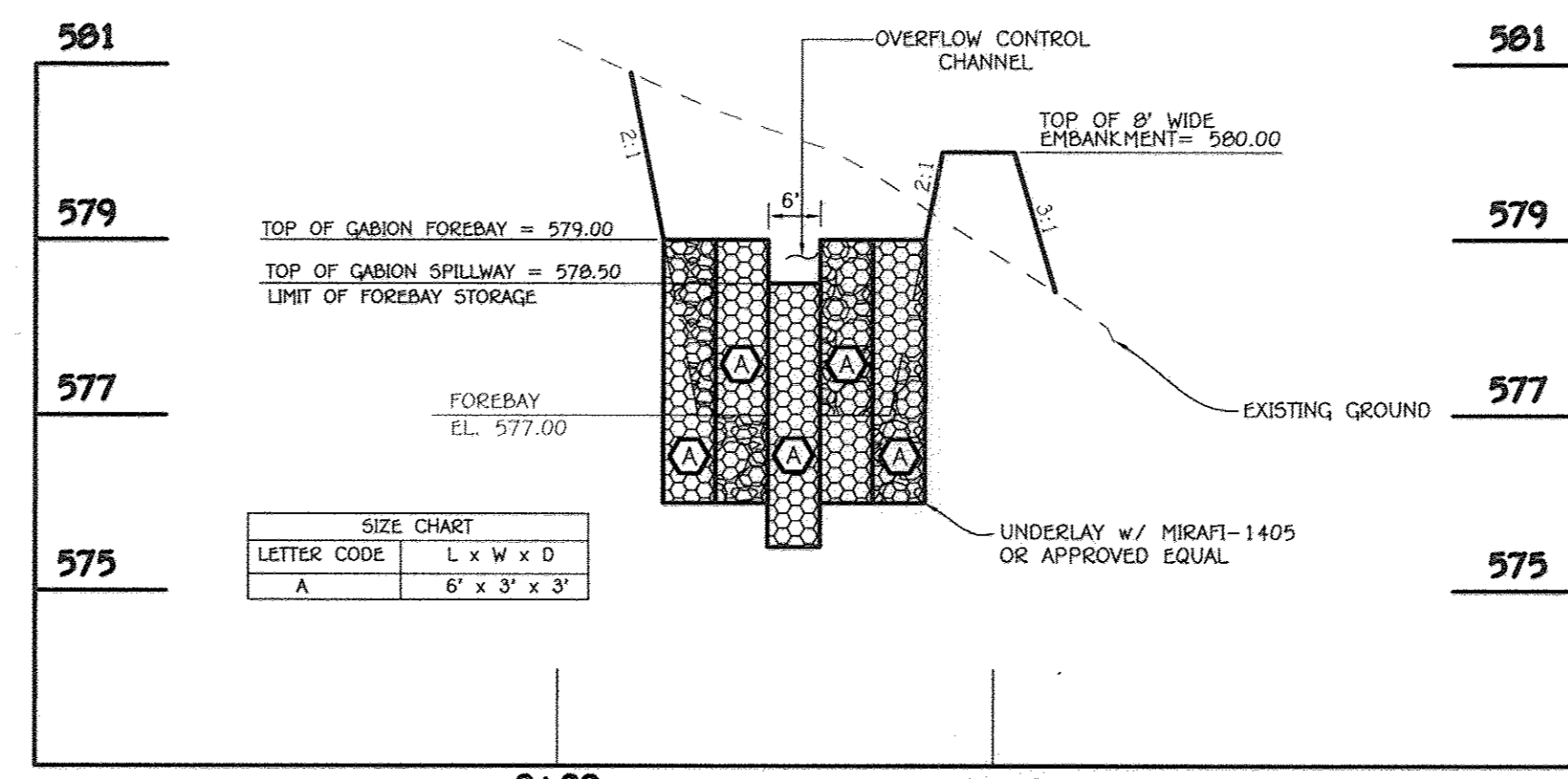
ALDO H. VITUCCI, P.E.
DATE: 11/16/16
"Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

STORMWATER MANAGEMENT NOTES AND DETAILS (SURFACE SAND FILTER)
FAIRLANE FARM PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcels 'Q' & 'R' And A Revision To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' Thru 'E', Parcel 'F' And Non-Buildable Bulk Parcels 'G' And 'H'."
ZONED: RC-DEO
TAX MAP NO.: 0 GRID NO.: 2, PAR.: 0
TAX MAP NO.: 0 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 19 OF 36

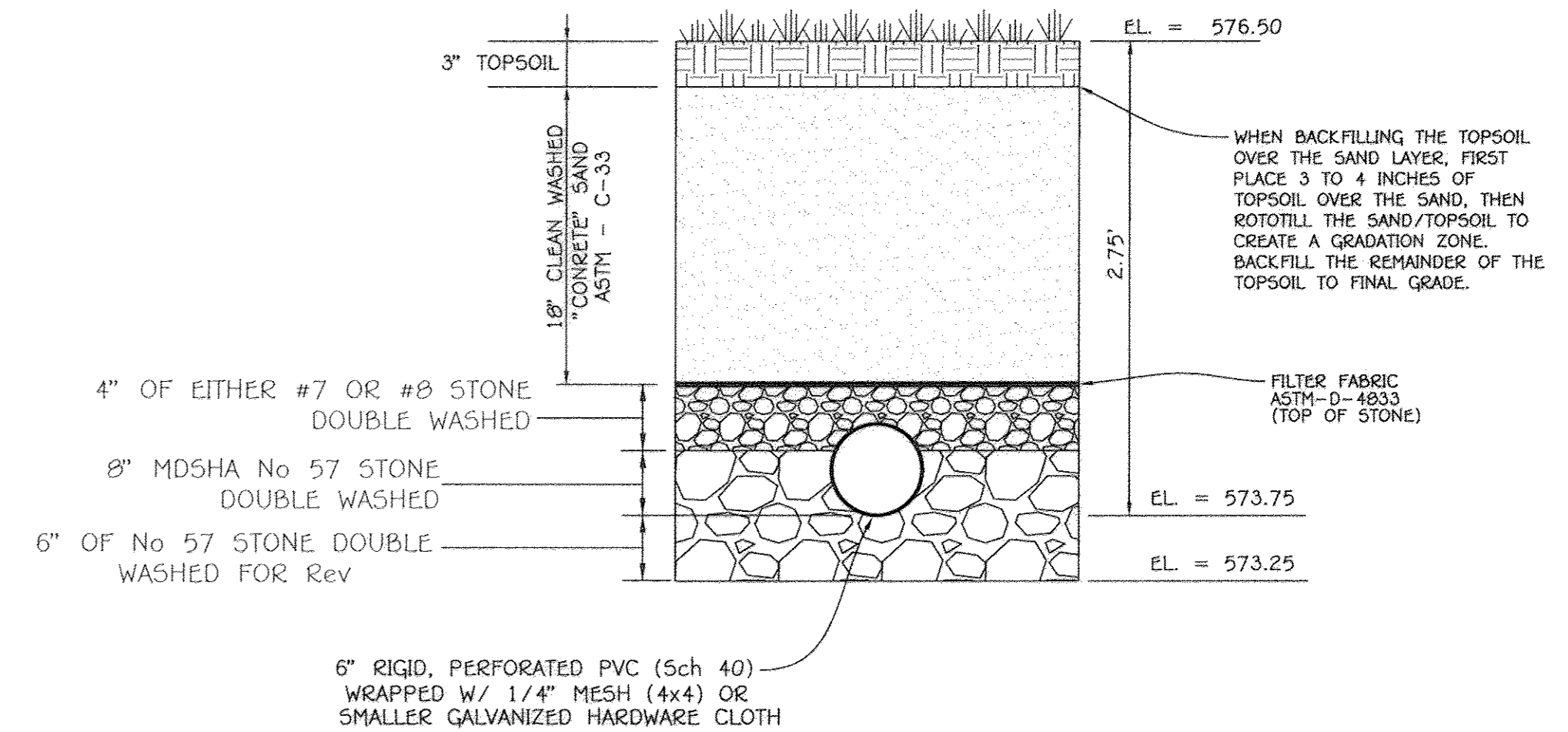
APPROVED: DEPARTMENT OF PUBLIC WORKS		
CHIEF, BUREAU OF HIGHWAYS	12/16/2016 DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
CHIEF, DIVISION OF LAND DEVELOPMENT	3-16-17 DATE	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	12/19/16 DATE	
REVISIONS		
NO.	DESCRIPTION	DATE



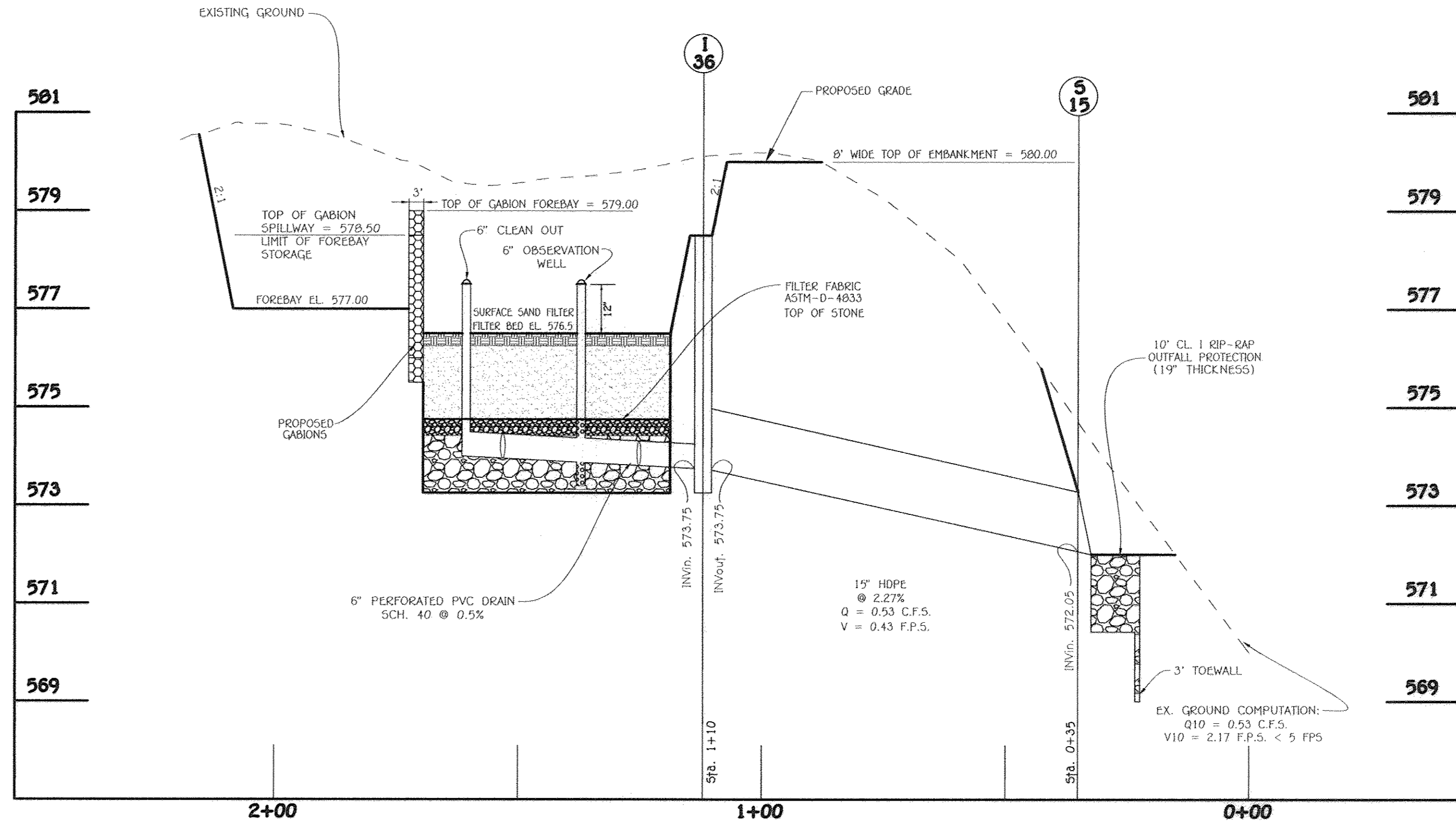
**PROPOSED SURFACE SAND FILTER (F-1)
BMP No. 3 PLAN VIEW**
SCALE: 1" = 20'



GABION FOREBAY PROFILE
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

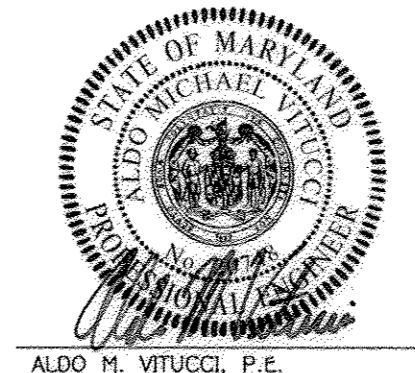


TYPICAL SECTION - SURFACE SAND FILTER (F-1)
NO SCALE



SECTION THRU SURFACE SANDFILTER
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

**STORMWATER MANAGEMENT
PLAN AND DETAILS
B.M.P. No. 3 (F-1)
FAIRLANE FARM
PHASE TWO**
LOTS 19-44,
BUILDABLE PRESERVATION PARCELS 'A' AND NON-BUILDABLE
PRESERVATION PARCELS 'I' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcels 'C' & 'H' And A Revision To Buildable
Preservation Parcel 'A'. Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable
Preservation Parcel 'A'; Non-Buildable Preservation Parcels 'I' Thru 'N', Parcel 'I' And
Non-Buildable Bulk Parcels 'C' And 'H'".
ZONED: RC-DEO
TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 21 OF 36

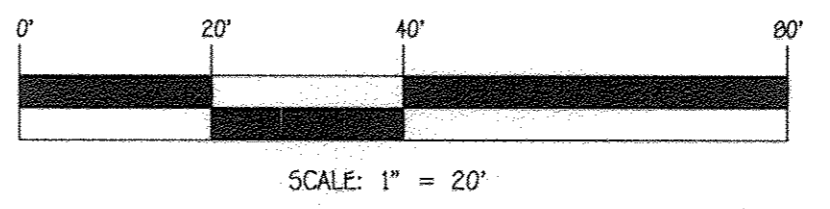


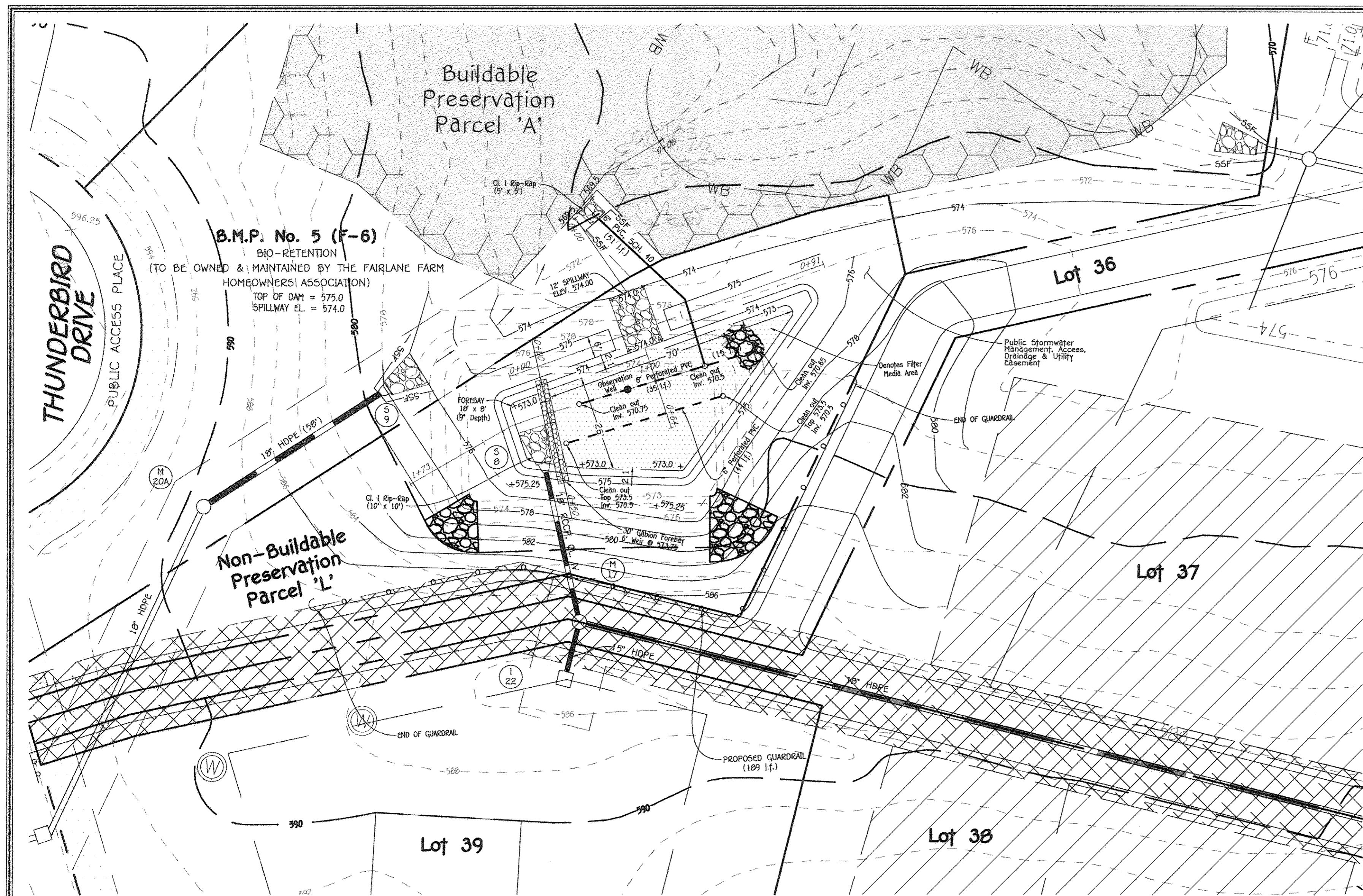
ALDO M. VITUCCI, P.E.
DATE: 11/16/16
"Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland. License No. 20748, Expiration Date 2-22-17."

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c/o ESTATE OF FRANCES JEAN SCHULTE
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WOODBINE, MD 21797
410-977-1327

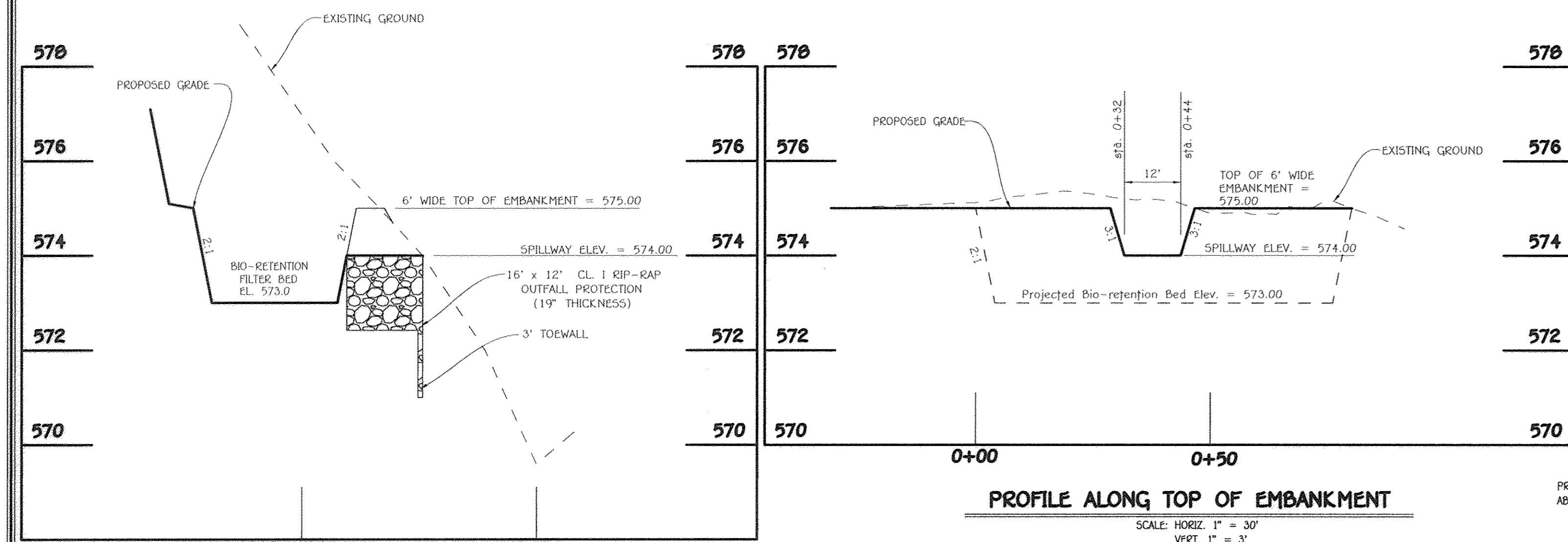
DEVELOPER
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(410)-922-4600





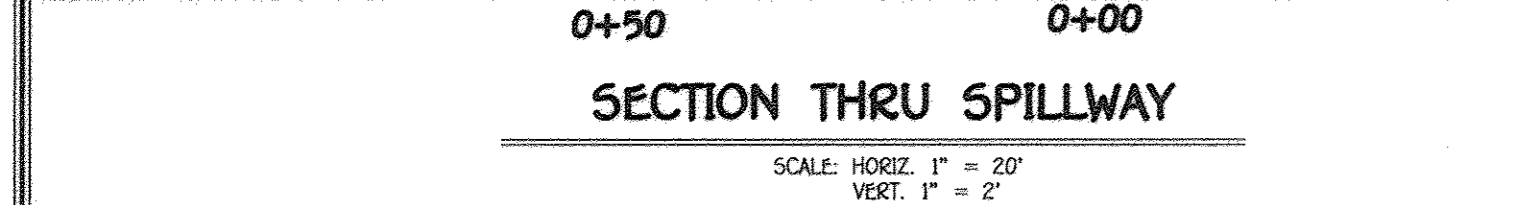
**PROPOSED BIO-RETENTION FACILITY (F-6)
BMP No. 5 PLAN VIEW**

SCALE: 1" = 20'



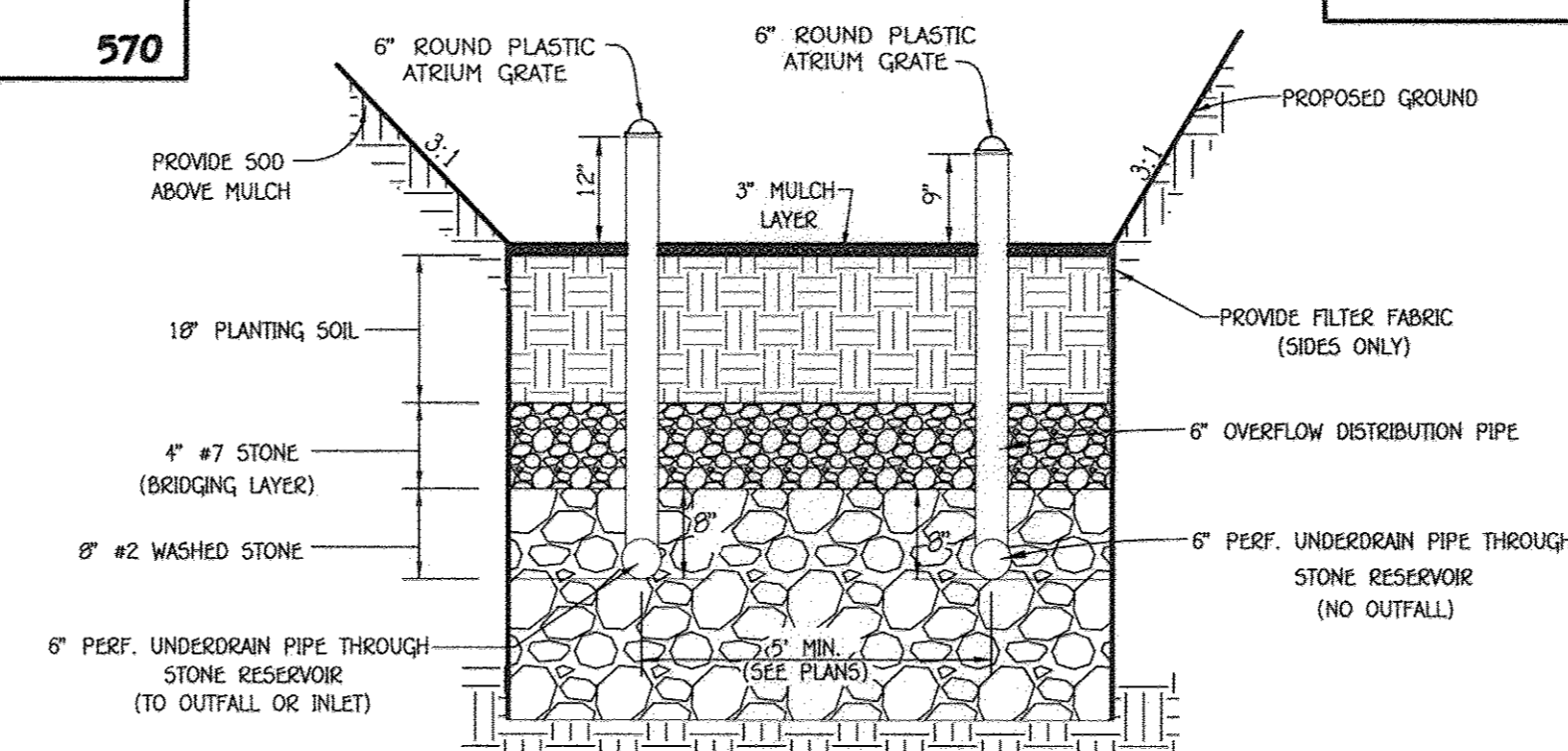
PROFILE ALONG TOP OF EMBANKMENT

SCALE: HORIZ. 1" = 30'
VERT. 1" = 3'



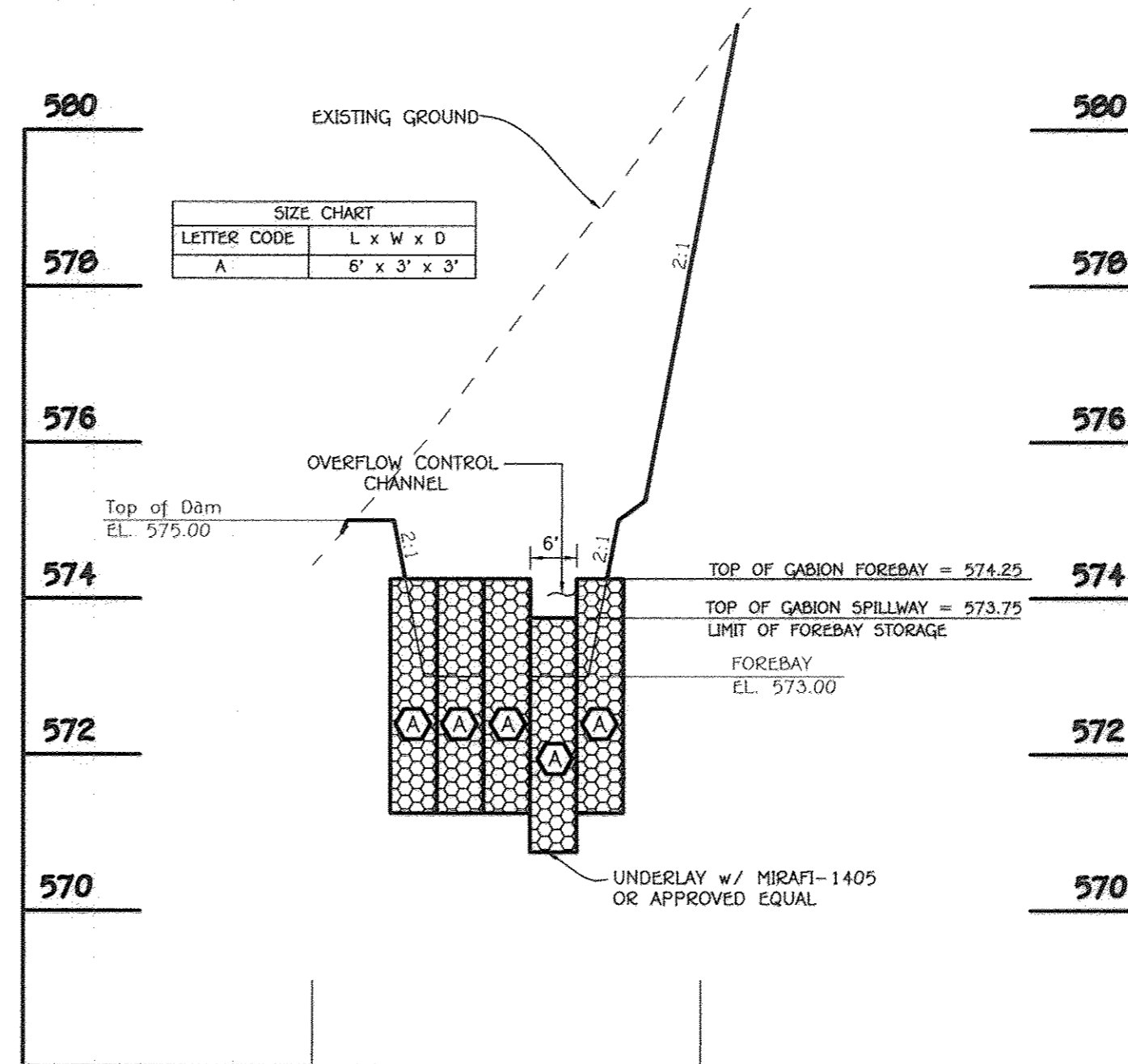
SECTION THRU SPILLWAY

SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



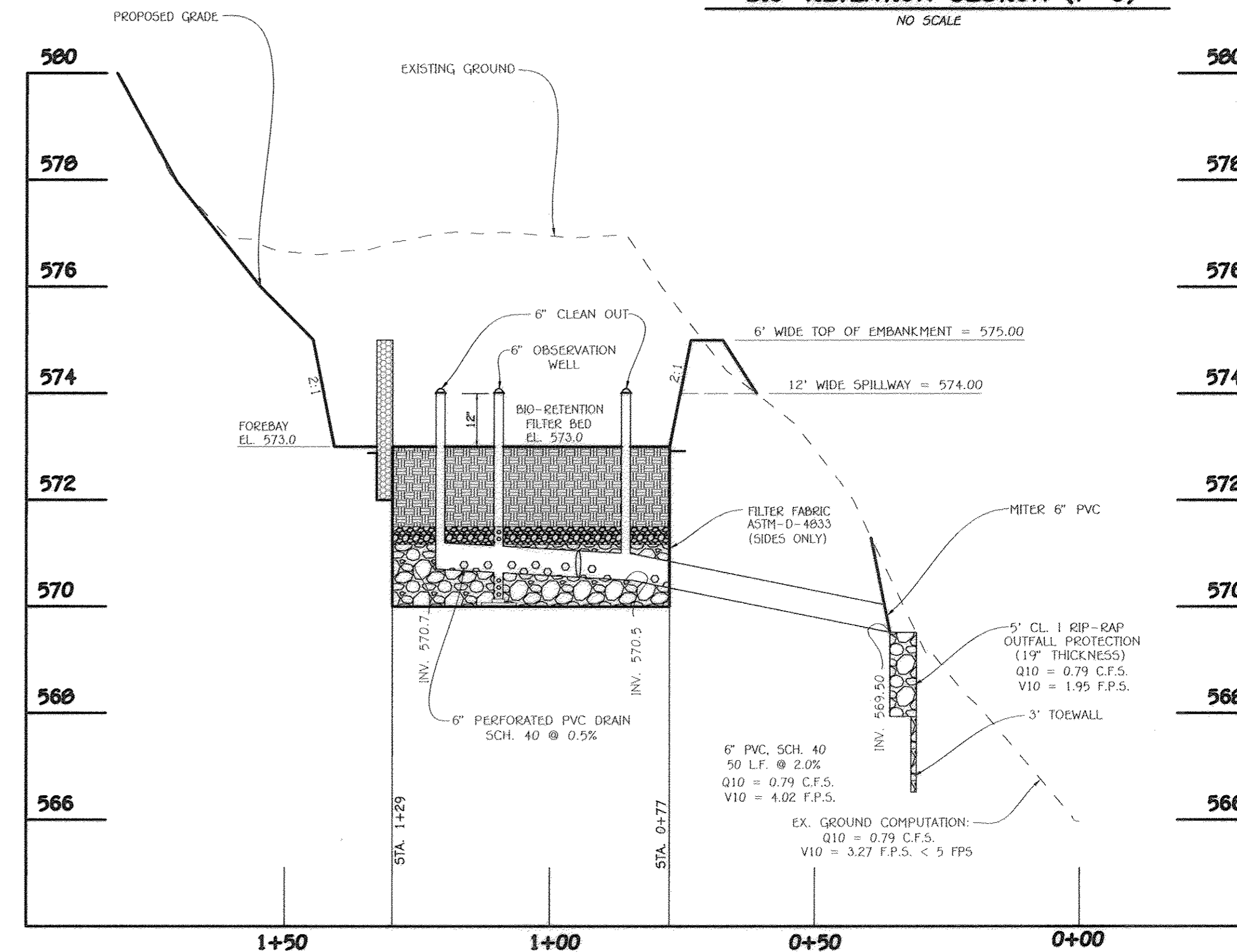
**MICRO BIO-RETENTION SECTION
WITH 6" OVERFLOW DISTRIBUTION PIPE**

NO SCALE



GABION FOREBAY PROFILE

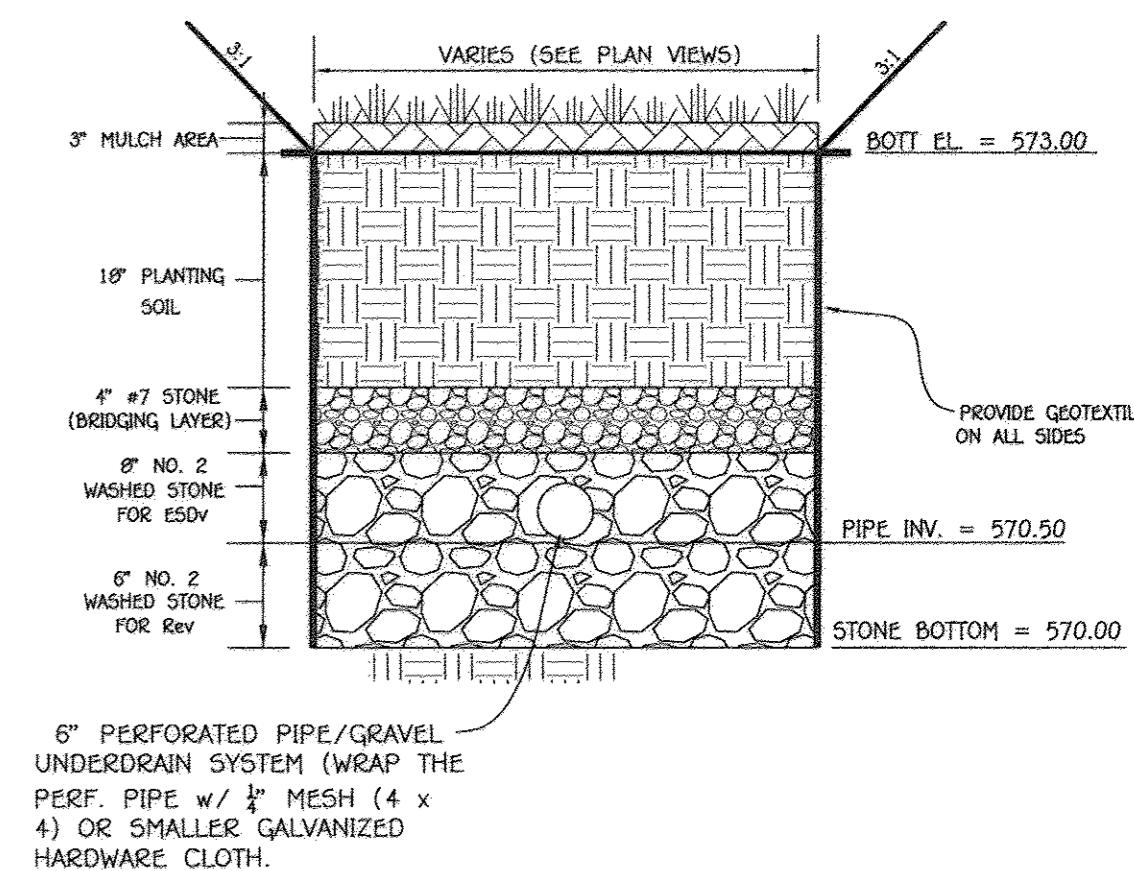
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



SECTION THRU BIO-RETENTION

SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

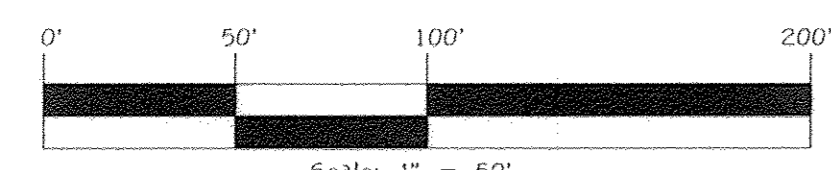
APPROVED: DEPARTMENT OF PUBLIC WORKS	12/6/2016	
CHIEF, BUREAU OF HIGHWAYS	DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	3-16-17	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	
12/14/16	DATE	
REVISIONS		
NO.	DESCRIPTION	DATE



BIO-RETENTION SECTION (F-6)

NO SCALE

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410-977-1327

DEVELOPER

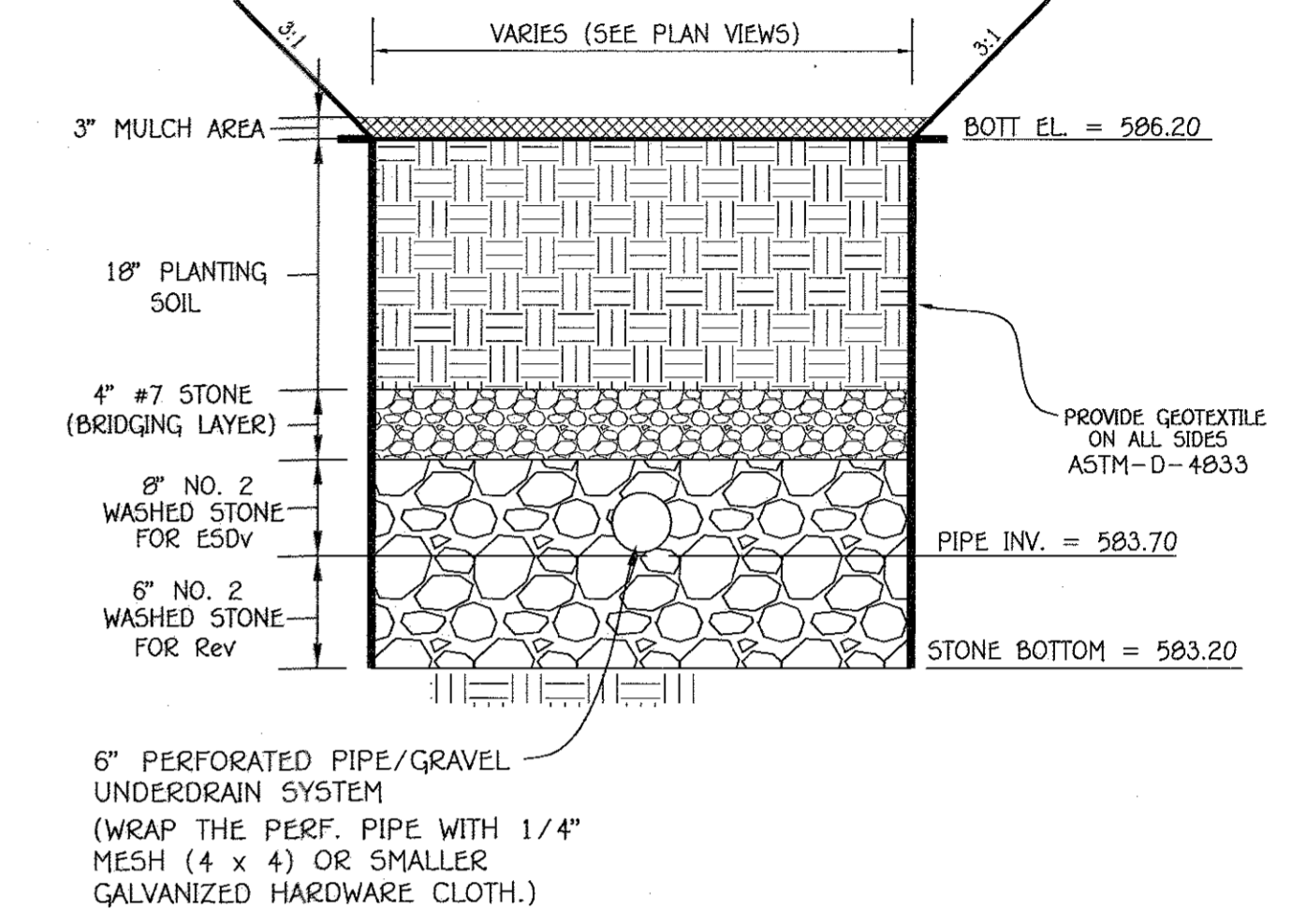
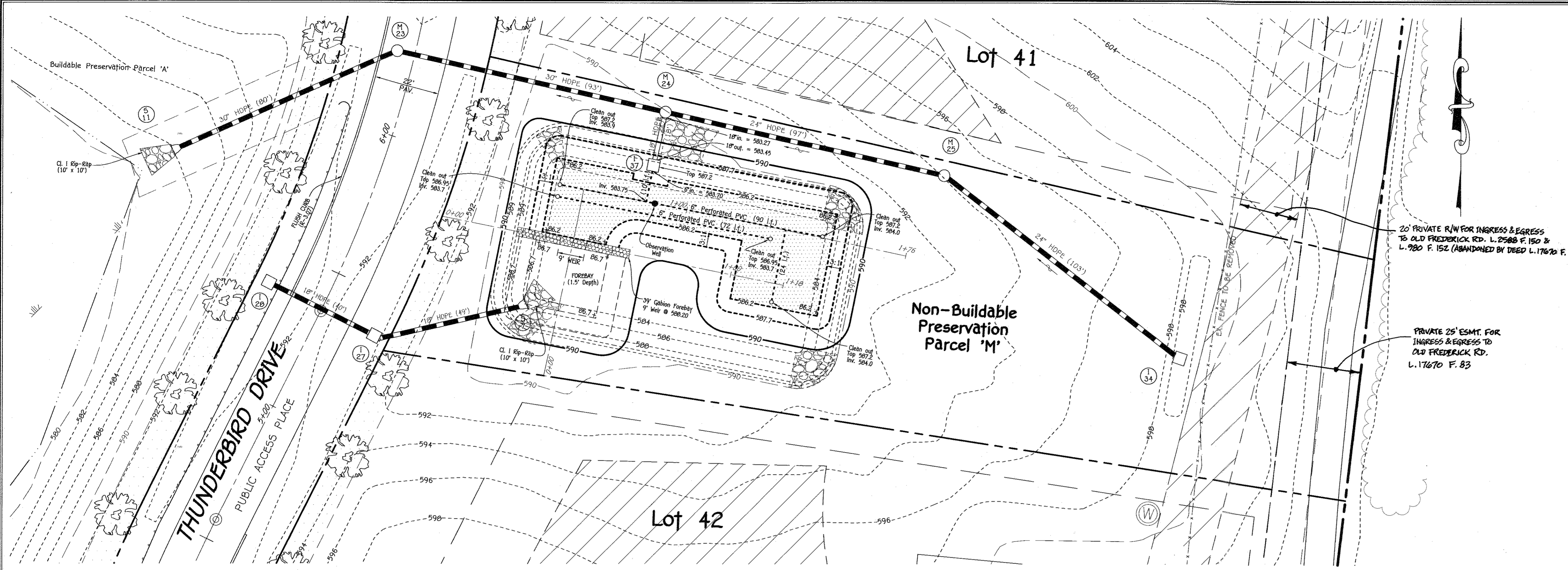
LAND DESIGN & DEVELOPMENT
8018 FOREST STREET
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ELLICOTT CITY, MARYLAND 21043
(410)-922-4600



ALDO M. VITUCCI, P.E.
DATE
"Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20749, Expiration Date 2-22-17."

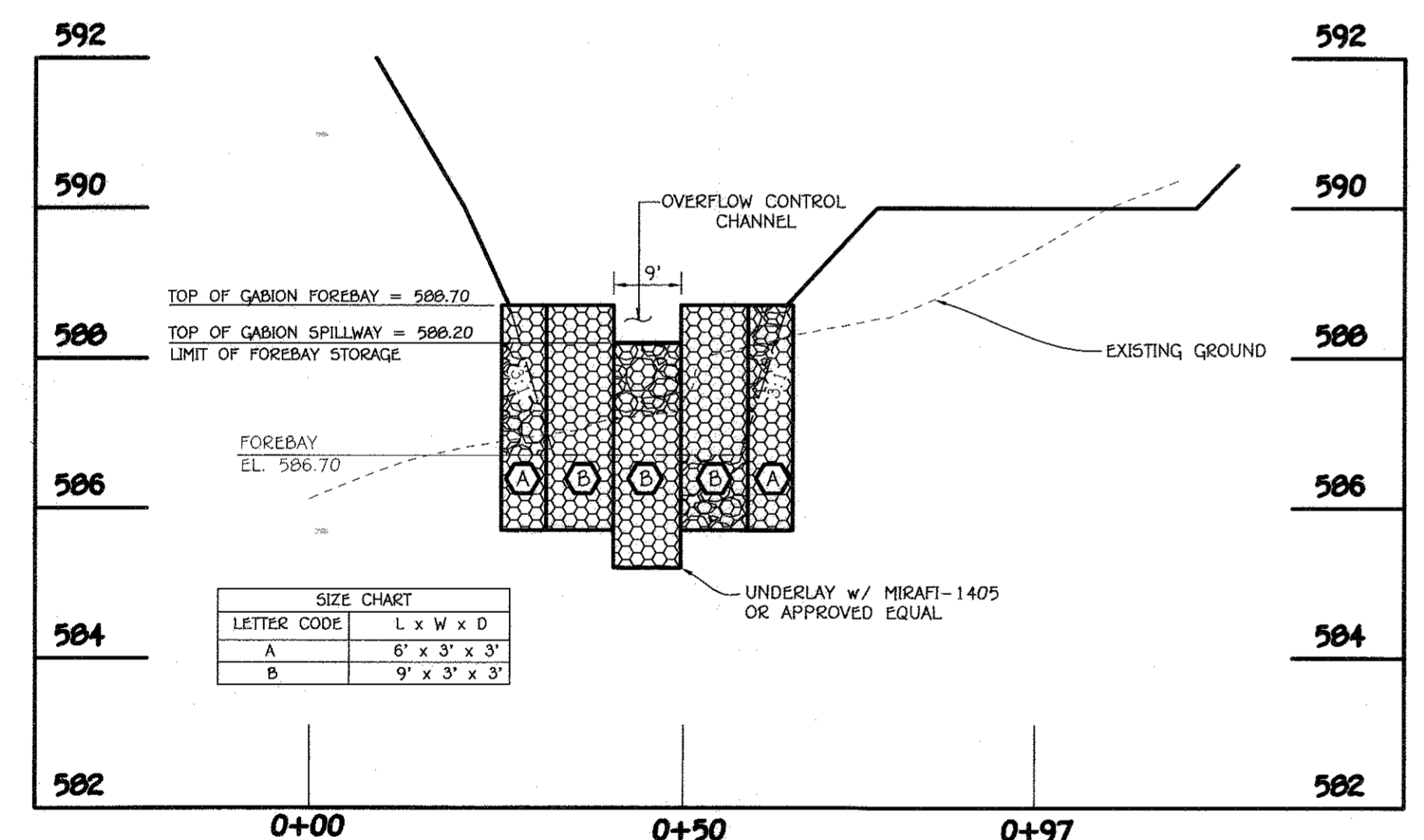
**STORMWATER MANAGEMENT
PLAN AND DETAILS
B.M.P. No. 5 (F-6)
FAIRLANE FARM
PHASE TWO**
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE
PRESERVATION PARCELS 'I' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcels 'C' & 'D' And A Section To Buildable
Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable
Preservation Parcel 'K', Non-Buildable Preservation Parcels 'O' Thru 'U', Parcel 'V' And
Non-Buildable Bulk Parcels 'G' And 'H'."
ZONED: REC-DEO
TAX MAP NO.: B GRID NO.: 2, PAR.: B
TAX MAP NO.: B GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 22 OF 36

APPROVED: DEPARTMENT OF PUBLIC WORKS		
<i>M. M...</i>		12/6/2016
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>V. S...</i>		3-16-17
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
APPROVED: DEPARTMENT OF DEVELOPMENT ENGINEERING DIVISION		
<i>A...</i>		12/19/16
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE
1	ADD NEW ACCESS EASEMENT	3/25/18

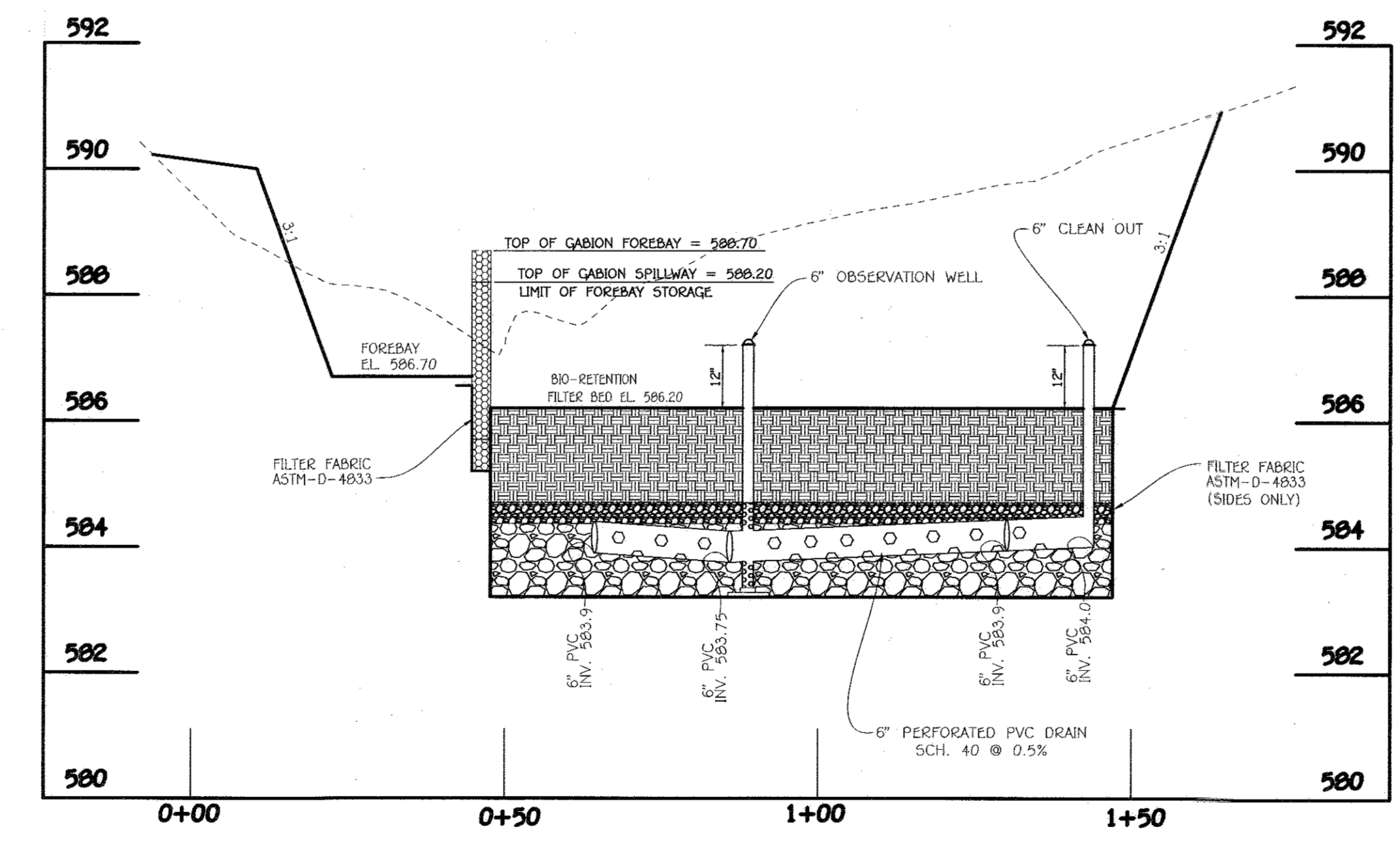


**PROPOSED BIO-RETENTION FACILITY (F-6)
BMP No. 4 PLAN VIEW**
SCALE: 1" = 20'

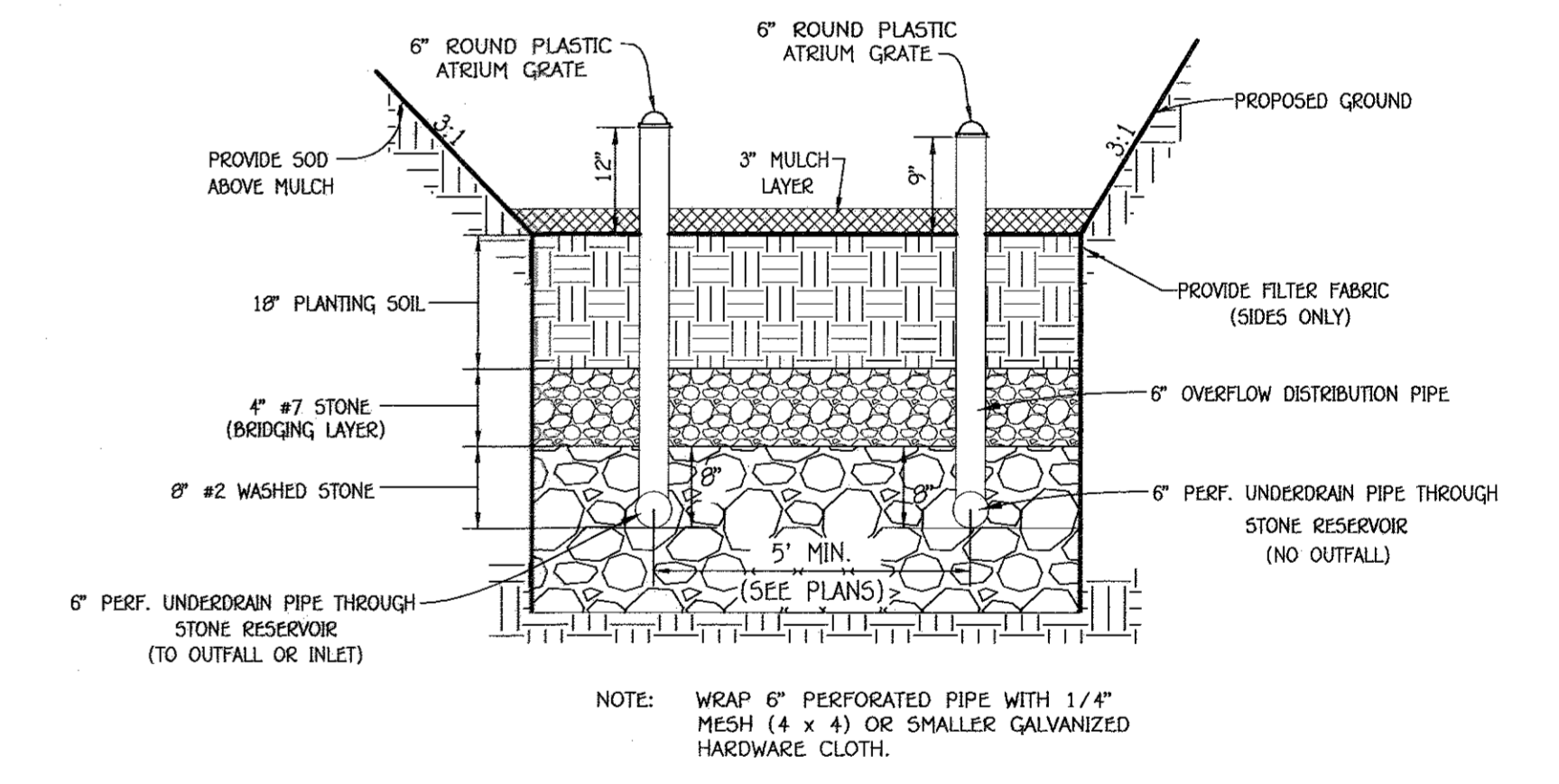
**BMP No. 4
BIO-RETENTION SECTION (F-6)**
NO SCALE



**B.M.P. No. 4
GABION FOREBAY PROFILE**
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



**B.M.P. No. 4
SECTION THRU SAND FILTER**
SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'

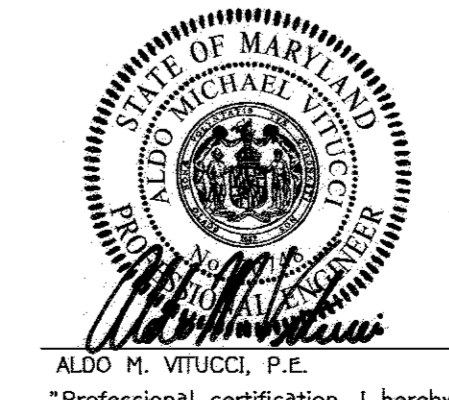
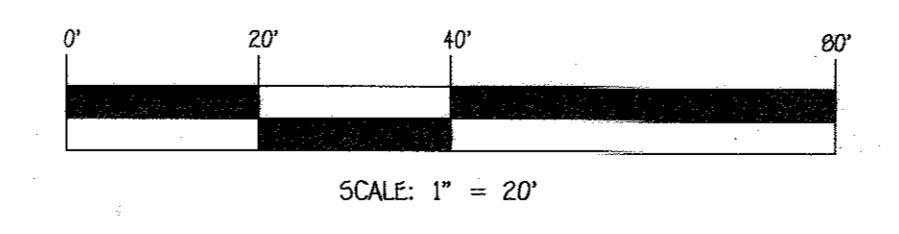


**BIO-RETENTION SECTION
WITH 6' OVERFLOW DISTRIBUTION PIPE**
NO SCALE

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ELLCOTT CITY, MARYLAND 21114
(410) 461-2995

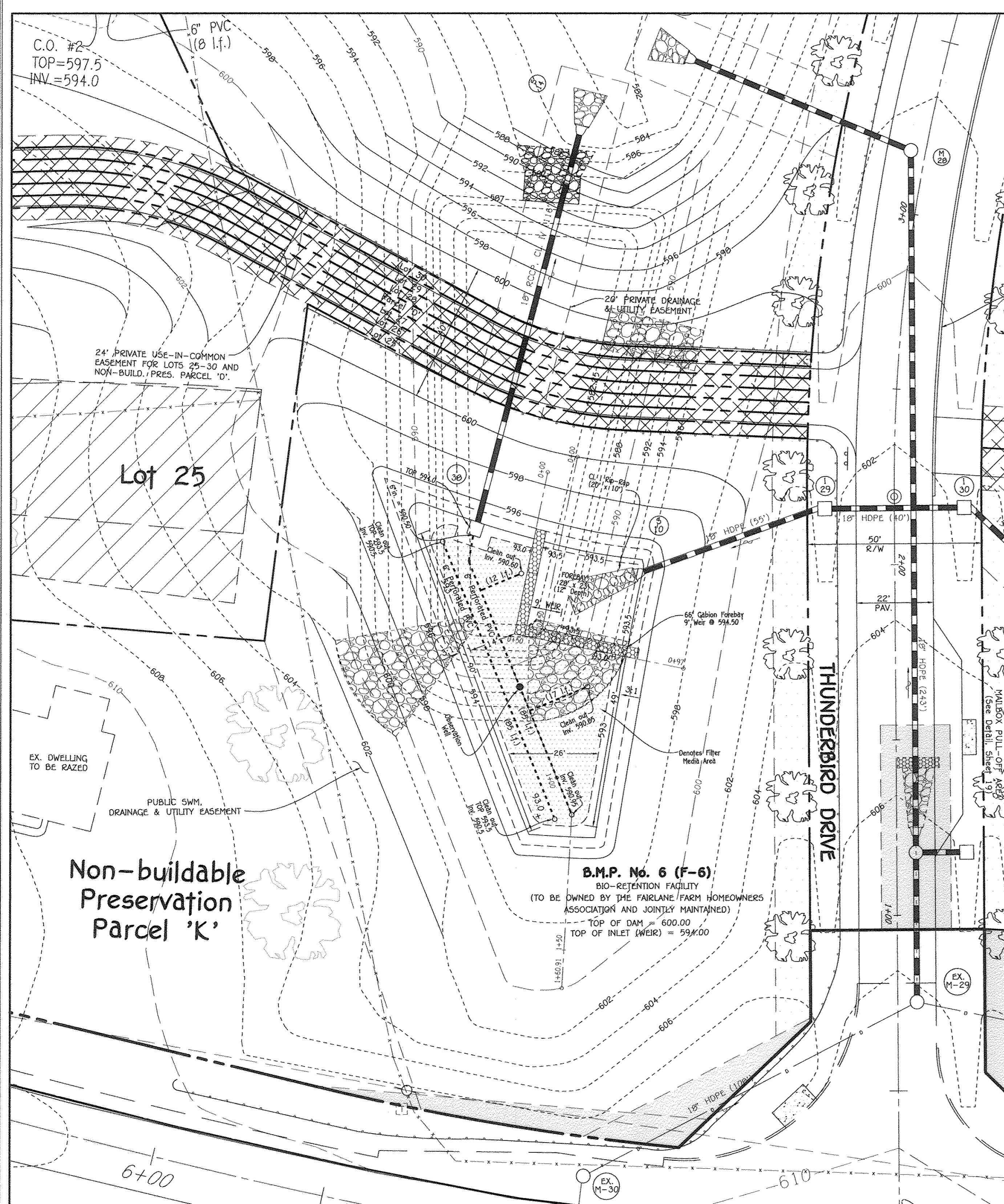
OWNER
DAISYCOOP, LLC
c/o ESTATE OF FRANCES JEAN SCHULTE
DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
2215 DUNALL ROAD
WOODBINE, MD 21797
410-977-1327

DEVELOPER
LAND DESIGN & DEVELOPMENT
8318 FORREST STREET
SUITE 200
ELLCOTT CITY, MARYLAND 21143
(410)-922-4600



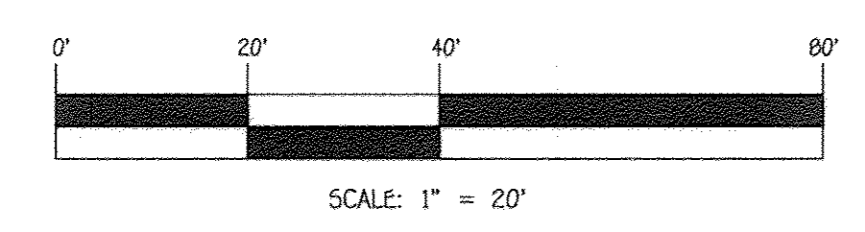
ALDO M. VITUCCI, P.E.
DATE: 12/19/16
"Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

**STORMWATER MANAGEMENT
PLAN AND DETAILS
B.M.P. No. 4 (F-6)
FAIRLANE FARM
PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE
PRESERVATION PARCELS 'I' THRU 'N'**
A Re-division of Non-Buildable Bulk Parcels 'C' & 'H' And A Revision To Buildable Preservation Parcel 'A', Accorced As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'M', Non-Buildable Preservation Parcels 'B' Thru 'L', Parcel 'N' And Non-Buildable Bulk Parcels 'C' And 'H'."
ZONED: RC-DEO
TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 23 OF 36

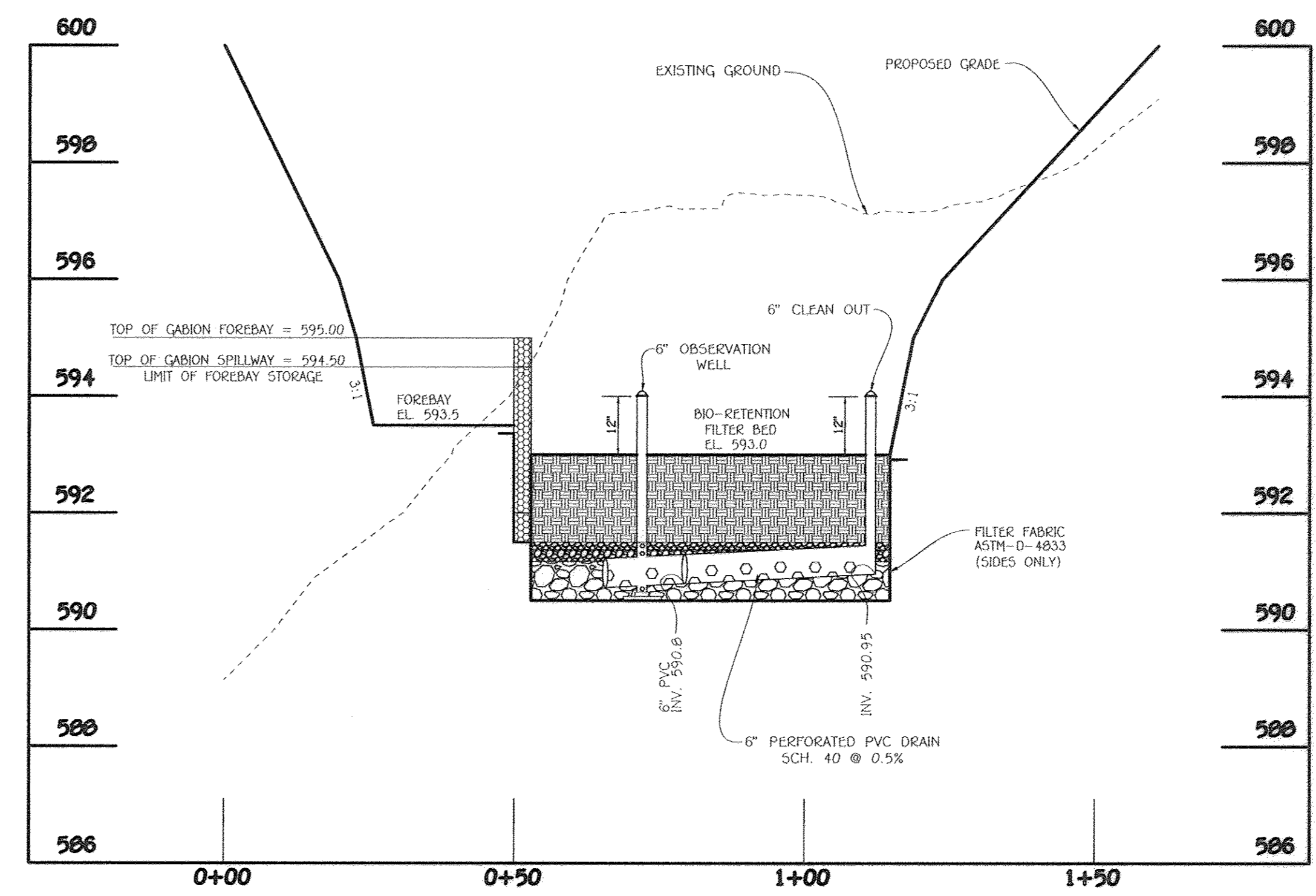


**PROPOSED BIO-RETENTION FACILITY (F-6)
BMP No. 6 PLAN VIEW**

SCALE: 1" = 20'

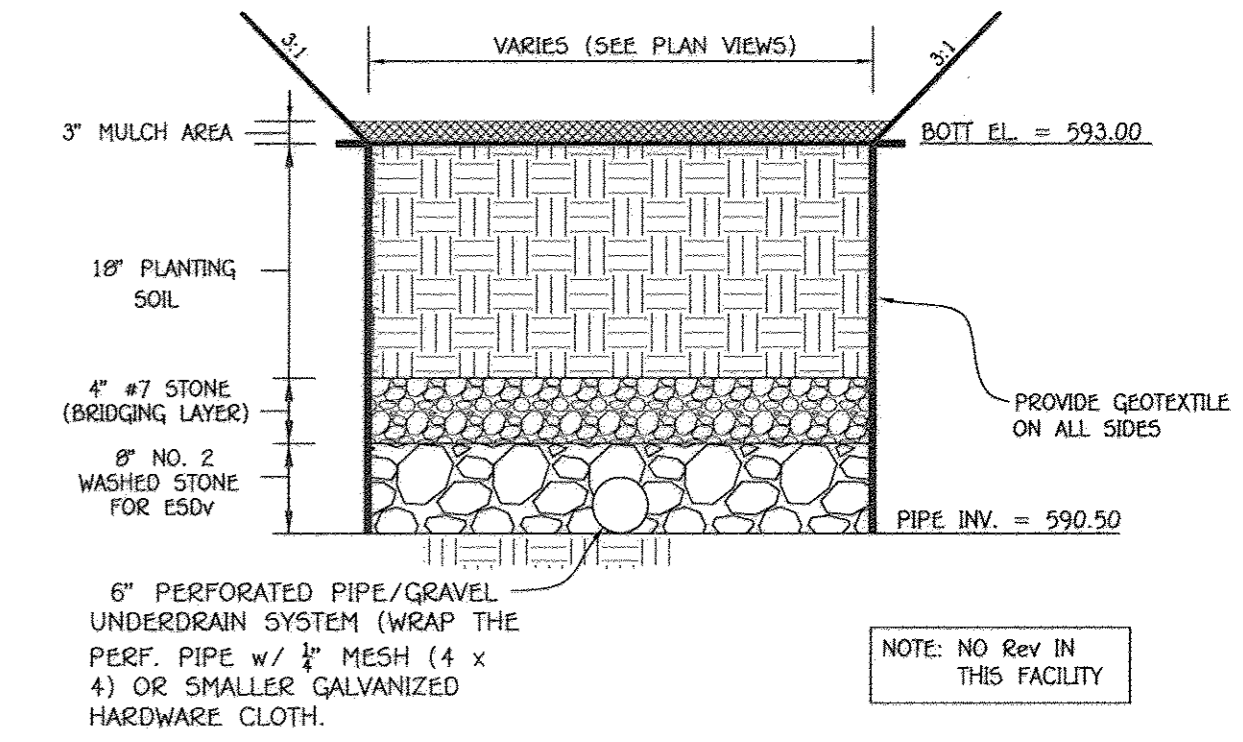


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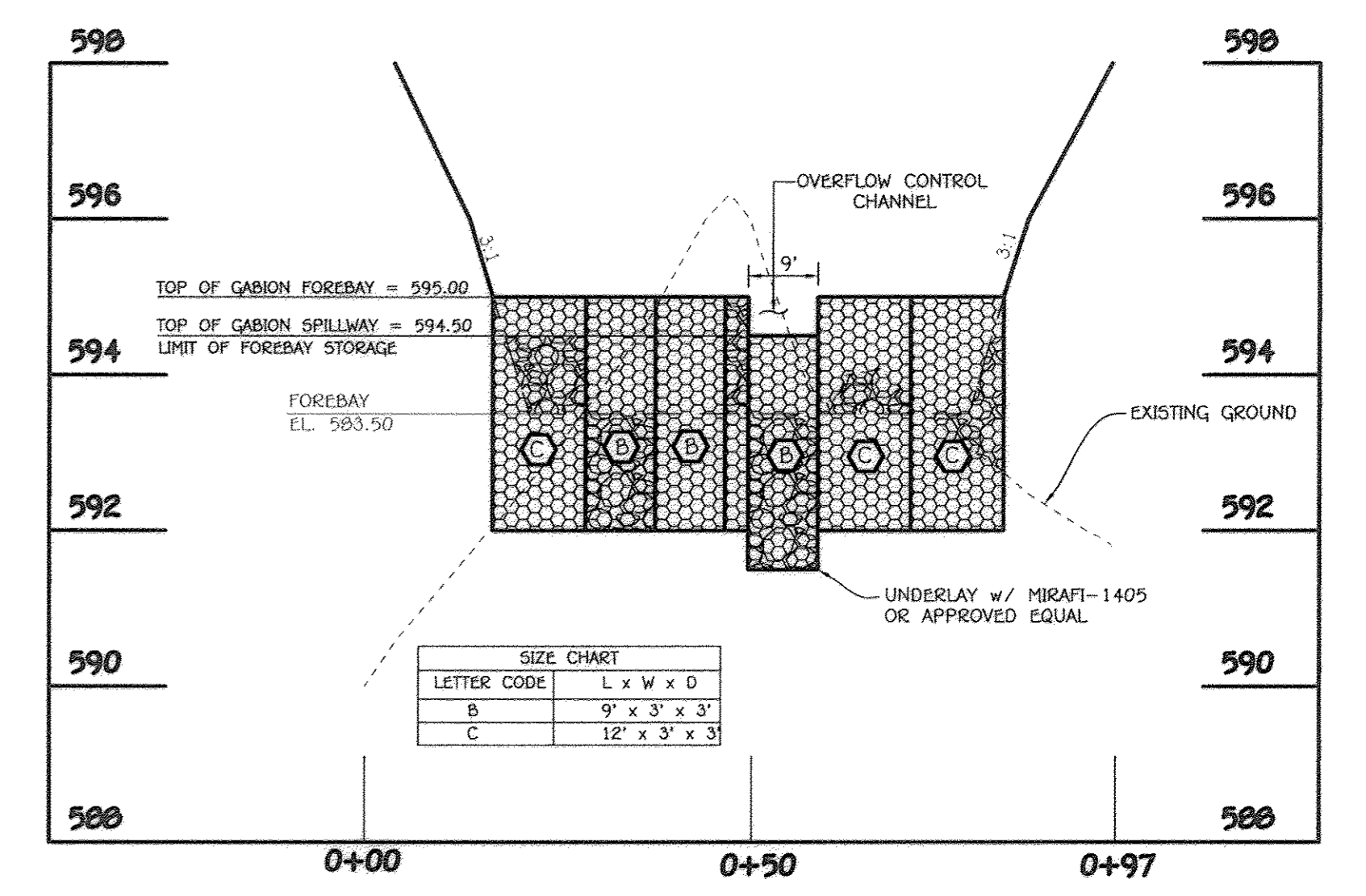
**B.M.P. No. 6
SECTION THRU BIO-RETENTION**

SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



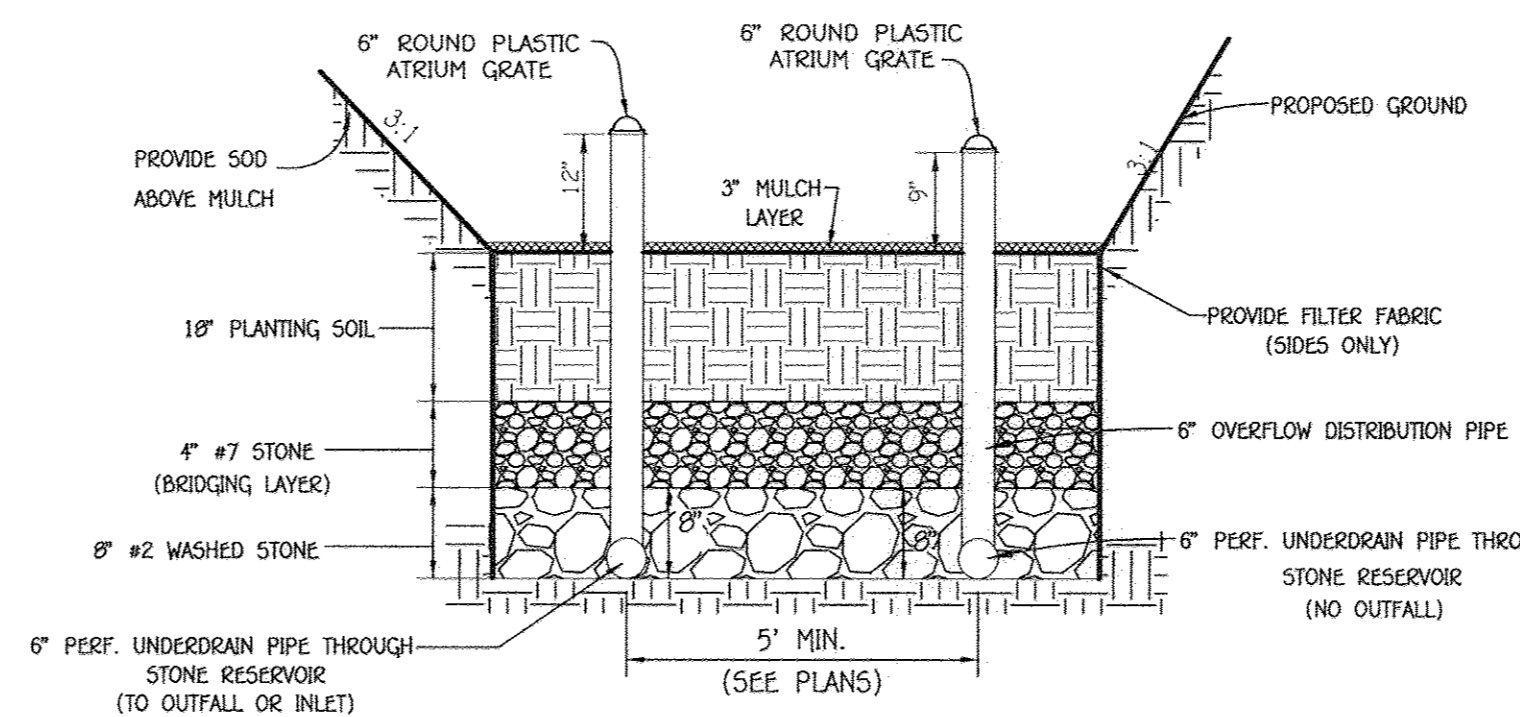
**BMP No. 6
BIO-RETENTION SECTION (F-6)**

NO SCALE



**B.M.P. No. 6
GABION FOREBAY PROFILE**

SCALE: HORIZ. 1" = 20'
VERT. 1" = 2'



**MICRO BIO-RETENTION SECTION
WITH 6" OVERFLOW DISTRIBUTION PIPE**

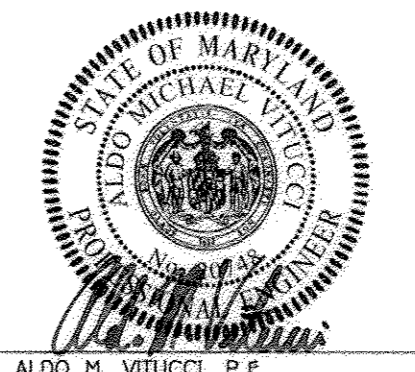
NO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS	12/16/2016	
CHIEF, BUREAU OF HIGHWAYS	DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING	3-16-17	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	12/14/16	
DATE		
NO.	DESCRIPTION	DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CANTONAL SQUARE OFFICE PARK - 10072 BATHORNE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
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OWNER
DAISYCOOP, LLC
c/o ESTATE OF FRANCES JEAN SCHULTE
DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
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WOODBINE, MD 21797
410-977-1327

DEVELOPER
LAND DESIGN & DEVELOPMENT
8318 FOREST STREET
SUITE 200
ELLICOTT CITY, MARYLAND 21043
(410)-922-4600



ALDO M. VITUCCI, P.E.
DATE
Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.

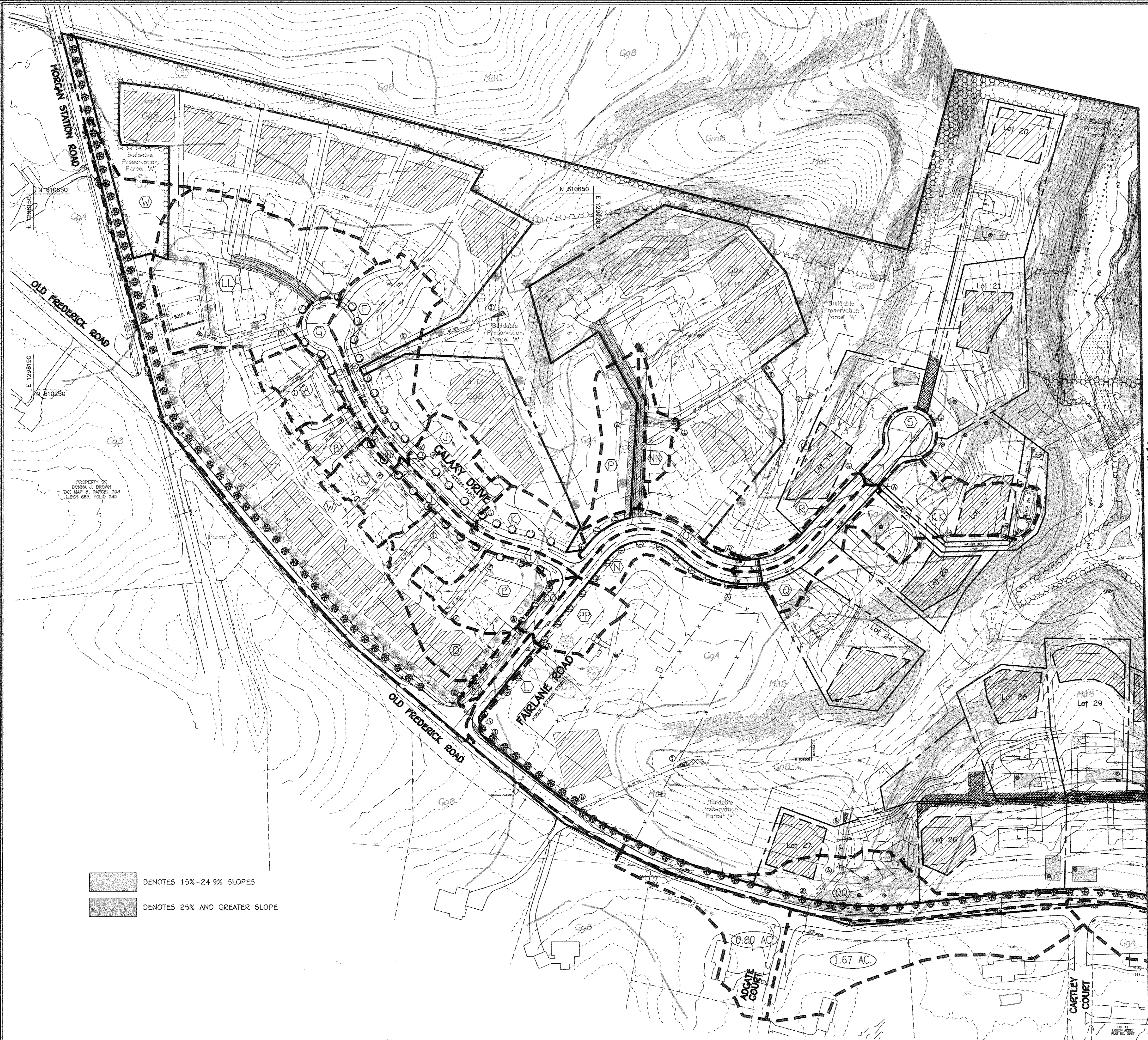
**STORMWATER MANAGEMENT
PLAN AND DETAILS
B.M.P. No. 6 (F-6)
FAIRLANE FARM
PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE
PRESERVATION PARCELS 'I' THRU 'N'**
A Resubdivision of Non-Buildable Bulk Parcels 'Q' & 'R' And A Section To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'B' Thru 'E', Parcel 'I' And Non-Buildable Bulk Parcels 'Q' And 'R'."
ZONED: RC-DEO
TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 24 OF 36

APPROVED - DEPARTMENT OF PUBLIC WORKS		
CHIEF, BUREAU OF HIGHWAYS	<i>[Signature]</i>	12/6/2016
DATE		
APPROVED - DEPARTMENT OF PLANNING AND ZONING		
CHIEF, DIVISION OF LAND DEVELOPMENT	<i>[Signature]</i>	3-16-17
DATE		
APPROVED - CHIEF, DEVELOPMENT ENGINEERING DIVISION		
	<i>[Signature]</i>	3-10-17
DATE		
REVISIONS		
NO.	DESCRIPTION	DATE

SOILS LEGEND			
SOIL	NAME	CLASS	Kw
GgB	Gladstone loam, 3 to 8 percent slopes	B	0.28
MAB	Manor loam, 3 to 8 percent slopes	B	0.27
MAC	Manor loam, 8 to 15 percent slopes	B	0.27
GmB	Glenville silt loam, 3 to 8 percent slopes	C	(e) 0.43
GgB	Glenville loam, 3 to 8 percent slopes	B	0.27
GnB	Glenville-Balle silt loams, 0 to 8 percent slopes	C	(e) 0.43
GgA	Glenville loam, 0 to 3 percent slopes	B	0.31
OCC	Occoquan loam, 8 to 15 percent slopes	B	0.28
MKF	Manor-Brinklow complex, 25 to 65 percent slopes, very rocky	B	(e) 0.34

SOIL TYPES TAKEN FROM MAP 19 OF THE SOIL SURVEY OF HOWARD COUNTY, MARYLAND FOUND ON THE HSCD WEBSITE.
 NOTES:
 * Hydric soils and/or contains hydric inclusions
 ** May contain hydric inclusions
 † Generally only within 100-year floodplain areas
 (e) highly erodible soil

DRAINAGE AREA DATA					
STRUCTURE NO.	DRAINAGE AREA	AREA	"C"	ZONED	% IMP.
I-17	Q	0.38 AC.	0.42	RC-DEO	25%
I-18	R	0.22 AC.	0.47	RC-DEO	33%
I-19	S	0.20 AC.	0.95	RC-DEO	100%
I-20	T	2.78 AC.	0.24	RC-DEO	0%
I-21	U	0.34 AC.	0.24	RC-DEO	0%
I-22	V	0.70 AC.	0.42	RC-DEO	25%
I-23	W	0.32 AC.	0.41	RC-DEO	24%
I-24	X	0.74 AC.	0.44	RC-DEO	28%
I-25	Y	0.70 AC.	0.41	RC-DEO	24%
I-26	Z	0.27 AC.	0.44	RC-DEO	28%
I-27	AA	1.33 AC.	0.52	RC-DEO	40%
I-28	BB	0.46 AC.	0.24	RC-DEO	0%
I-29	CC	0.16 AC.	0.47	RC-DEO	32%
I-30	DD	0.13 AC.	0.43	RC-DEO	27%
I-31	EE	0.90 AC.	0.40	RC-DEO	7%
I-32	FF	0.57 AC.	0.38	RC-DEO	27%
I-33	HH	0.43 AC.	0.58	RC-DEO	48%
I-34	II	5.93 AC.	0.51	RC-DEO	38%
I-35	LL	2.41 AC.	0.49	RC-DEO	35%
I-36	KK	1.03 AC.	0.88	RC-DEO	63%
I-37	⊙ BMP#3	3.29 AC.	0.32	RC-DEO	35%
I-38	⊙ BMP#6	1.06 AC.	0.28	RC-DEO	5%
Ex. Culvert	GG	3.61 AC.	0.59	RC-DEO	48%
I-39	MM	0.07 AC.	0.63	RC-DEO	55%
I-40	JJ	1.00 AC.	0.42	RC-DEO	25%



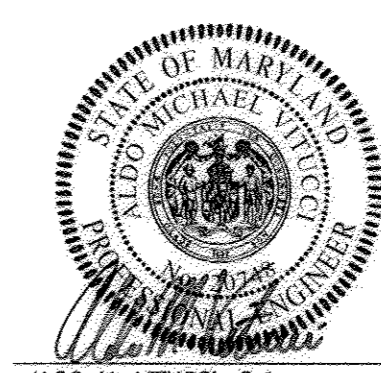
MATCH LINE SEE SHEET 26

DENOTES 15%-24.9% SLOPES
 DENOTES 25% AND GREATER SLOPE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK • 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2895

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUNN ROAD
 WOODBINE, MD 21797
 410-977-1327

DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8310 FORREST STREET
 SUITE 200
 ELICOTT CITY, MARYLAND 21043
 (410)-922-4600



ALDO M. VITUCCI, P.E.
 DATE: 11/16/16
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

OVERALL STORM DRAIN DRAINAGE AREA MAP & SOILS MAP FAIRLANE FARM PHASE TWO
 LOTS 19-44.
 BUILDABLE PRESERVATION PARCELS 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Resubdivision of Non-Buildable Bulk Parcels 'Q' & 'R' And A Revision To Buildable Preservation Parcel 'X', Successed As "Regulate Form Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'X', Non-Buildable Preservation Parcels 'B' Thru 'E', Parcel 'F' And Non-Buildable Bulk Parcels 'C' And 'H'
 ZONED: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 25 OF 36

APPROVED: DEPARTMENT OF PUBLIC WORKS	<i>Aldo M. Vitucci</i>	12/6/2016
CHIEF, BUREAU OF HIGHWAYS		DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>Kentel DeWolfe</i>	3-16-17
CHIEF, DIVISION OF LAND DEVELOPMENT		DATE
APPROVED: DEPARTMENT OF ENGINEERING	<i>Alfred Chubb</i>	3-10-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION		DATE
REVISIONS		
NO.	DESCRIPTION	DATE
1	ADD NEW ACCESS ESMT.	3/23/18

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SOIL	NAME	CLASS	Kw
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GgB	Glenelg loam, 3 to 8 percent slopes	B	0.27
GnB	Glenville-Balle silt loams, 0 to 8 percent slopes	C	(e) 0.43
GgA	Glenelg loam, 0 to 3 percent slopes	B	0.31
OcC	Occoquan loam, 8 to 15 percent slopes	B	0.28
MkF	Manor-Brinklow complex, 25 to 65 percent slopes, very rocky	B	(e) 0.34

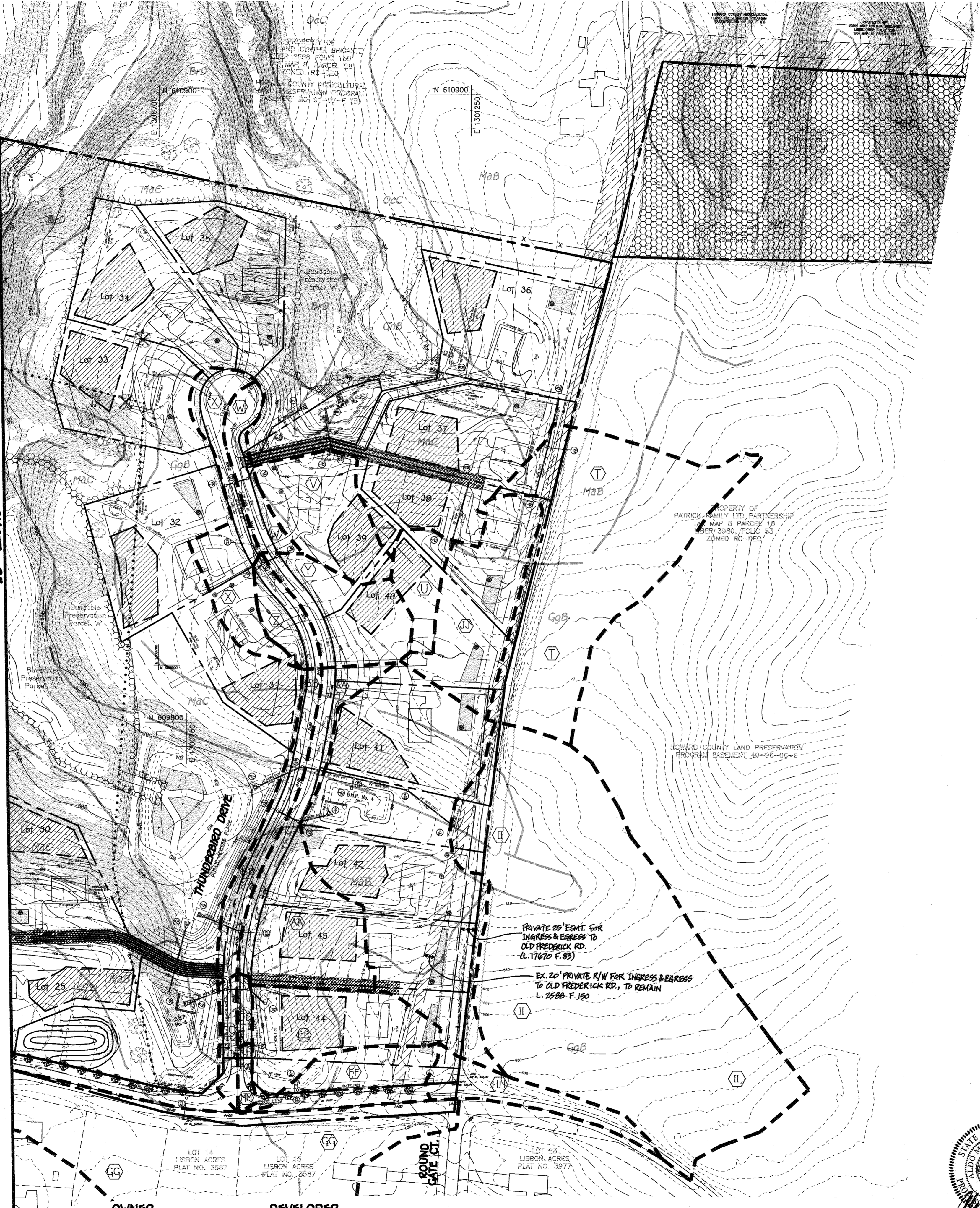
SOIL TYPES TAKEN FROM MAP 19 OF THE SOIL SURVEY OF HOWARD COUNTY, MARYLAND FOUND ON THE HSCD WEBSITE.

NOTES:

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- ** May contain hydric inclusions
- † Generally only within 100-year floodplain areas
- (e) highly erodible soil



MATCH LINE SEE SHEET 25

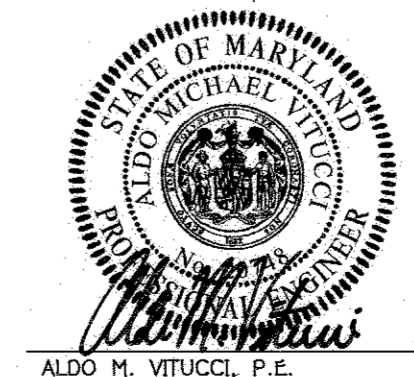


■ DENOTES 15%-24.9% SLOPES
■ DENOTES 25% AND GREATER SLOPE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PKWY.
ELICOTT CITY, MARYLAND 21042
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ALDO M. VITUCCI, P.E.
DATE: 1/14/16
"Professional certification, I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, expiration Date 2-22-17."

**OVERALL STORM DRAIN
DRAINAGE AREA MAP & SOILS MAP
FAIRLANE FARM
PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE
PRESERVATION PARCELS 'I' THRU 'N'**
A Re-subdivision of Non-Buildable Bulk Parcel 'C', 'A' & 'I' And A Revision To Buildable
Preservation Parcel 'A', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable
Preservation Parcel 'A', Non-Buildable Preservation Parcel 'I', Thru 'C', Parcel 'I' And
Non-Buildable Bulk Parcel 'C' And 'I'."
ZONED: RC-DEO
TAX MAP NO.: B GRID NO.: 2, PAR.: 8
TAX MAP NO.: B GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 25 OF 36

Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for WC), and for v. In some instances where permeability is great, these facilities may be used for Qp as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorus and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

Design Constraints:

- > Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
- > Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see Figure A.3 and Table A.4 for planting material guidance).
- > Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
- > Test soil conditions to determine if soil amendments are necessary.
- > Plants shall be located so that access is possible for structure maintenance.
- > Stabilize heavy flow areas with erosion control mats or sod.
- > Temporarily divert flows from seeded areas until vegetation is established.
- > See Table A.5 for additional design considerations.

Bio-retention

Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume (Environmental Quality Resources (EQR), 1996; Engineering Technology Inc. and Biobiotics, Inc. (ET&B), 1993). Soils should fall within the SM, ML, SC classifications or the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.9"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nuttall's, and Canada Thistle or other noxious weeds as specified under COMAR 15.08.01.05) should not be present in the soils. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3 Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	0 to 5%
Silt	30 to 55%
Sand	35 to 60%

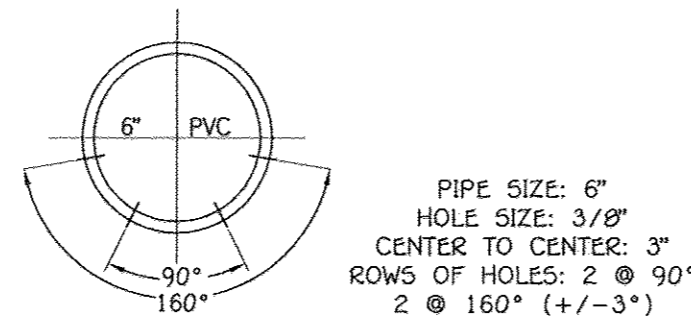
Mulch Layer

The mulch layer plays an important role in the performance of the bioretention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure. The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bioretention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principles described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ET&B, 1993 or Clayton and Schueler, 1997.



SCH 40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE
NO SCALE

NOTES:
UNDERDRAIN PIPE SHALL BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 709, TYPE P5 20 OR AASHTO-M-270) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (e.g., PVC OR HDPE).

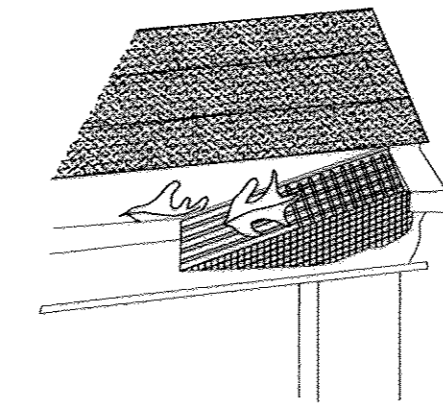
PERFORATIONS SHALL BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (No. 4 OR 4 x 4) GALVANIZED HARDWARE CLOTH.

GRAVEL LAYER SHALL BE (No. 57 STONE PREFERRED) AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.

A RIGID, NON PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQ.FT.) TO PROVIDE A CLEANOUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

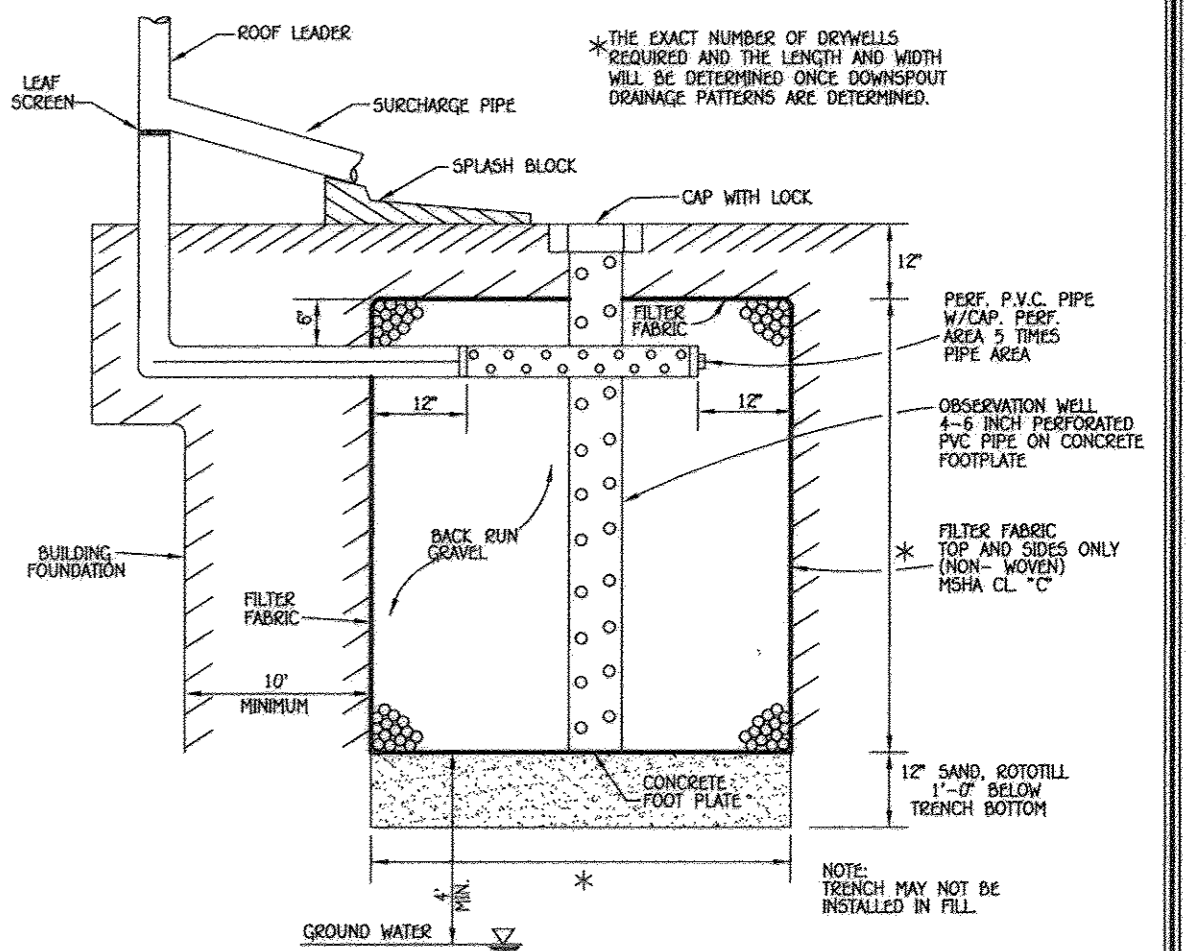
A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".



GUTTER DRAIN FILTER DETAIL
NOT TO SCALE

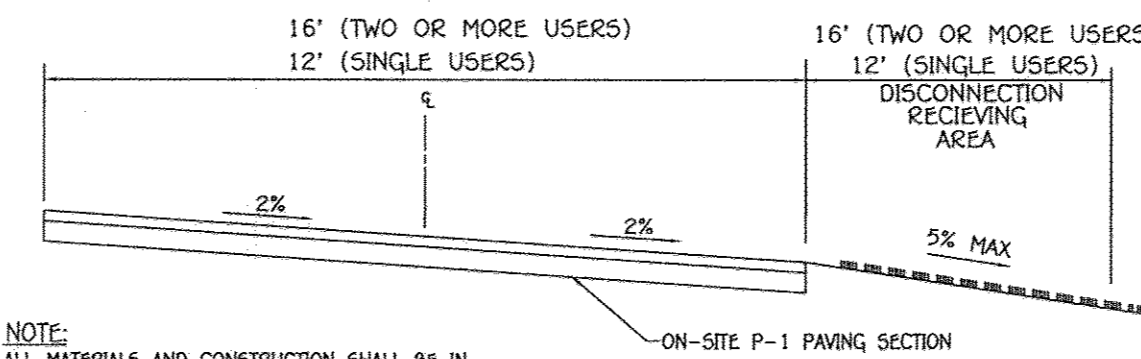
APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS *[Signature]* 12/6/2016 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* 3-16-17 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* 3-10-17 DATE

REVISIONS		
NO.	DESCRIPTION	DATE



OPERATION AND MAINTENANCE SCHEDULE FOR DRYWELLS (M-5)

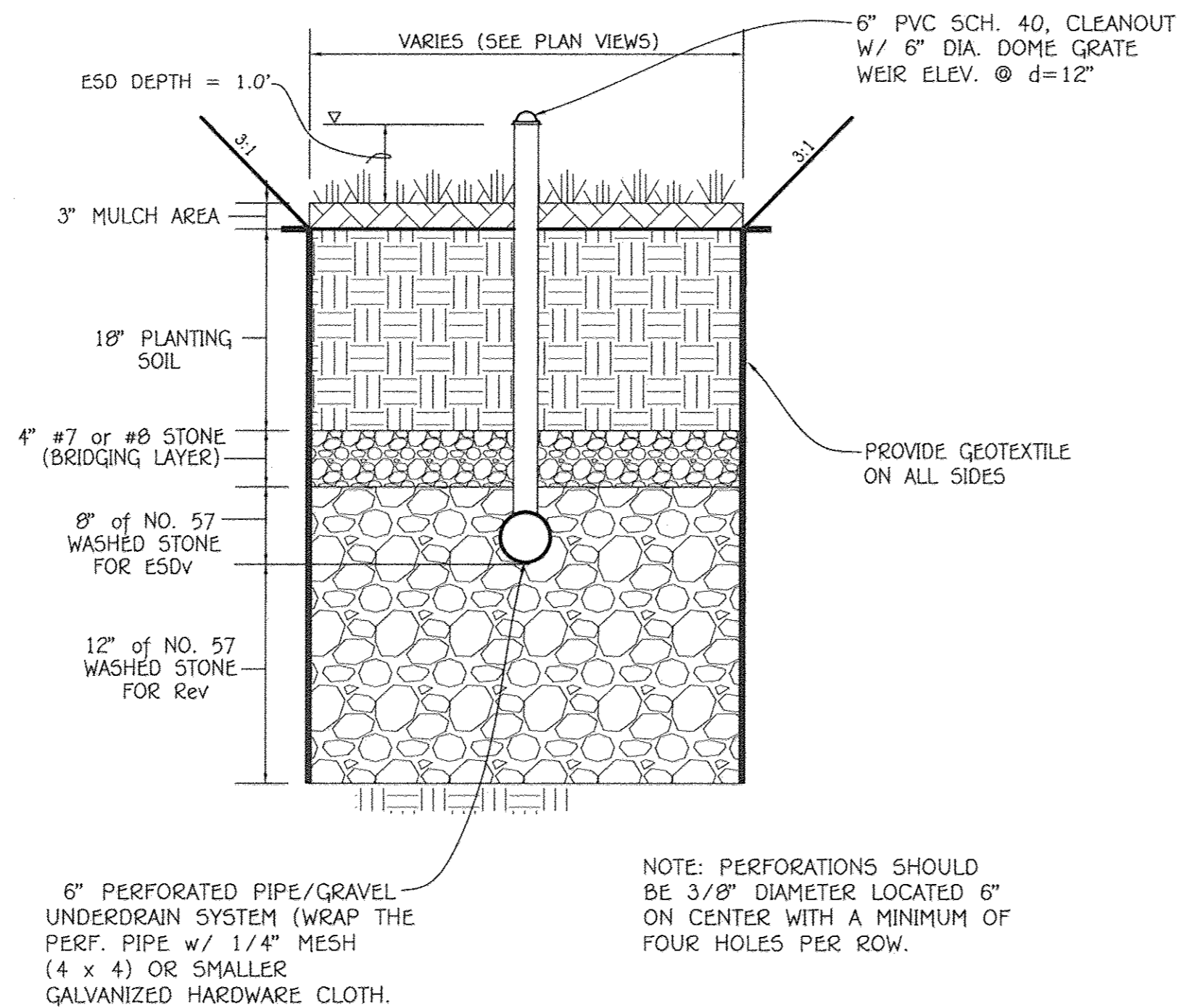
- THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



Typical Private Drive Cross Slope Section

Operation & Maintenance Schedule For Privately Owned And Maintained Disconnection Of Nonrooftop Runoff (N-2)

- Maintenance Of Areas Receiving Disconnection Runoff Is Generally No Different Than That Required For Other Lawn Or Landscaped Areas. The Areas Receiving Runoff Should Be Protected From Future Compaction Or Development Of Impervious Area. In Commercial Areas, Foot Traffic Should Be Discouraged As Well.

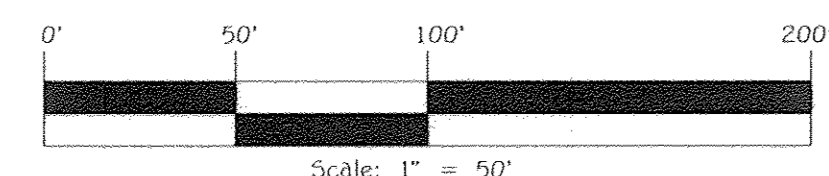


Micro Bio-Retention (M-6) Section

Operation and Maintenance Schedule For Privately Owned And Maintained Bio-Retention Areas (M-6)

- The HOA shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The HOA shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The HOA shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The HOA shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

FISHER, COLLINS & CARTER, INC.
 CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS
 CENTRAL OFFICE: 10000 WOODBINE ROAD - 1070 BALTIMORE NATIONAL PARK
 SUITE 200
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2895



OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
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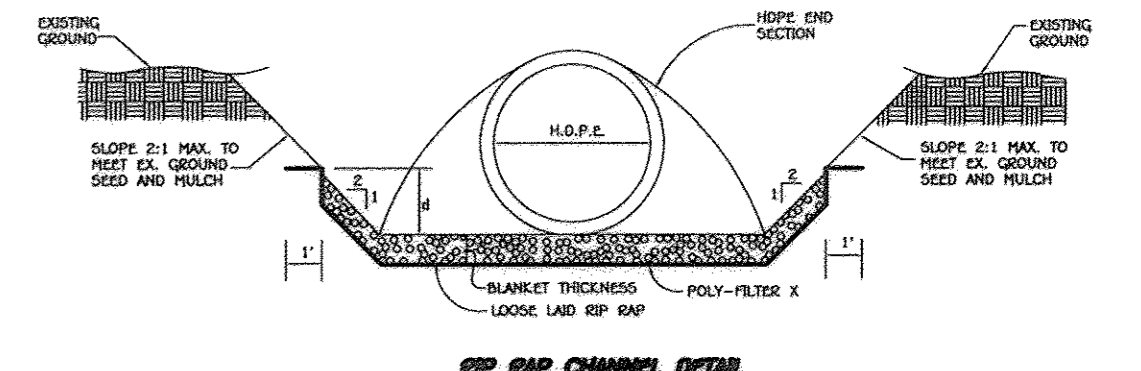
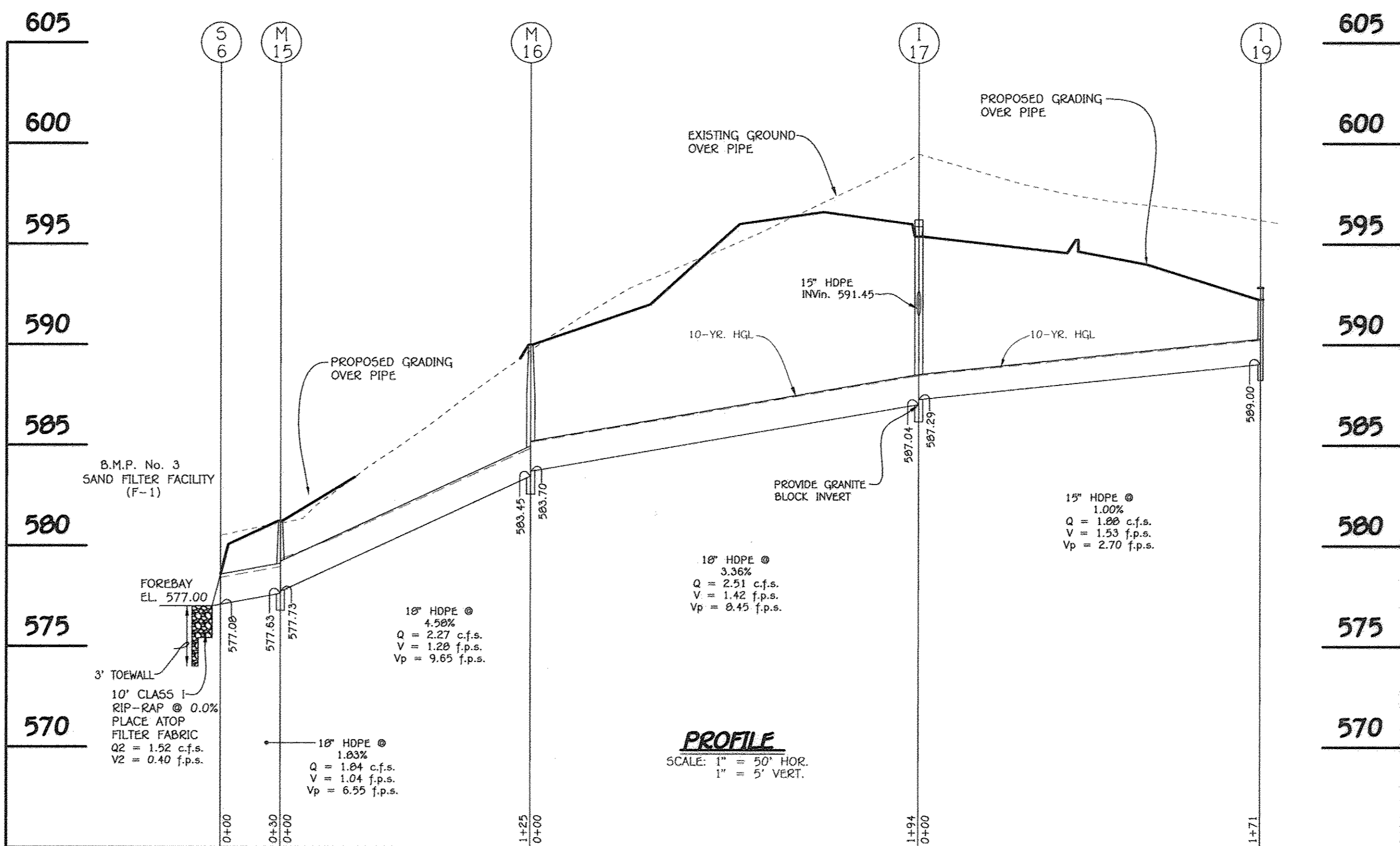


ALDO M. VITUCCI, P.E.
 DATE
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland. License No. 20740, Expiration Date 2-22-17."

PRIVATE STORMWATER MANAGEMENT NOTES AND DETAILS
FAIRLANE FARM
 PHASE TWO
 LOTS 19-44,
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Resolution of Non-Buildable Bulk Parcels 'C' & 'D' And A Revision To Buildable Preservation Parcel 'A', Recorded As 'Ordinance From Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'X', Non-Buildable Preservation Parcel 'Y' Thru 'E', Parcel 'F' And Non-Buildable Bulk Parcels 'G' And 'H'
 ZONED: RC-DEO
 TAX MAP NO.: B GRID NO.: 2, PAR.: 8
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 27 OF 36

STRUCTURE SCHEDULE								
STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	LOCATION	ROAD STA.	OFFSET	TYPE AND WIDTH	REMARKS
I-17	* 595.39	591.45 (15'), 587.29 (15')	587.04 (18')	FAIRLANE ROAD	11+41	20' R	TYPE 'D'	D - 4.10
I-18	* 595.53	-----	592.25 (15')	FAIRLANE ROAD	11+35	20' L	TYPE 'D'	D - 4.10
I-19	592.84	-----	589.00 (15')	FAIRLANE ROAD	L.P. STA. 1+63.32	-----	A-10 (2.5')	D - 4.03
I-20	585.50	581.56 (15')	581.31 (18')	N 610.281 E 1.301.385	-----	-----	YARD INLET	D - 4.14
I-21	595.50	591.95 (2) - FUTURE 6"	590.95 (18')	N 610.111 E 1.301.215	-----	-----	YARD INLET	D - 4.14
I-22	585.50	-----	582.21 (15')	N 610.270 E 1.300.999	-----	-----	YARD INLET	D - 4.14
I-23	* 590.87	586.53 (18')	586.28 (18')	THUNDERBIRD DRIVE	11+70	20' R	TYPE 'D'	D - 4.10
I-24	* 590.87	-----	587.68 (15')	THUNDERBIRD DRIVE	11+70	20' L	TYPE 'D'	D - 4.10
I-25	* 593.63	-----	589.84 (15')	THUNDERBIRD DRIVE	10+18	20' R	TYPE 'D'	D - 4.10
I-26	* 593.60	-----	589.56 (15')	THUNDERBIRD DRIVE	10+19	20' L	TYPE 'D'	D - 4.10
I-27	* 590.57	587.47 (15')	587.22 (18')	THUNDERBIRD DRIVE	5+36.79	20' L	TYPE 'D'	D - 4.10
I-28	* 590.57	-----	587.87 (15')	THUNDERBIRD DRIVE	5+36.79	20' R	TYPE 'D'	D - 4.10
I-29	* 601.17	594.07 (18')	593.97 (18')	THUNDERBIRD DRIVE	2+16.09	20' L	TYPE 'D'	D - 4.10
I-30	* 601.17	594.51 (15')	594.26 (18')	THUNDERBIRD DRIVE	2+16.09	20' R	TYPE 'D'	D - 4.10
I-31	* 597.50	-----	594.75 (15')	N 609.307 E 1.300.880	-----	-----	TYPE 'S'	D - 4.22
I-34	597.25	-----	592.85 (24')	N 609.619 E 1.301.219	-----	-----	YARD INLET	D - 4.14
I-36	* 578.50	573.75 (6')	573.75 (15')	N 610.045 E 1.300.186	-----	-----	TYPE 'S'	D - 4.22
I-37	* 587.20	583.70 (6')	583.45 (18')	N 609.668 E 1.300.988	-----	-----	TYPE 'S'	D - 4.22
I-38	* 594.00	590.50 (6')	589.50 (18')	N 609.325 E 1.300.718	-----	-----	TYPE 'S'	D - 4.22
I-39	* 605.09	-----	598.65 (15')	THUNDERBIRD DRIVE	1+17.90	20' R	TYPE 'D'	D - 4.10
I-40	589.00	-----	583.36 (15')	N 610.196 E 1.301.363	-----	-----	YARD INLET	D - 4.14
M-15	581.25	577.73 (18')	577.63 (18')	N 609.933 E 1.300.154	-----	-----	SHALLOW MANHOLE	G - 5.12
M-16	590.00	583.70 (18')	583.45 (18')	N 609.929 E 1.300.025	-----	-----	4' DIA. MANHOLE	G - 5.12
M-17	587.00	581.89 (15'), 581.64 (18')	574.77 (18')	N 610.289 E 1.301.003	-----	-----	4' DIA. MANHOLE	G - 5.12
M-18	591.00	586.84 (18')	586.59 (18')	N 610.224 E 1.301.248	-----	-----	SHALLOW MANHOLE	G - 5.12
M-19	572.50	566.40 (18')	566.15 (18')	N 610.412 E 1.301.203	-----	-----	4' DIA. MANHOLE	G - 5.12
M-20	592.28	587.53 (15'), 587.28 (18')	587.03 (18')	THUNDERBIRD DRIVE	11+70	5.2' L	5' DIA. MANHOLE	G - 5.13
M-20A	589.00	582.32 (18')	577.26 (18')	THUNDERBIRD DRIVE	12+84.6	8.5' R	4' DIA. MANHOLE	G - 5.12
M-21	593.76	586.66 (18')	580.41 (18')	THUNDERBIRD DRIVE	10+50	8' L	4' DIA. MANHOLE	G - 5.12
M-22	594.90	589.30 (15'), 589.30 (15')	589.05 (18')	THUNDERBIRD DRIVE	10+20.3	7.5' L	5' DIA. MANHOLE	G - 5.13
M-23	593.45	581.84 (30')	581.59 (30')	THUNDERBIRD DRIVE	6+28.38	6.1' L	5' DIA. MANHOLE	G - 5.13
M-24	591.13	585.65 (24'), 583.27 (18')	582.77 (30')	N 609.701 E 1.301.044	-----	-----	5' DIA. MANHOLE	G - 5.13
M-25	594.25	588.81 (24')	588.56 (24')	N 609.680 E 1.301.139	-----	-----	4' DIA. MANHOLE	G - 5.12
M-28	598.53	585.90 (18')	585.65 (18')	THUNDERBIRD DRIVE	3+17.75	4.2' L	4' DIA. MANHOLE	G - 5.12
M-31	606.49	598.50 (15'), 597.55 (18')	597.30 (18')	THUNDERBIRD DRIVE	1+17.85	5.5' R	5' DIA. MANHOLE	G - 5.13
M-32	586.00	579.57 (18')	578.08 (18')	N 610.366 E 1.301.405	-----	-----	4' DIA. MANHOLE	G - 5.12
S-6	578.50	577.08 (18')	-----	N 609.956 E 1.300.170	-----	-----	18" FLARED END SECTION	A.D.S. OR EQUAL
S-7	588.23	586.73 (18')	-----	N 609.956 E 1.300.170	-----	-----	18" FLARED END SECTION	A.D.S. OR EQUAL
S-8	574.75	573.25 (18')	-----	N 610.323 E 1.300.995	-----	-----	18" CONC. END SECTION	D - 5.51
S-9	577.55	576.05 (18')	-----	N 610.348 E 1.300.948	-----	-----	18" FLARED END SECTION	A.D.S. OR EQUAL
S-10	595.09	593.59 (18')	-----	N 609.313 E 1.300.786	-----	-----	18" FLARED END SECTION	A.D.S. OR EQUAL
S-11	583.35	580.85 (30')	-----	N 609.689 E 1.300.879	-----	-----	30" FLARED END SECTION	A.D.S. OR EQUAL
S-12	584.26	582.76 (18')	-----	N 609.458 E 1.300.781	-----	-----	18" CONC. END SECTION	D - 5.51
S-13	567.52	566.02 (18')	-----	N 610.414 E 1.301.191	-----	-----	18" FLARED END SECTION	A.D.S. OR EQUAL
S-14	584.34	582.84 (18')	-----	N 609.440 E 1.300.749	-----	-----	18" CONC. END SECTION	D - 5.51
S-15	573.30	572.05 (15')	-----	N 610.121 E 1.300.202	-----	-----	15" FLARED END SECTION	A.D.S. OR EQUAL

* - DENOTES THROAT ELEVATION
TYPE 'D' INLETS TO BE OPEN ON TWO (2) SIDES



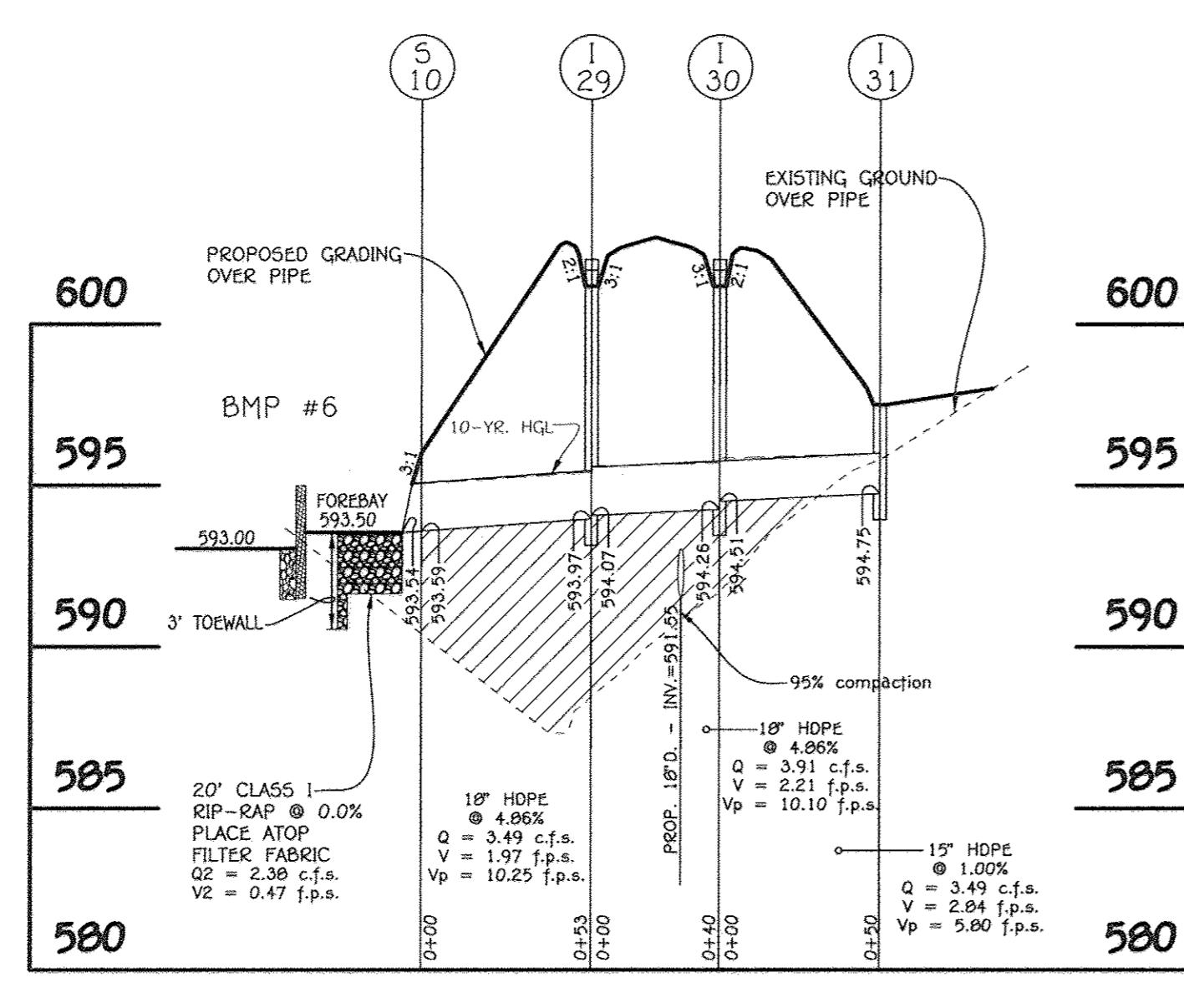
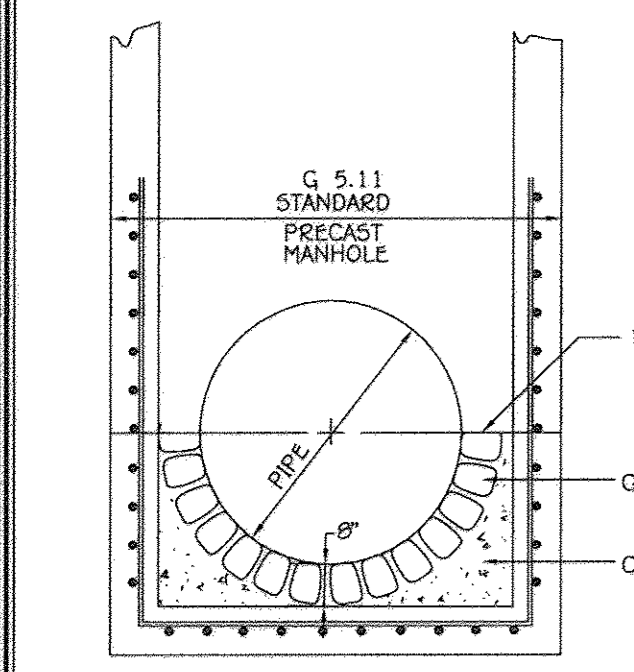
STRUCTURE	AREA	WETTED PERIMETER	n	K ₁ /S	S	V ₁ /V	W	H	V	Q	18" HDPE @ 1.00% (c.f.s.)	BLANKET THICKNESS	
S-6	5.02	12.05	0.4182	0.0577	0.5000	0.0707	10'	0.48'	0.04	0.46	2.27	9.5"	15"
S-7	10.89	14.11	0.7717	0.1985	0.5000	0.0707	10'	0.92'	0.04	0.70	7.59	9.5"	15"
S-8	5.26	12.15	0.4329	0.0625	0.5000	0.0707	10'	0.48'	0.04	0.47	2.46	9.5"	15"
S-9	11.44	14.29	0.8006	0.2136	0.5000	0.0707	10'	0.98'	0.04	0.72	8.17	9.5"	15"
S-10	6.60	12.64	0.5221	0.0909	0.5000	0.0707	10'	0.59'	0.04	0.54	3.49	9.5"	15"
S-11	27.28	18.77	1.4534	0.7041	0.5000	0.0707	10'	1.98'	0.04	1.07	29.06	9.5"	15"
S-12	16.68	15.90	0.3868	0.3868	0.5000	0.0707	10'	1.30'	0.04	0.86	14.42	9.5"	15"
S-13	9.28	13.58	0.6833	0.1956	0.5000	0.0707	10'	0.80'	0.04	0.64	5.90	9.5"	15"
S-14	4.91	12.01	0.4088	0.0957	0.5000	0.0707	10'	0.48'	0.04	0.46	2.20	9.5"	15"

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

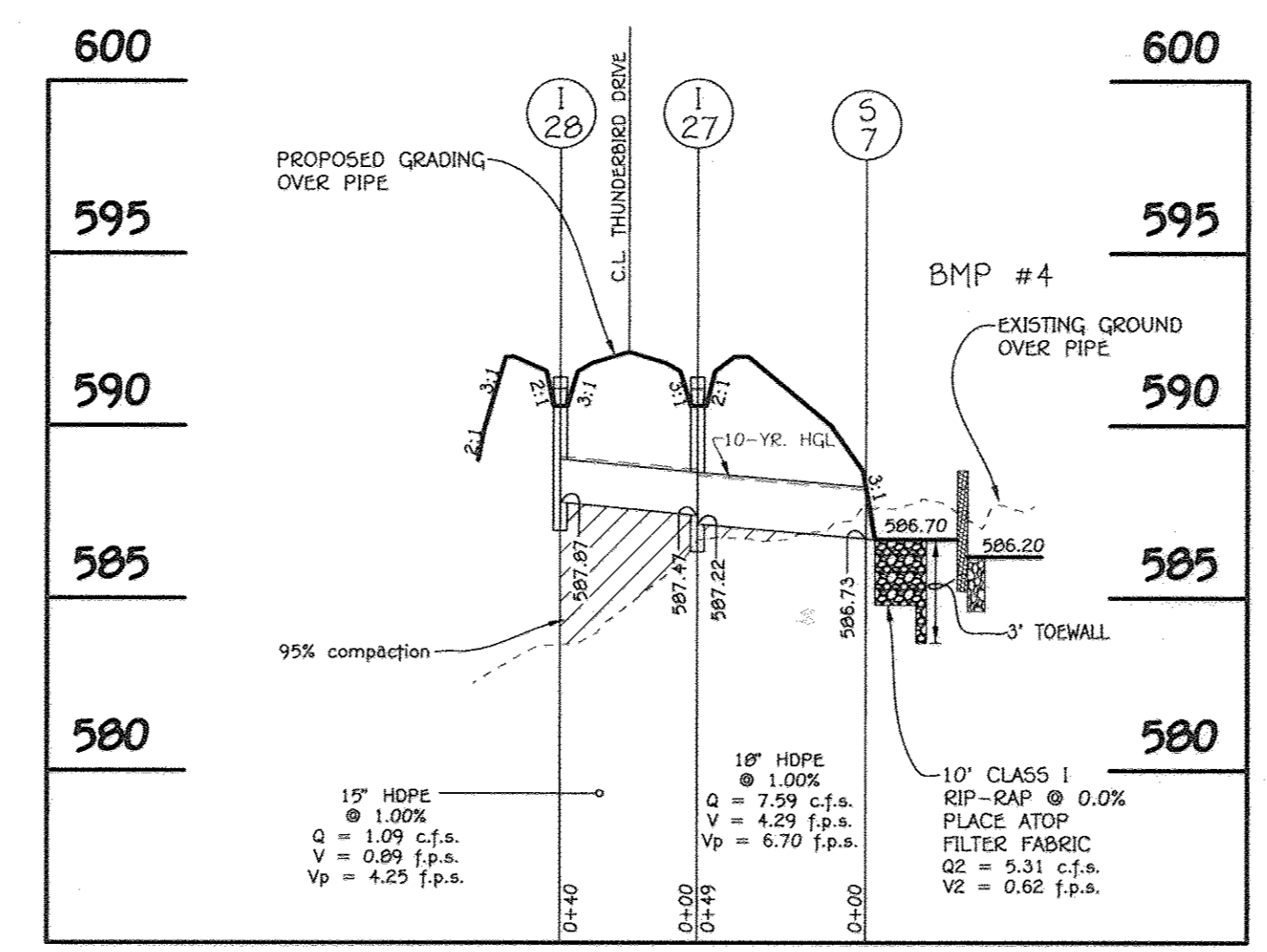
- The substrate for the filter, riprap or gabion shall be prepared to the required line and grade. Any fill required on the substrate shall be compacted to a density of approximately that of the surrounding undisturbed materials.
- The rock or gravel shall conform to the specified grading limits when installed respectively to the riprap or filter.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than the occasional hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All seams whether by machine or for joining two pieces of cloth shall be a minimum of one foot.
- Stone for the riprap or gabion outlet may be placed by equipment. Both shall also be compacted to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for gabion or riprap outlets shall be selected and placed in a manner that will insure that it is reasonably homogeneous with the smaller stones and will fill the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Final placement will be required to the extent necessary to prevent damage to the permanent works.

SIZE	CLASS	LENGTH
6"	PVC, SCH. 40 (PERFORATED)	559 L.F.
6"	PVC, SCH. 40 (SOLID)	51 L.F.
15"	HDPE	537 L.F.
18"	HDPE	1,423 L.F.
24"	HDPE	198 L.F.
30"	HDPE	173 L.F.
18"	RCCP, CL. IV	359 L.F.

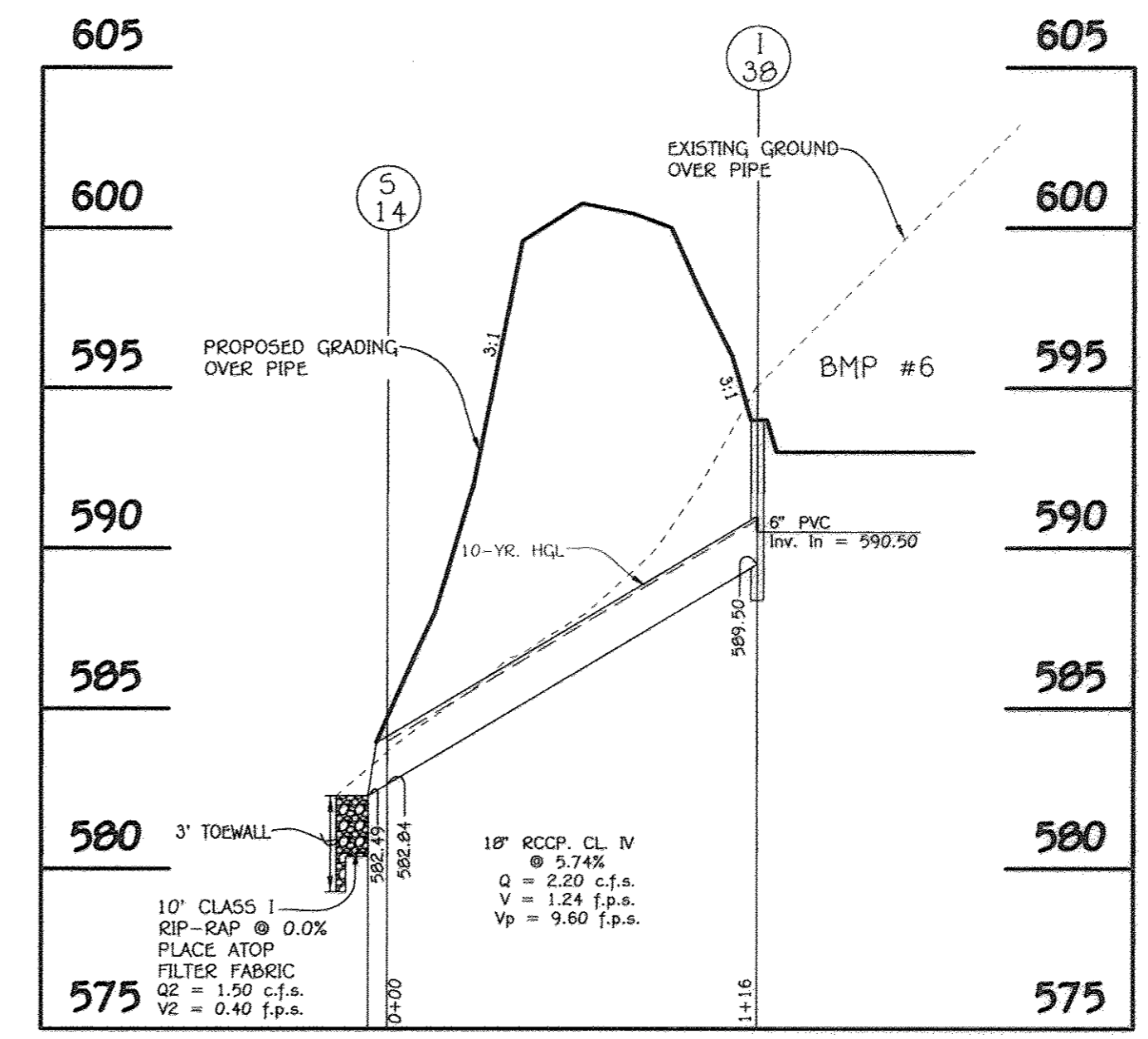
NOTE: HDPE PIPE MAY BE SUBSTITUTED WITH RCCP, CL. IV PIPE.



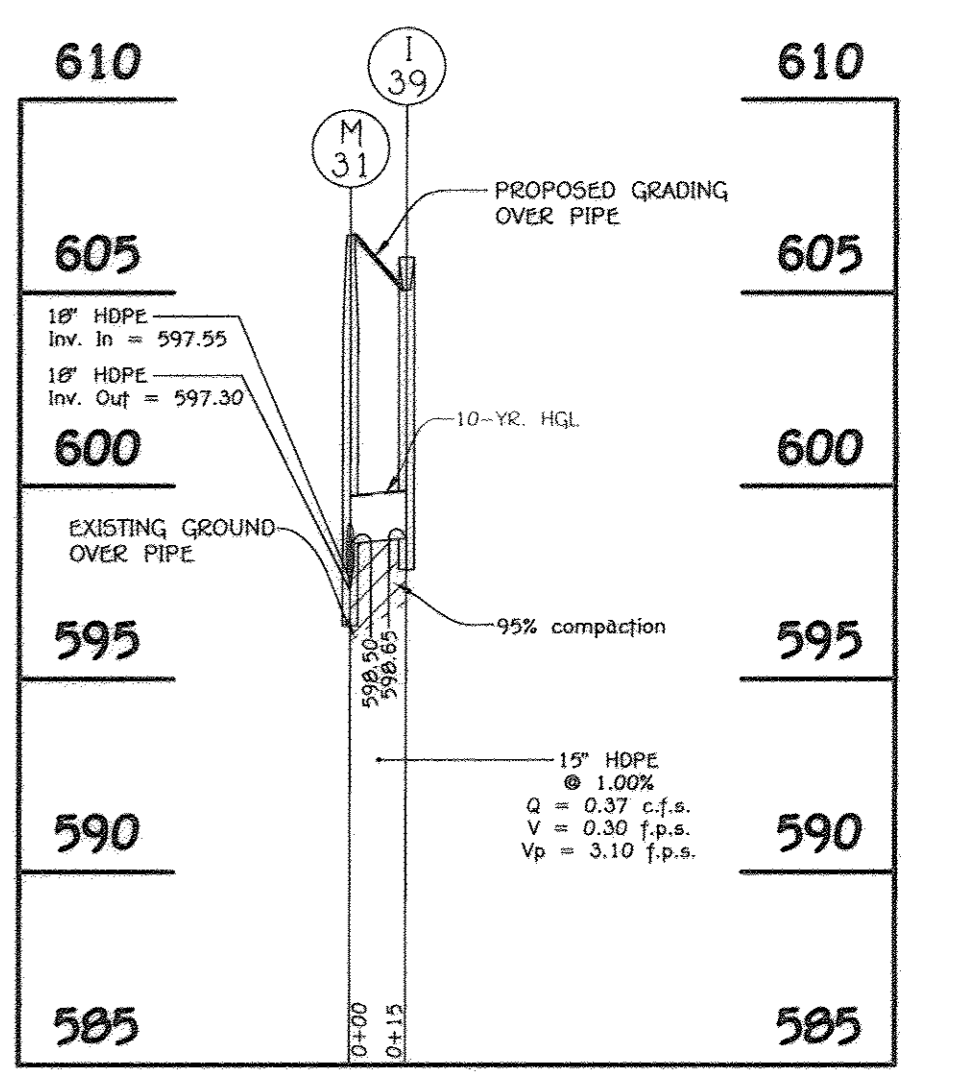
PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VERT.



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



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

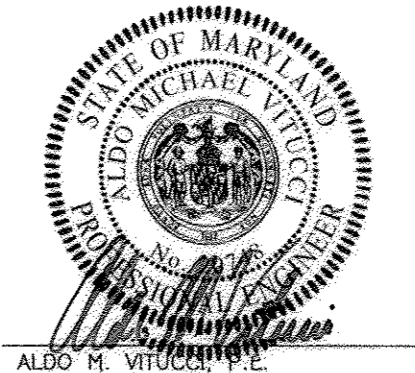
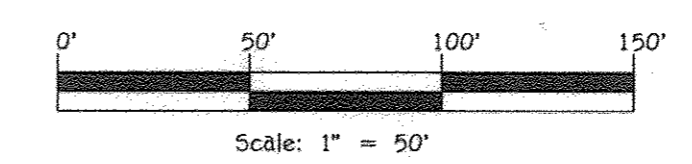


PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VERT.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
(410) 461 - 2000

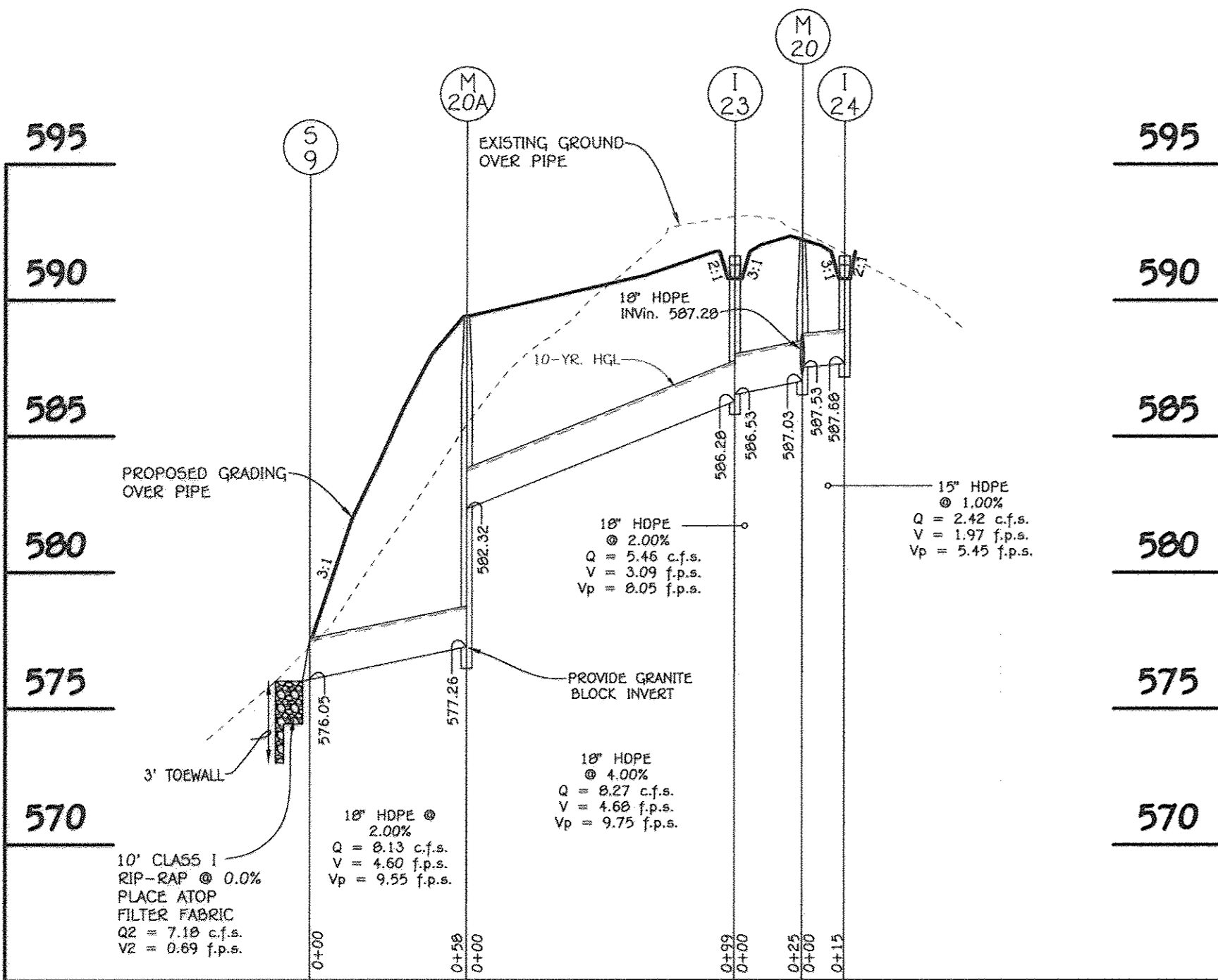
OWNER
DAILYWOOD LLC
c/o ESTATE OF FRANCIS JEAN SCHULTE
DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
2215 DUVALL ROAD
WOODBINE, MD 21797
410-977-1327

DEVELOPER
LAND DESIGN & DEVELOPMENT
8318 FOREST STREET
SUITE 200
ELLCOTT CITY, MARYLAND 21043
(410)-922-4600

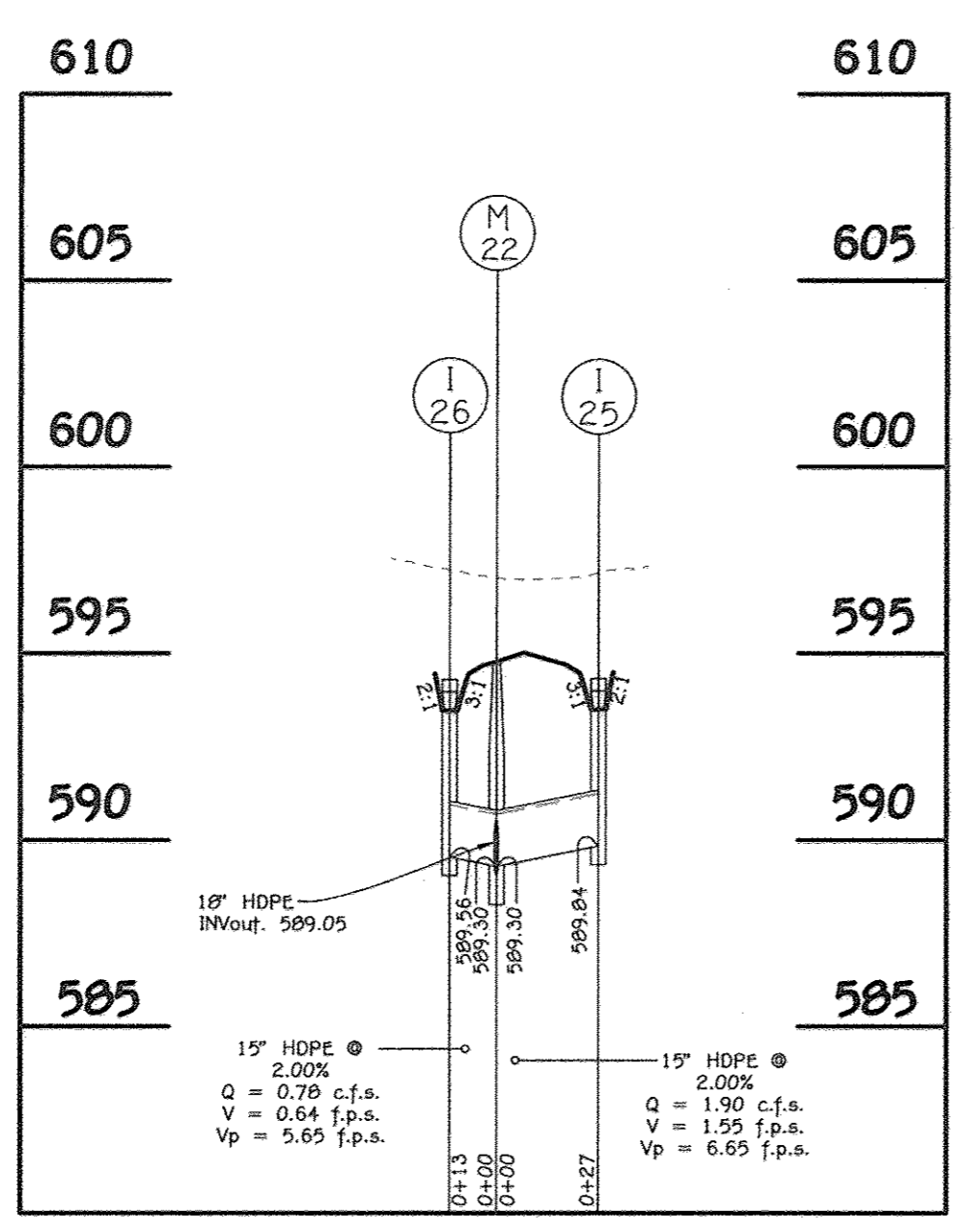


DATE: 12/6/16
"Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland. License No. 20748, Expiration Date 2-22-17."

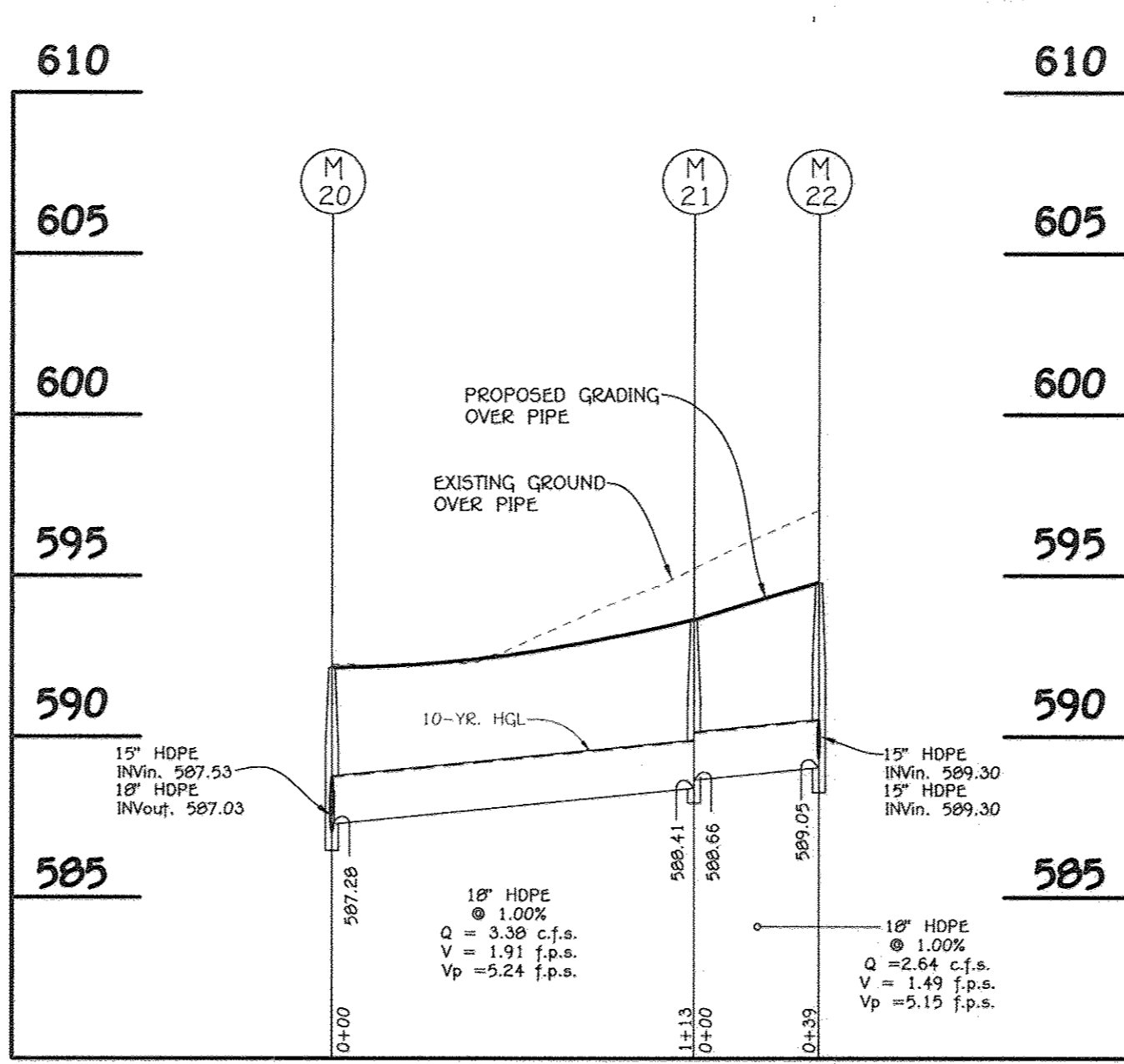
**STORM DRAIN PROFILES
FAIRLANE FARM
PHASE TWO**
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcels 'G' & 'H' And A Revision To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'M', Non-Buildable Preservation Parcels 'O' Thru 'C', Parcel 'Y' And Non-Buildable Bulk Parcels 'G' And 'H'.
ZONED: BC-DEO
TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 28 OF 36



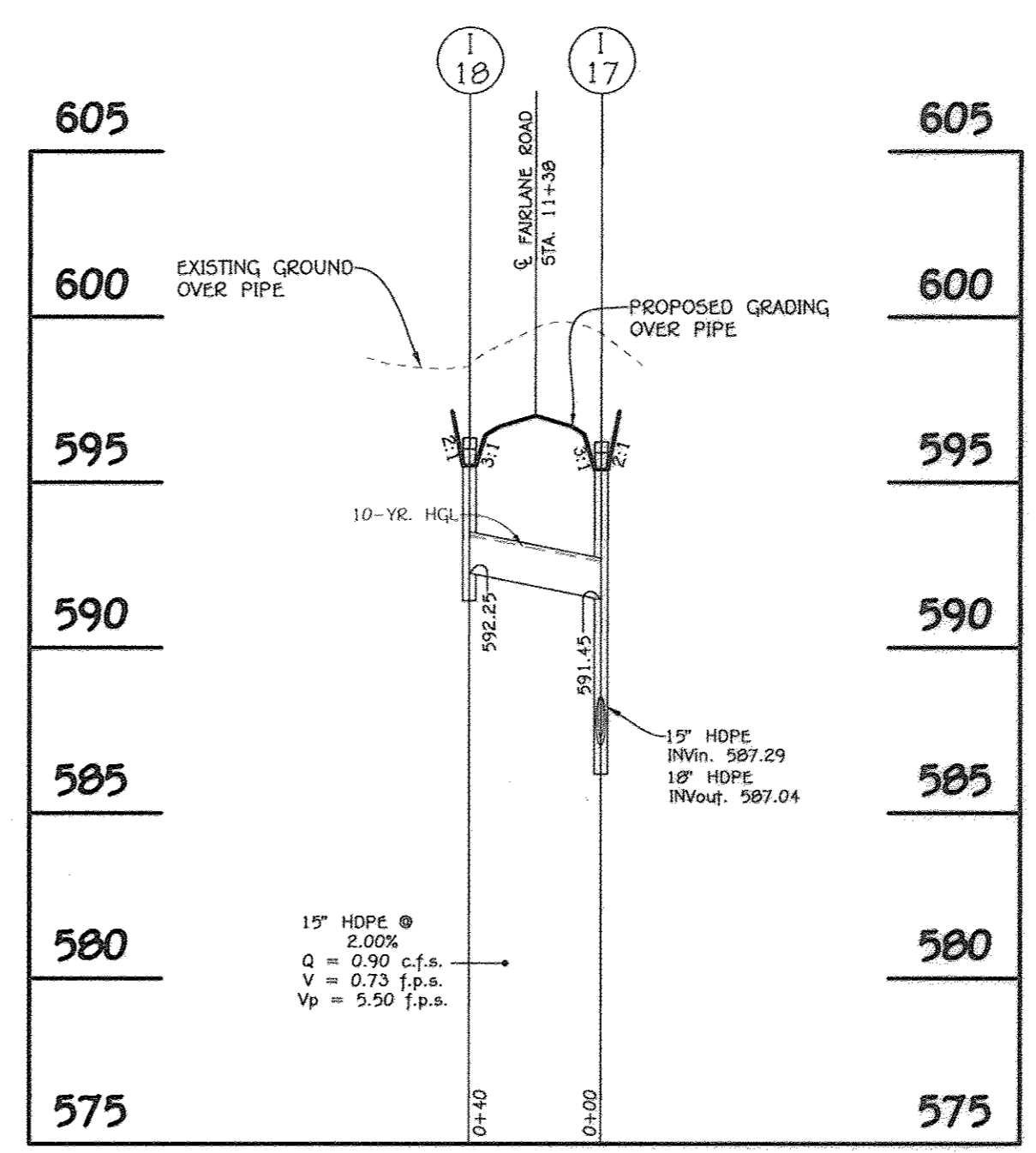
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SCALE: 1" = 50' HOR.
1" = 5' VERT.



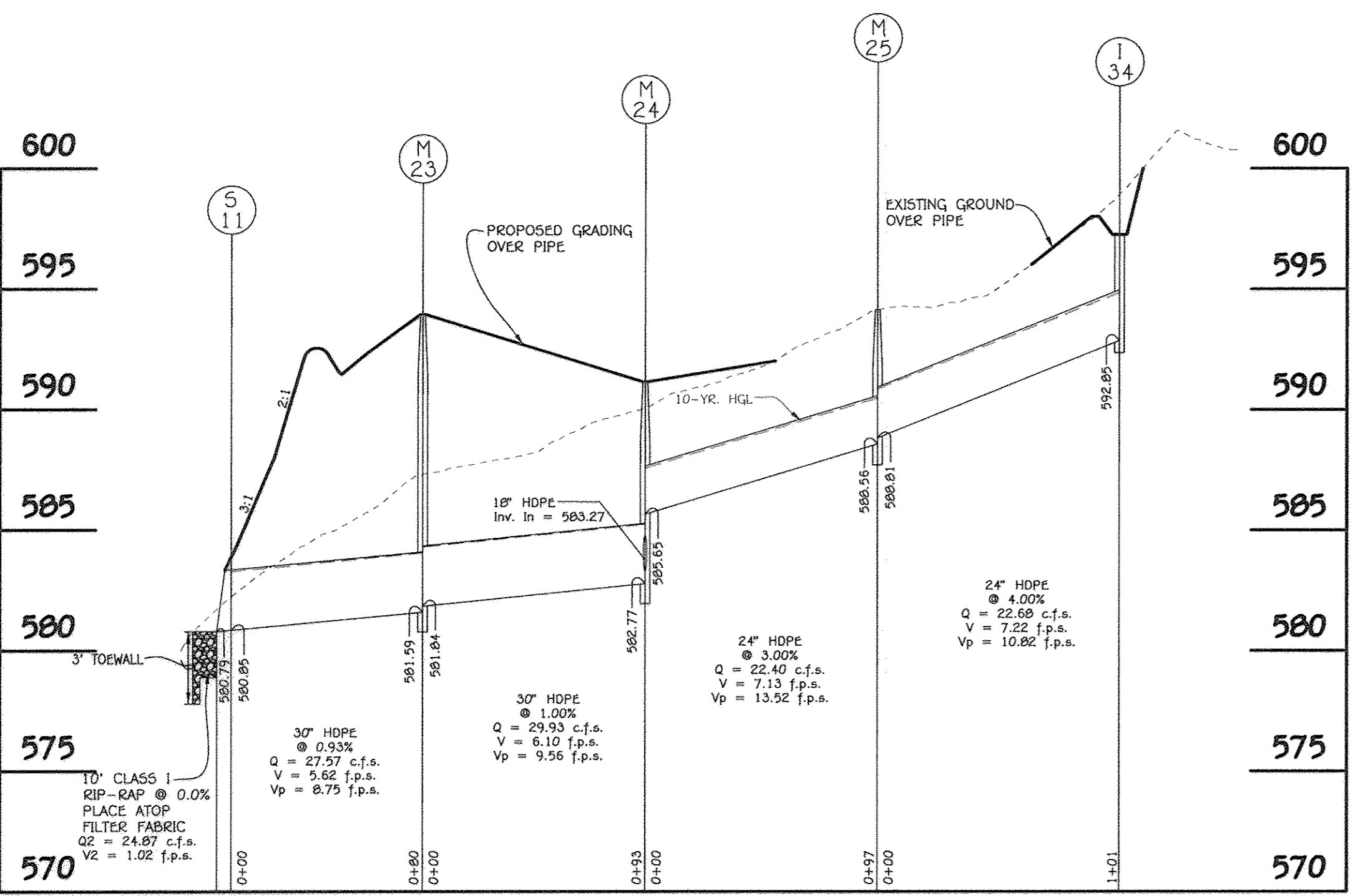
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SCALE: 1" = 50' HOR.
1" = 5' VERT.



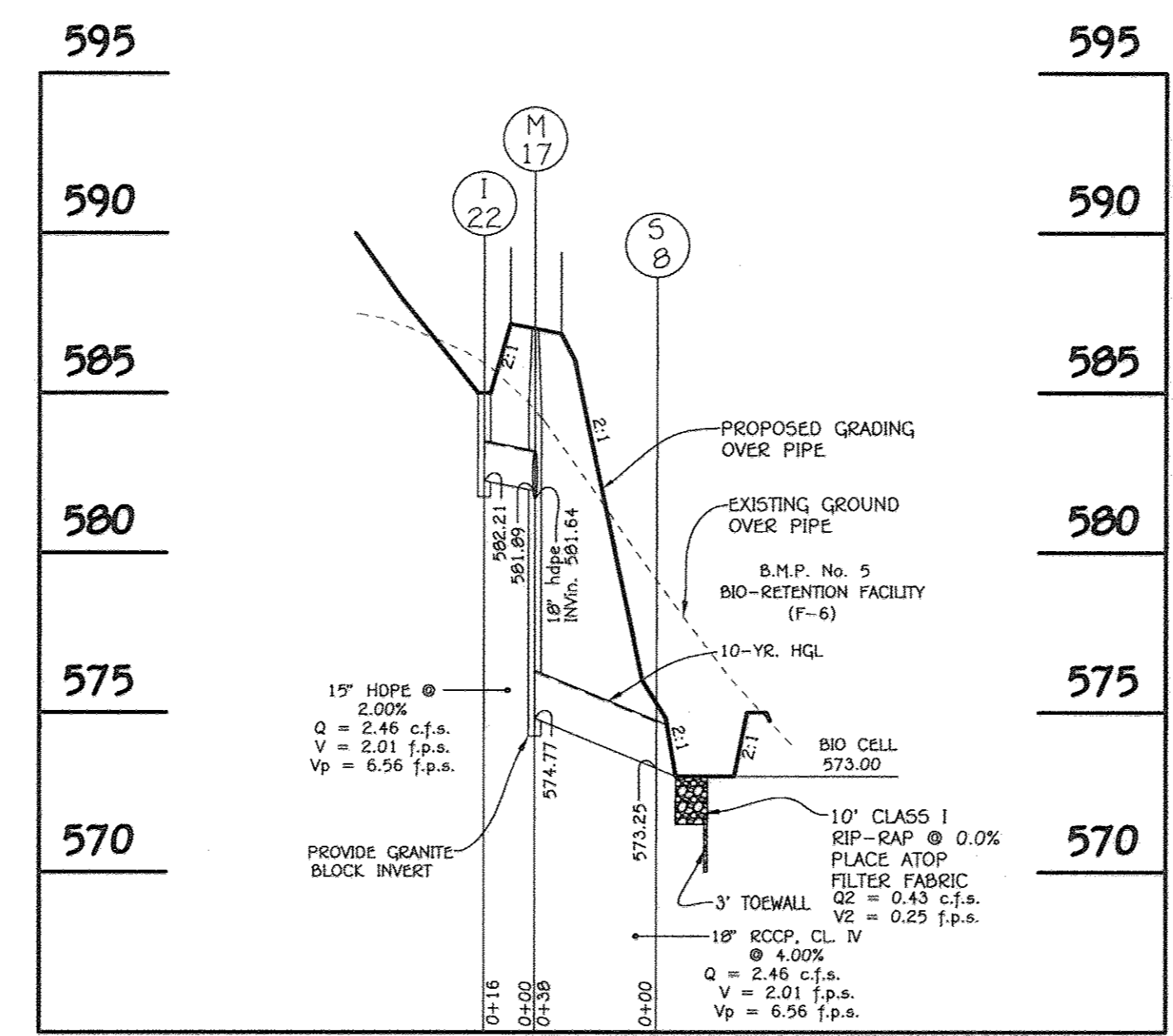
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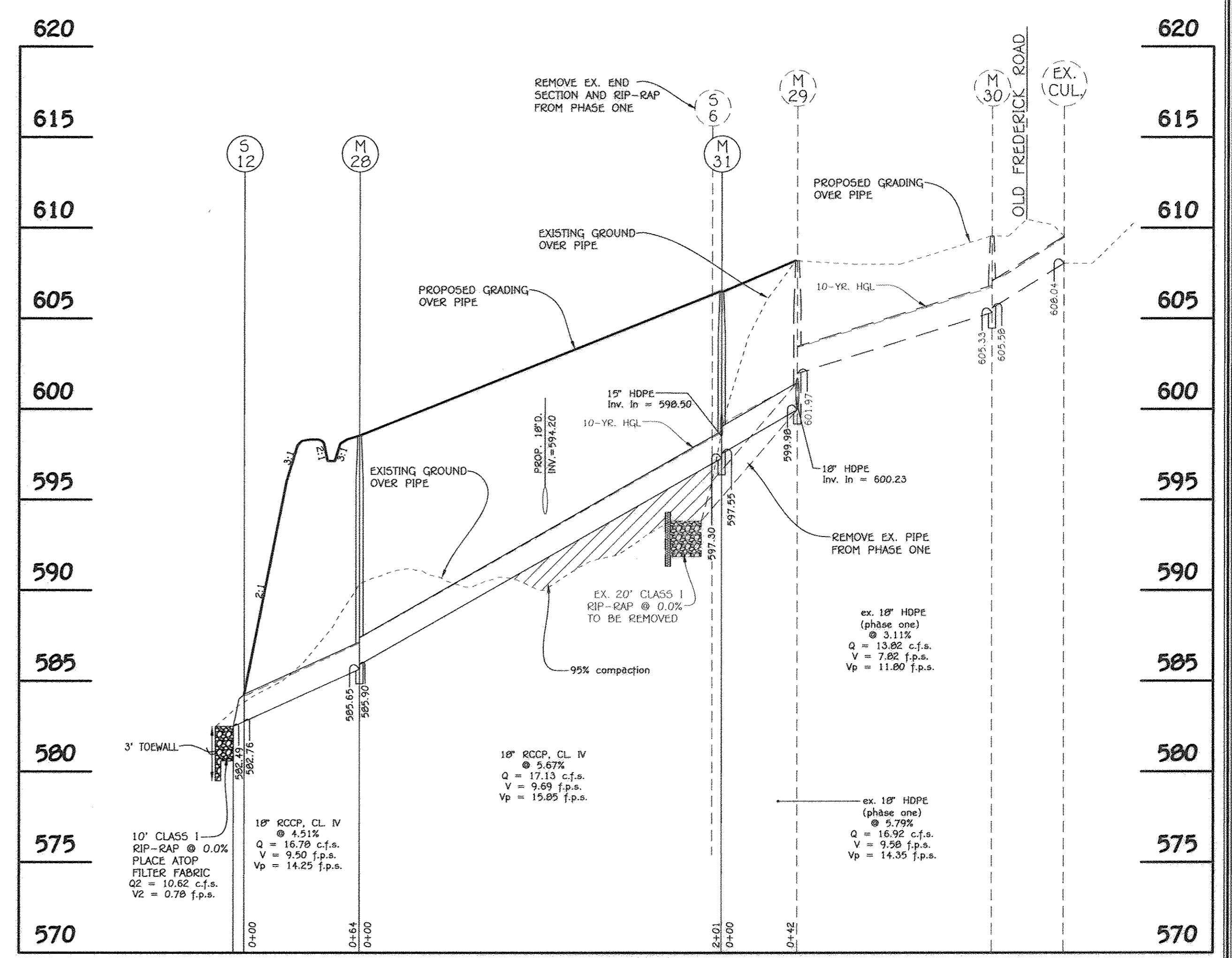
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1" = 5' VERT.



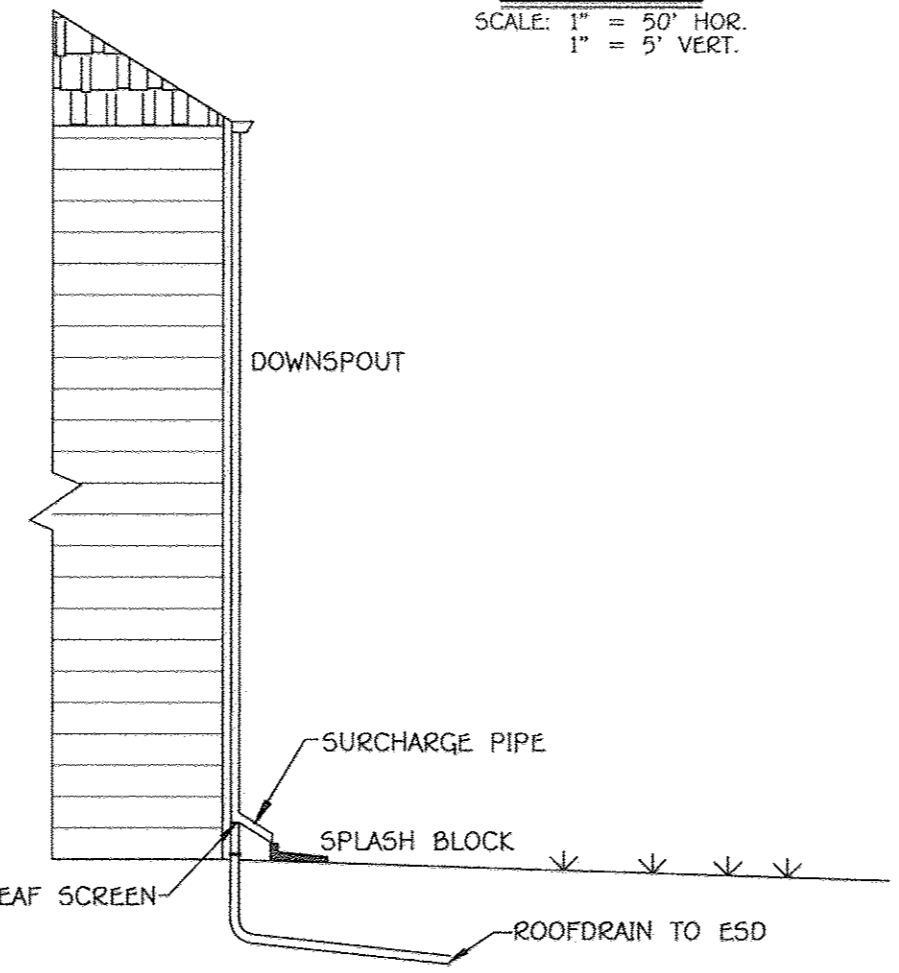
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SCALE: 1" = 50' HOR.
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PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VERT.



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



TYPICAL DOWNSPOUT FOR LOTS w/ROOFLEADERS
NO SCALE

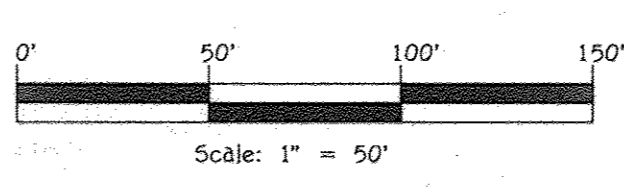
APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS *M. Meenan* 12/6/2016 DATE
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT *W. Shalaby* 3-16-17 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION *D. Schuch* 3-10-17 DATE

REVISIONS		
NO.	DESCRIPTION	DATE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SOURCE OFFICE PARK - 10272 BALDWIN NATIONAL PARK
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2895

OWNER
 DAISYCOOP, LLC
 c/o ESTATE OF FRANCES JEAN SCHULTE
 DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
 2215 DUNLAP ROAD
 WOODBINE, MD 21797
 410-977-1327

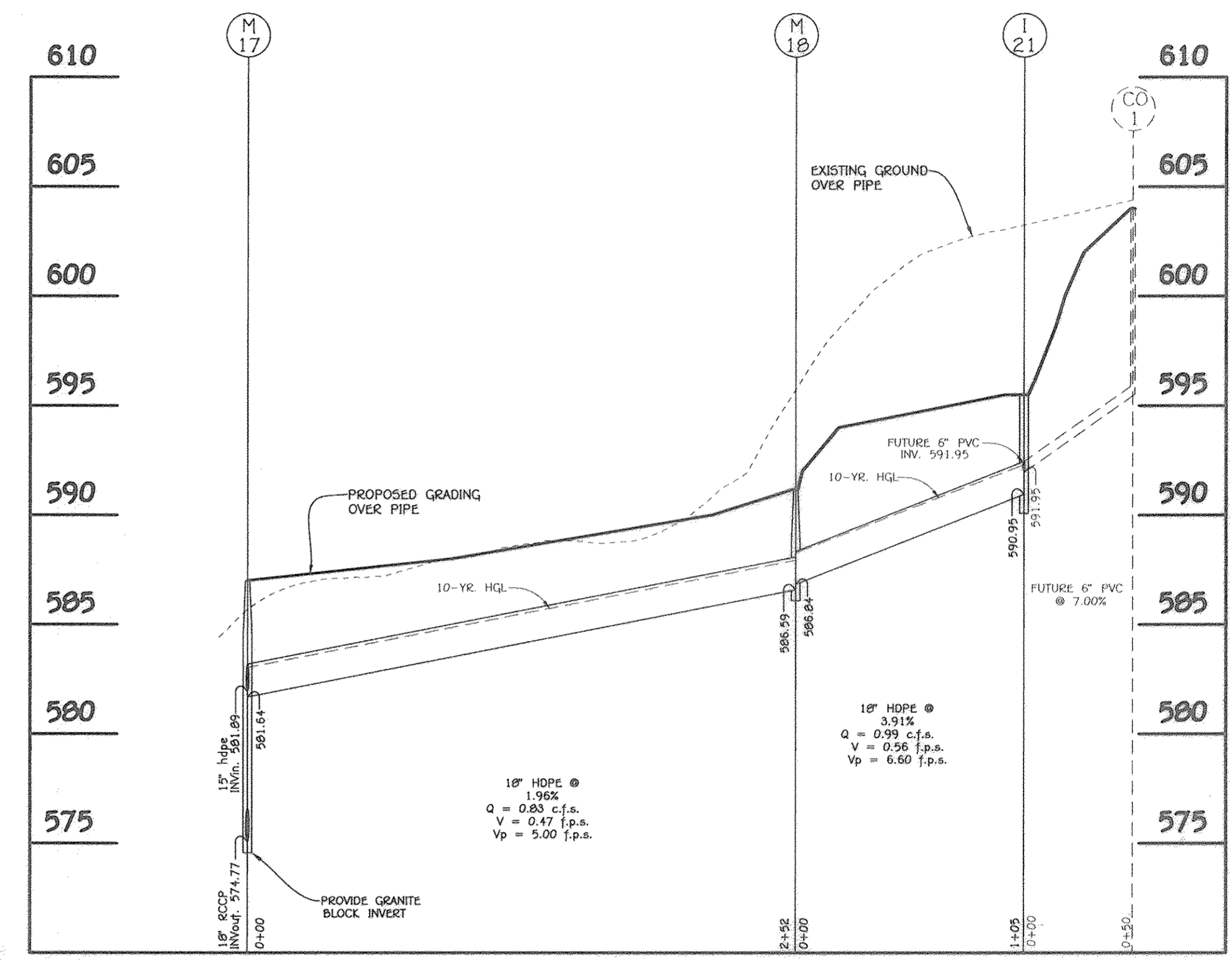
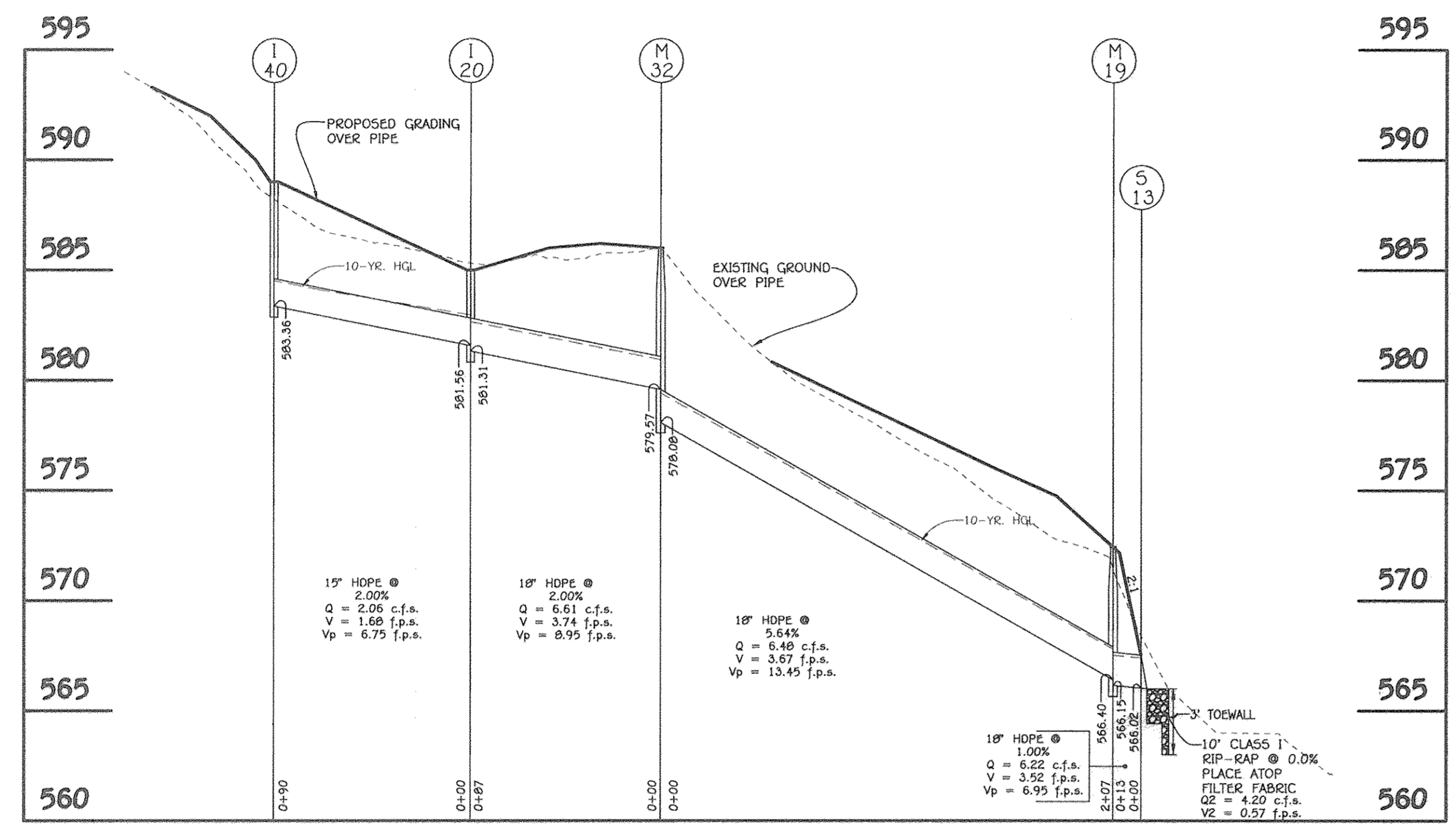
DEVELOPER
 LAND DESIGN & DEVELOPMENT
 8318 FORREST STREET
 SUITE 200
 ELICOTT CITY, MARYLAND 21043
 (410)-922-4600



ALDO M. VITULLI, P.E.
 "Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland. License No. 20748, Expiration Date 2-22-17."

STORM DRAIN PROFILES
FAIRLANE FARM
PHASE TWO
 LOTS 19-44,
 BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Subdivision of Non-Buildable Bulk Parcel 'D' & 'H' And A Division To Subdivide Preservation Parcel 'A', Non-Buildable Preservation Parcel 'D' Thru 'I' And Non-Buildable Bulk Parcel 'I' And 'N'
 ZONED: RC-DEO
 TAX MAP NO.: B GRID NO.: 2, PAR.: B
 TAX MAP NO.: B GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 29 OF 36

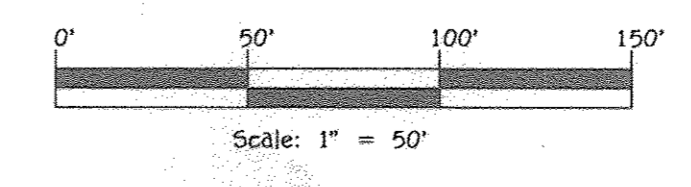
APPROVED, DEPARTMENT OF PUBLIC WORKS		
CHIEF, BUREAU OF HIGHWAYS	<i>A. Menn</i>	12/6/2016
APPROVED, DEPARTMENT OF PLANNING AND ZONING		
CHIEF, DIVISION OF LAND DEVELOPMENT	<i>Ken Schuler</i>	3-16-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	<i>Phil Edm</i>	3-10-17
REVISIONS		
NO.	DESCRIPTION	DATE



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
410-461-2295

OWNER
DAISYCOOP, LLC
c/o ESTATE OF FRANCES JEAN SCHULTE
DIANE G. SCHULTE, PERSONAL REPRESENTATIVE
2215 DUVALL ROAD
WOODBINE, MD 21797
410-977-1327

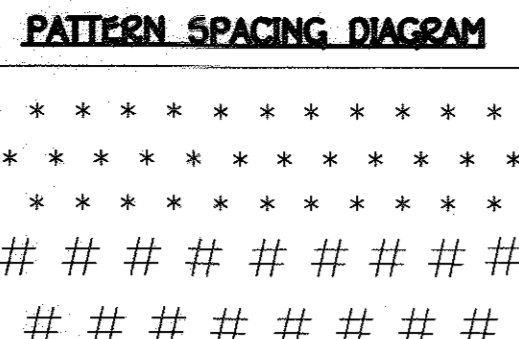
DEVELOPER
LAND DESIGN & DEVELOPMENT
8310 FORREST STREET
SUITE 200
ELLCOTT CITY, MARYLAND 21043
(410)-922-4600



ALDO M. VITUCCI, P.E.
DATE: 11/14/16
"Professional certification. I hereby certify that these documents were prepared by me or approved by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17."

STORM DRAIN PROFILES
FAIRLANE FARM
PHASE TWO
LOTS 19-44,
BUILDABLE PRESERVATION PARCEL 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
A Resubdivision of Non-Buildable Bulk Parcel 'G' & 'H' And A Revision To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'I' Thru 'L', Parcel 'M' And Non-Buildable Bulk Parcels 'G' And 'H'."
ZONED: EC-DEO
TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: NOVEMBER 11, 2016
SHEET 30 OF 35

Approved: Department of Planning and Zoning
 Kent Scholten, Chief, Division of Land Development, 3-16-17
 Date
 Chief, Development Engineering Division, 5-10-17
 Date
 REVISIONS
 NO. DESCRIPTION DATE
 1 EXPAND LIMIT OF DISTURBANCE 3/23/18



* - whip w/shelter 11' on center spacing
 # - 1" caliper tree 15' on center spacing
 Species shall be randomly interspersed, rows should be planting along contours

FCE Planting Area # 6 - 2.12 acres

Planting units required: 1484 (742 whips)
 Planting units provided: 1495 (695 whips and 50 trees)

Qty	Species	Size	Spacing	Total FCA Units
25	Acer x Fraxinifolia 'Autumn Blaze' - Freeman Maple	1" cal.	15' o.c.	
25	Juniperus horizontalis 'Valley Forge' - Valley Forge American Elm	1" cal.	15' o.c.	
50 Total 1" caliper trees (2.5 planting units per tree) = 175 Total FCA unit credit				
95	Acer x Fraxinifolia 'Autumn Blaze' - Freeman Maple	2-3" whip	11' o.c.	
80	Cercis canadensis - Red bud	2-3" whip	11' o.c.	
80	Carpinus caroliniana - American Hornbeam	2-3" whip	11' o.c.	
80	Liriodendron tulipifera - Tulip poplar	2-3" whip	11' o.c.	
80	Sorbus nigra 'Hortberg' - Silver Birch	2-3" whip	11' o.c.	
80	Ulmus virginiana - American Hoopbarn	2-3" whip	11' o.c.	
80	Acer x Fraxinifolia 'Valley Forge' - Valley Forge American Elm	2-3" whip	11' o.c.	
80	Acer campestre - Hedge Maple	2-3" whip	11' o.c.	
655 Total whip plantings (2 planting units per tree) = 1310 Total FCA unit credit				
Total Unit Credits (175 + 1310) = 1485				

1" CAL TREES = 200/ACRE (50 TREES/200 = 0.25 AC.)
 WHIPS w/shelters = 350/ACRE = 350 x 0.87 AC. = 695 WHIPS
 3.5 Planting units = 1" Cal Tree
 2 Planting units = 1 Whip

FOREST CONSERVATION EASEMENT
 UNAUTHORIZED DISTURBANCE OF VEGETATION IS PROHIBITED. VIOLATORS SUBJECT TO PENALTIES UNDER THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1991.
 TREES FOR YOUR FUTURE

11' MINIMUM
 ON-SITE SIGNAGE

LEGEND

- EXISTING AREA OF TREES TO BE REMOVED FOR STREAM RESTORATION AND REPLANTED
- FOREST REFORESTATION/AFFORESTATION AREA
- FOREST CONSERVATION AREA
- SPECIMEN TREES TO BE REMAIN
- SPECIMEN TREES TO BE REMOVED

Construction Period Protection Program

A. Forest Protection Techniques

1-Soil Protection Area (Critical Root Zone)
 The soil protection area, or critical root zone, of a tree is that portion of the soil volume from which most of its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface.
 The limit of disturbance (LOD) line depicted on the plan shows the proposed extent of construction activities. Eco-Science Professionals, or another qualified professional designated by the developer, will assist in the field (during site preparation) to ensure that the Critical Root Zone for the Forest Conservation Area is determined in accordance with the In-Field Edge Determination Guidelines in Appendix G of the Forest Conservation Manual. Eco-Science Professionals, or another qualified professional, will also assess the condition of the new forest edge to determine if selective thinning or pruning is needed to improve the condition of the edge.

2. Fencing and Signage
 All forest retention areas will be protected from unauthorized intrusion by appropriate signage and fencing. Signage and fencing will be installed prior to any construction activity. Installation of these devices will be approved by Eco-Science Professionals or another qualified professional. Fencing shall extend along all LOD lines that occur within 30 feet of the edge of the Forest Conservation Area. Fencing will consist of 6-foot orange mesh fence or superior silk fence. See Forest Conservation Plan for standard specifications.

B. Pre-Construction Meeting

Once staking of limits of disturbance and installation of all signage, a pre-construction meeting will be held between the developer, contractor and appropriate County Inspector. The purpose of the meeting will be to verify that all forest protection measures outlined in the FCE are in place, that all required permits are in place, and to verify the location of all retention areas.

C. Storage Facilities/Equipment Cleaning

All equipment, vehicles, trailers, materials, equipment, etc. associated with construction of the project will be maintained to these areas shown within the limit of disturbance. Washing of equipment will be prohibited from all forest retention areas. Material resulting from equipment cleaning will be contained to prevent runoff into wetlands, streams and other environmentally sensitive areas.

D. Sequence of Construction

The following timetable represents the proposed timetable for construction of the proposed project. The construction start date for this project has not been finalized. The actual project start date is predicated on the issuance of all necessary permits and approvals for the project. The items outlined in the Forest Conservation Plan will be subject to construction of the project.

1. Install all forest protection signage, fencing, and sediment control devices.
2. Hold pre-construction meeting between developer, contractor and County Inspector.
3. Grade site and construct improvements: stabilize all disturbed areas in accordance with grading plan.
4. Assess sediment control facility per forest retention areas in year one.
5. Hold post-construction meeting with County Inspector to ensure compliance with FCE.

E. Construction Monitoring

Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan. This will include inspections to ensure that signage is properly maintained and that all unauthorized activities have been made into forest retention areas.

F. Activities Permitted During Construction

The forest conservation plan will allow the following activities within forest resources during the construction phase of the project:

1. Routine maintenance (mowing, hilling, etc.)
- These activities will not damage or negatively impact the forest resources on the property.

G. Post-Construction Meeting

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County Inspector that construction has been completed and arrange for a final inspection. The purpose of the meeting will be to verify that all forest protection measures outlined in the FCE are in place, that all required permits are in place, and to verify the location of all retention areas. The County Inspector will provide a final inspection report to the developer. The report will include a list of any post-construction maintenance items that have been identified.

Post-Construction Management Plan

The post-construction management plan will further ensure that all Forest Conservation Easement Areas are maintained. The developer will be responsible for implementation of the post-construction management plan.

A. Signage

Signage indicating the limits of the forest retention areas shall be maintained.

Planting/Soil Specifications

1. Installation of bare-root plant stock shall take place between March 15 - April 20; b&b/container stock March 15 - May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
2. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. Bare-root plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pit shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
4. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plants shall be fertilized with Osmocote 8-6-12.
5. Plant material shall be transported to the site in a tripod or covered truck. Plants shall be kept moist prior to planting.
6. All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

Sequence of Construction

1. Sediment control shall be installed in accordance with general construction plan for site.
2. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
3. Upon completion of the planting, signage shall be installed as shown.
4. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

1. Maintenance of plantings shall last for a period of 2 years.
2. Plantings must receive 2 gallons of water, either through precipitation or watering, weekly during the 1st growing season, as needed. During second growing season, once a month during May-September, if needed.
3. Invasive exotics and noxious weeds will be removed, as required, from planting areas mechanically and/or with limited herbicide application (see groundcover note where appropriate). Old field succession species will be retained.
4. Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

1. A 75 percent survival rate of forestation plantings will be required at the end of 2 growing seasons. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season. Wild trees arising from natural regeneration may be counted up to 50 percent towards the total survival number if they are healthy, native species at least 12 inches tall.

Surety for Forestation

1. The developer shall post a surety (bond, letter of credit) to ensure that forestation plantings are completed. See GENERAL NOTE #8, SHEET 1.

Planting Notes

When possible, plants shall be installed within 24 hours of delivery. If installation cannot be performed within this time frame, plants shall be watered and protected from desiccation. Application of herbicide, Round-up or equivalent, may be used to reduce plant competition from old field succession growth at the time of installation. Mowing, re-application of herbicide, or a combination thereof, may be used to control unwanted, competing vegetation. Planting shall be installed within one year or two growing seasons of subdivision approval. Plantings shall be installed in accordance with the time schedule included in Note 1 of the planting/seeding specifications.

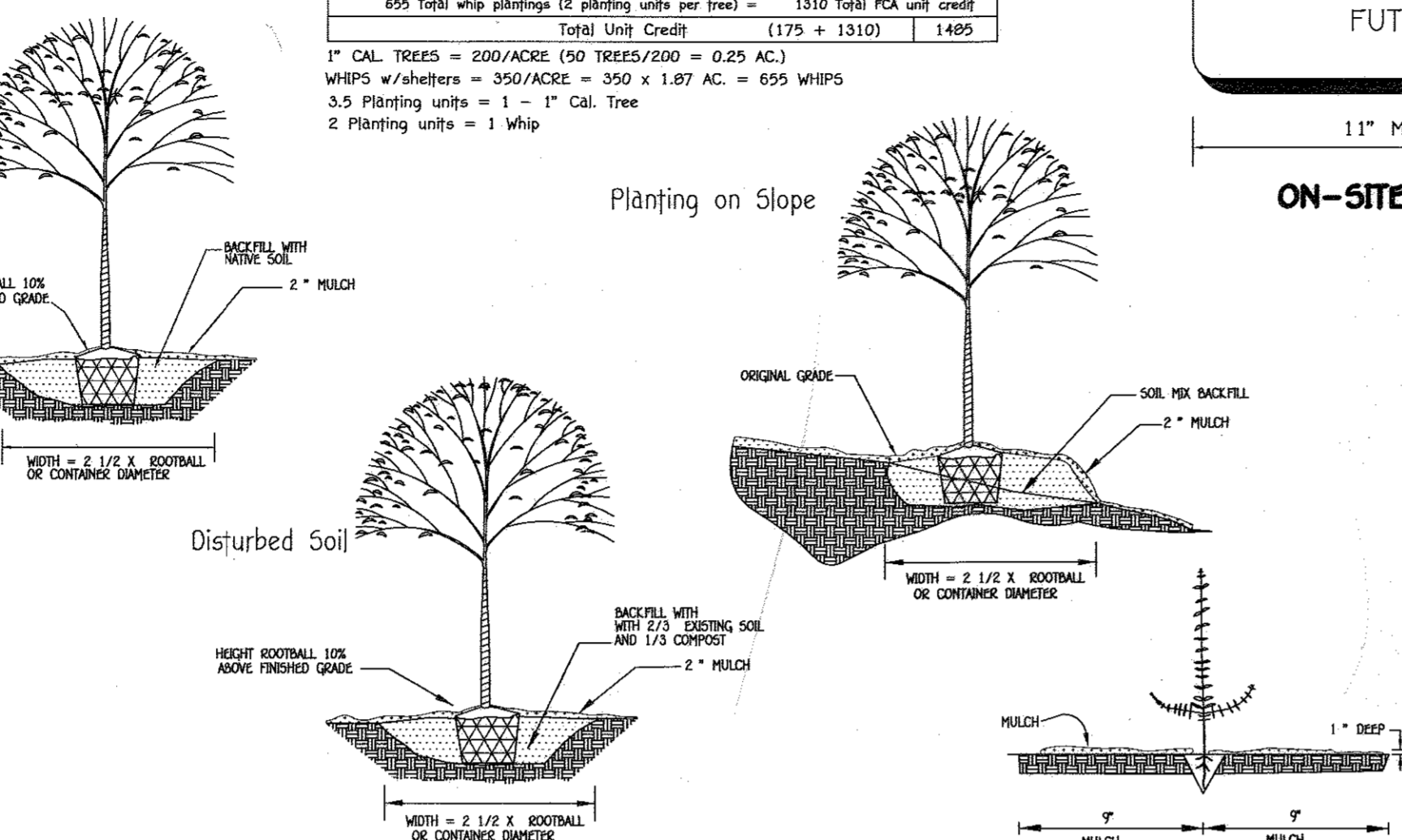
Forest Easement Metes And Bounds

See Second Plat titled "Fairlane Farm Lots 19 Thru 44 & Non-Buildable Preservation Parcels 'I' Thru 'N'."

Planting Notes:

Planting units defined by the spacing requirements established in the FCA Manual. One planting unit is defined as 1 seeding or whip without shelter. The Manual states that 700 seedlings/whips without shelters are required per acre, or 350 whips w/shelters, or 200 1" caliper trees, or 100 2" caliper trees. By convention it has been determined that a seeding or whip without shelter = 1 unit, whip with shelter = 2 units, 1" caliper tree = 3.5 units, 2" caliper tree = 7 units. The use of planting units simplifies the plant density calculations when mixing stock size.
 * - These species should not be planted within the wetland limits.
 * - 1" caliper trees should be staggered along the outer perimeter of the planting area to serve as demarcation of the boundary. The trees should be no closer than 15 foot spacing. Whip spacing to be placed on 11 foot centers, shelters will be required per Howard County policy.
 Planting shall be made in a cantilever fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance. Mulch/erosion control/brush removal/control may be required prior to installation of plantings.
 All whips are required to be installed with tree shelters per Howard County FCA requirements.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK, 10272 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2095



Seeding and Whip Planting Specification

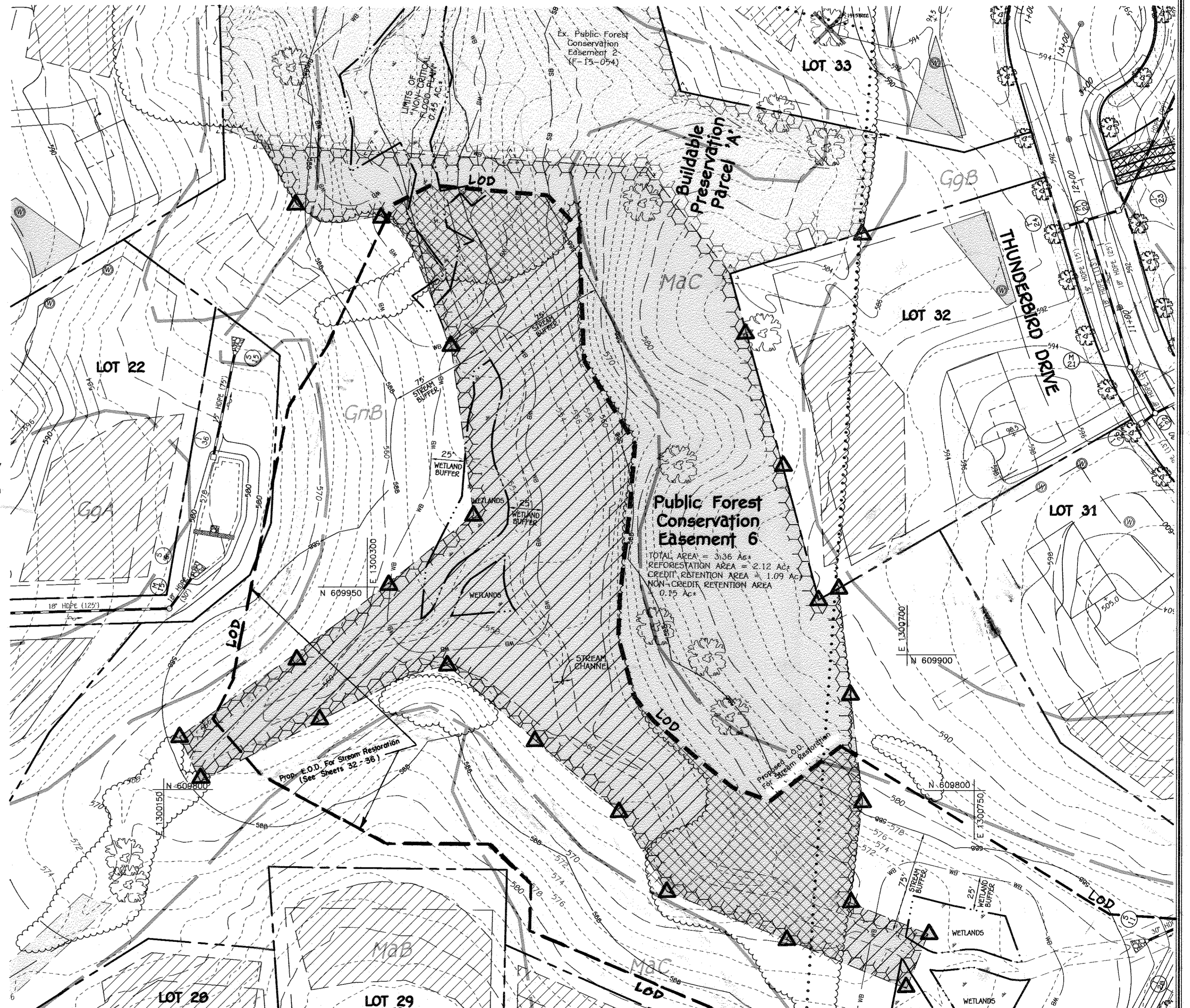
**FOREST CONSERVATION WORKSHEET
 VERSION 1.0
 (PHASE ONE & TWO)**

NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	130.60
B. DEDUCTIONS (AREA WITHIN 100 YEAR FLOODPLAIN)	6.01
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	---
D. NET TRACT AREA	132.59
LAND USE CATEGORY: MEDIUM DENSITY RESIDENTIAL	
E. AFFORESTATION THRESHOLD (NET TRACT AREA (D) x 20%)	26.5
F. CONSERVATION THRESHOLD (NET TRACT AREA (D) x 25%)	33.2
EXISTING FOREST COVER	
G. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	38.95
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	12.5
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	5.9
BREAK-EVEN POINT	
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	34.35
BREAK-EVEN POINT	
K. CLEARING PERMITTED WITHOUT MITIGATION	4.6
PROPOSED FOREST CLEARING	
L. TOTAL AREA OF FOREST TO BE CLEARED OR RETAINED OUTSIDE FCE	9.00
M. TOTAL AREA OF FOREST TO BE RETAINED	29.87
PLANTING REQUIREMENTS	
N. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD	1.45
P. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD	6.66
Q. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD	---
R. TOTAL REFORESTATION REQUIRED	8.11
S. TOTAL AFFORESTATION REQUIRED	---
T. TOTAL PLANTING REQUIREMENT	8.11

FOREST CONSERVATION AREA SUMMARY (Phase Two)

FOREST CONSERVATION EASEMENT NO.	CREDIT RETENTION AREA	NON-CREDIT RETENTION AREA	REFORESTATION AREA	TOTAL AREA
FCE No. 6	1.09 AC.	0.15 AC.	2.12 AC.	3.36 AC.

NOTE: THE FOREST CONSERVATION OBLIGATION FOR PHASE ONE AND TWO WILL BE MET BY 29.87 ACRES OF RETENTION AND 8.11 ACRES OF REFORESTATION. PHASE ONE (1-15-04) OF THE SUBDIVISION PROVIDED 29.76 ACRES OF FOREST RETENTION AND 5.99 ACRES OF FOREST PLANTING. UNDER THE DEVELOPER'S AGREEMENT, THE REMAINING 1.09 ACRES OF FOREST RETENTION AND 2.12 ACRES OF FOREST PLANTING OBLIGATION WILL BE FILLED BY THIS PLAN (1-16-06) UNDER THE DEVELOPER'S AGREEMENT. PHASE ONE ALSO INCLUDED A FOREST CONSERVATION MITIGATION BANK WITH 10.51 ACRES OF REFORESTATION.



Professional Seal

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 ALDO M. VIUCCI, P.E.
 License No. 20748, Expiration Date 2-22-17

**FOREST CONSERVATION PLAN
 FAIRLANE FARM
 PHASE TWO**
 LOTS 19-44,
 BUILDABLE PRESERVATION PARCELS 'A' AND NON-BUILDABLE PRESERVATION PARCELS 'I' THRU 'N'
 A Resubdivision of Non-Buildable Bulk Parcels 'Q' & 'R' And A Revision To Buildable Preservation Parcel 'X', Recorded As "Fairlane Farm Phase One Lots 1 Thru 18, Buildable Preservation Parcel 'A', Non-Buildable Preservation Parcels 'I' Thru 'U', Parcel 'I' And Non-Buildable Bulk Parcels 'Q' And 'R'"
 ZONED: RC-DEO
 TAX MAP NO.: 8 GRID NO.: 2, PAR.: 8
 TAX MAP NO.: 8 GRID NO.: 3, PAR.: 17
 FOURTH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
 DATE: NOVEMBER 11, 2016
 SHEET 31 OF 36

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855, after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:
 - a. Prior to the start of earth disturbance,
 - b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
 - c. Prior to the start of another phase of construction or opening of another grading unit,
 - d. Prior to the removal or modification of sediment control practices.
 Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.
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 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.
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 topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.
6. Site Analysis:

Total Area of Site:	±93 Acres
Area Disturbed:	4.59 Acres
Area to be roofed or paved:	NA
Area to be vegetatively stabilized:	4.59 Acres
Total Cut:	5,491.36 Cu. Yards
Total Fill:	6,969.03 Cu. Yards

 Offsite waste/borrow area location:
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 CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:
 - Inspection date
 - Inspection type (routine, pre-storm event, during rain event)
 - Name and title of inspector
 - Weather information (current conditions as well as time and amount of last recorded precipitation)
 - Brief description of project's status (e.g., percent complete) and/or current activities
 - Evidence of sediment discharges
 - Identification of plan deficiencies
 - Identification of sediment controls that require maintenance
 - Identification of missing or improperly installed sediment controls
 - Compliance status regarding the sequence of construction and stabilization requirements
 - Photographs
 - Monitoring/sampling
 - Maintenance and/or corrective action performed
 - Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE)
9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be backfilled and stabilized by the end of each workday, whichever is shorter.
10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may be allowed by the CID per the list of HSCD-approved field changes.
11. Disturbance shall not occur outside the LOD. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed 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 CID. Unless otherwise specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at a given time.
12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.
14. All Silt Fence and Super Silt Fence shall be placed on the contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.
15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
 - Use I and IP March 1 - June 15
 - Use III and IIIIP October 1 - April 30
 - Use IV March 1 - May 31
16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

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

1. No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
2. Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
3. Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.
4. Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
5. Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
6. Rectify any nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
7. All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (*Lolium multiflorum*), Millet (*Setaria italica*), Barley (*Hordeum* sp.), Oats (*Avena* sp.), and/or Rye (*Secale cereale*). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. Kentucky 31 fescue shall not be utilized in wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
8. After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
9. To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream:
 - Use I waters: In-stream work shall not be conducted during the period March 1 through June 15, inclusive, during any year.
 - Use III waters: In-stream work shall not be conducted during the period October 1 through April 30, inclusive, during any year.
 - Use IV waters: In-stream work shall not be conducted during the period March 1 through May 31, inclusive, during any year.

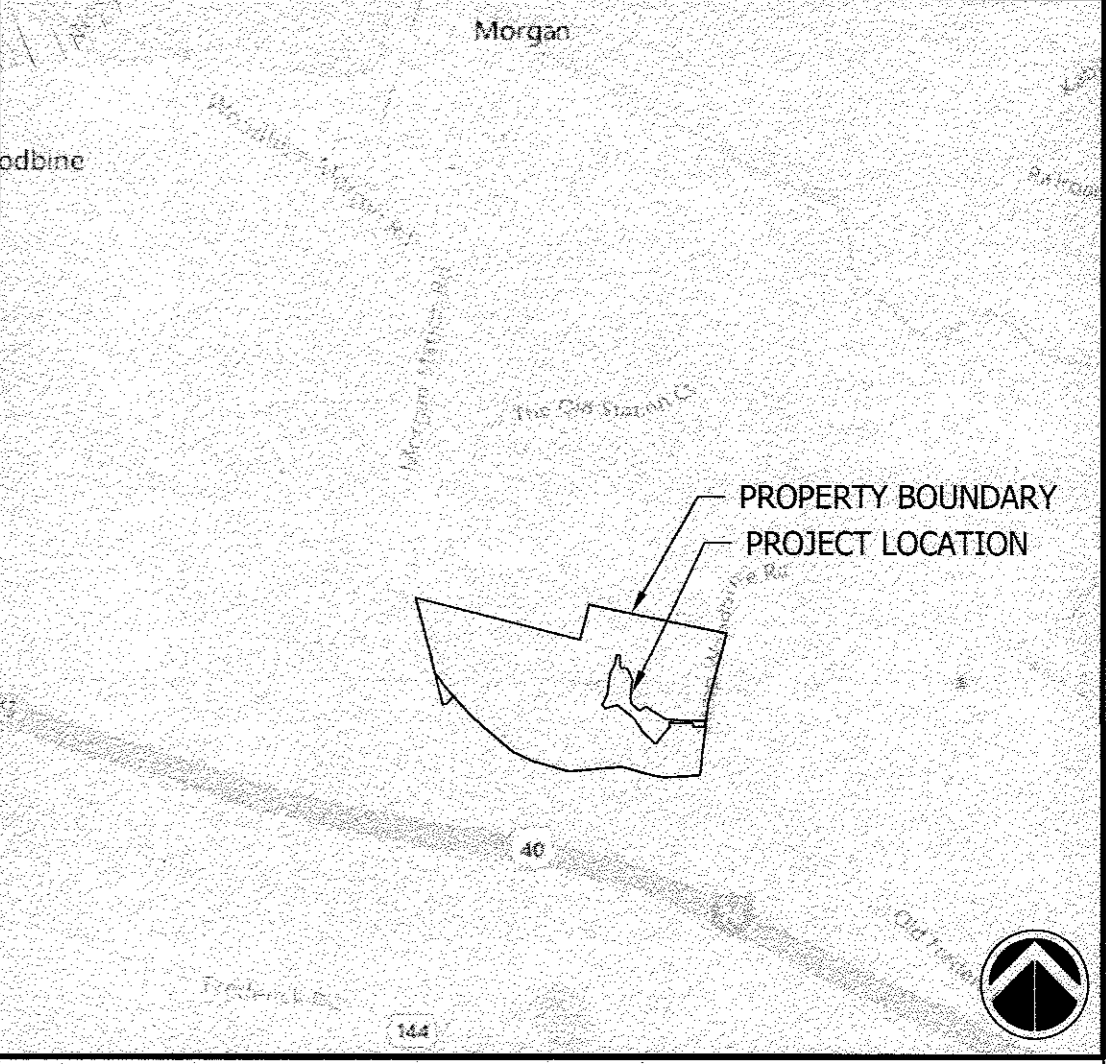
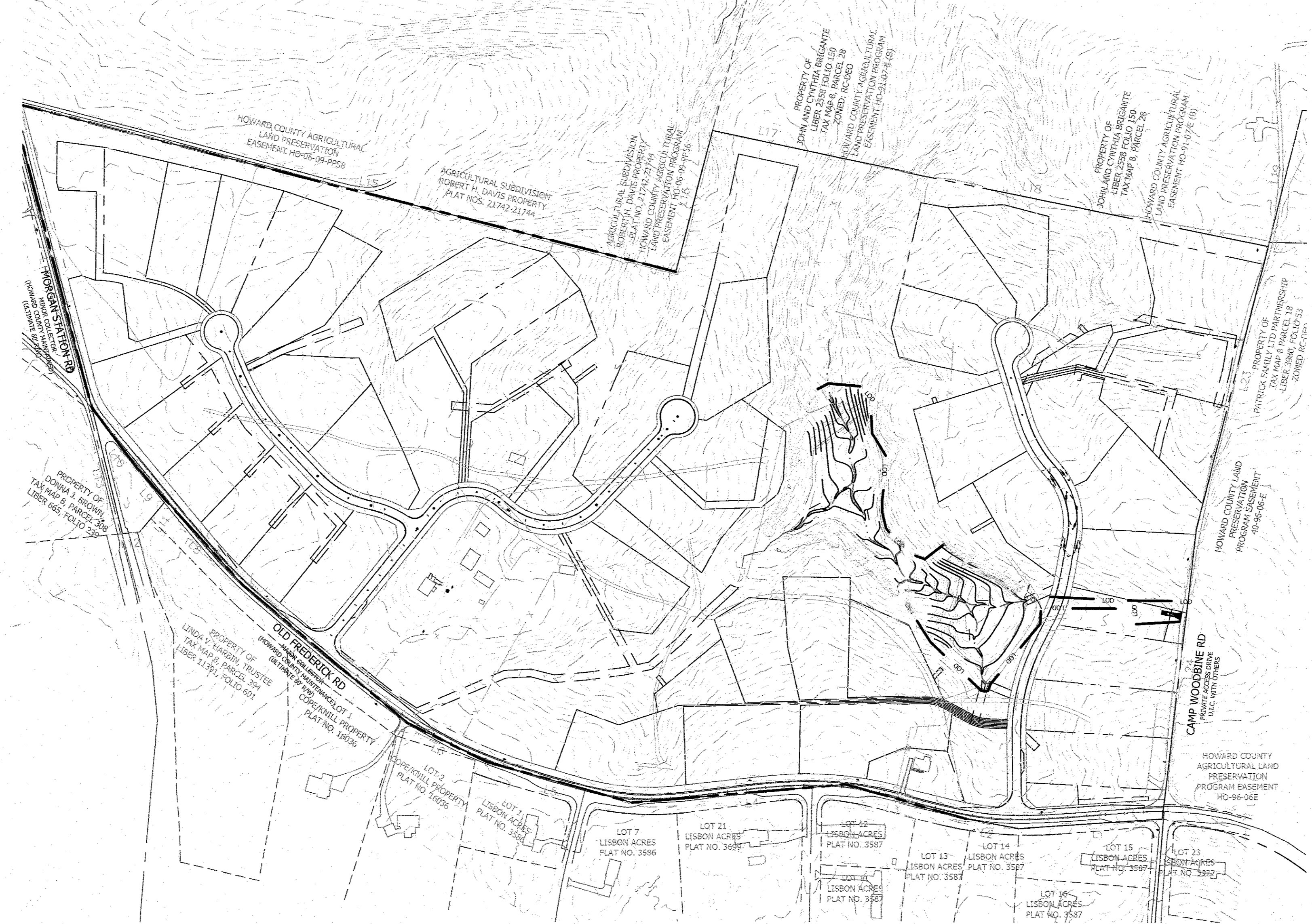
10. Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
11. Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.
12. A dewatering pump will be utilized in conjunction with a dirt bag (see detail this sheet) to remove standing water in the project area during construction. The dirt bag will be placed on a vegetated area a sufficient distance from subject reach so that any sediment leaving the dirt bag has time/distance to settle out before reaching the waterway.

- GENERAL NOTES**
1. This plan has been prepared to remove two existing farm ponds and restore approximately 1,000 linear feet of stream on the Schulte Property, located on Old Frederick Road in the Woodbine area of Howard County, Maryland.
 2. Contours were obtained from Fisher, Collins & Carter and depict field run 2-ft topo.
 3. The Contractor shall notify Ecotone, Inc. and the landowner's representative at least two (2) weeks prior to start of grading operations within the project areas.
 4. The Contractor is responsible for the location of all underground utilities prior to the start of construction. Any damages to utilities as a result of grading or other activities will be the sole responsibility of the Contractor and shall be repaired at the Contractors expense.
 5. Access to the restoration area shall be from Camp Woodbine Road via existing private drive as indicated hereon.
 6. The Contractor will be responsible for any damage to private property, including but not limited to fences and private roads resulting from the execution of this contract. Repairs for any such damage will be made at the Contractors expense to the satisfaction of the private property owner and Ecotone, Inc.
 7. All machinery, equipment and supplies for the project shall be stored in an upland location, preferably the staging area shown on this plan, so as not to disturb any environmentally sensitive areas or agricultural uses on the site.
 8. All rough and finish grading work will be started at the upstream end of the project.

FAIRLANE FARM STREAM RESTORATION

HOWARD COUNTY, MD

No.	REVISIONS	DATE
1	EXPAND LIMIT OF DISTURBANCE	9/23/17



VICINITY MAP
SCALE: 1" = 2000'

STREAM RESTORATION PLAN

As part of the Fairlane Farm Development, two existing man-made ponds and their berms will be removed, and a natural headwater stream system restored. The watershed shown on this plan is classified Use I, and will restore approximately 1,000 linear feet of an unnamed tributary to South Branch Patapsco River and 0.25 acres of non-tidal wetland.

Approximately 1,000 linear feet of stream channel will be restored to a stable platform according to natural channel design concepts. The proposed structural stabilization measures include installing the wood on the meander bends to add roughness to the outside meander and reduce shear stress, installing riffle and cascade grade controls, and installing step pool and log cross vane structures. Bioengineering practices including coir fiber matting bank stabilization and live stake and warm season grass installation will accompany the structures to provide additional stability, shade and improved aquatic habitat. Areas adjacent to the stream will be nontidal wetlands.

DEVELOPER INFORMATION	PROPERTY OWNER INFORMATION	SITE DATA
LAND DESIGN AND DEVELOPMENT 5300 DORSEY HALL DRIVE SUITE 102 ELLCOTT CITY, MD 21042 (410) 977-0422	ESTATE OF F.J. SCHULTE 2215 DUVAL ROAD WOODBINE, MD 21797 (410) 997-1327	DEED REF. 385/193 MAP 8, GRID 2, PARCELS 8 + 17 ELECTION DISTRICT 4 EXISTING ZONING RC-DEO SITE ACREAGE: ±93 AC 8 DIGIT HUC: 0260003 MD 8 DIGIT BASIN: 02130908 (S Branch Patapsco)

ENGINEER'S CERTIFICATE

I hereby certify that this Plan For Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District.

Signature of Engineer: *[Signature]* Date: 9/23/17

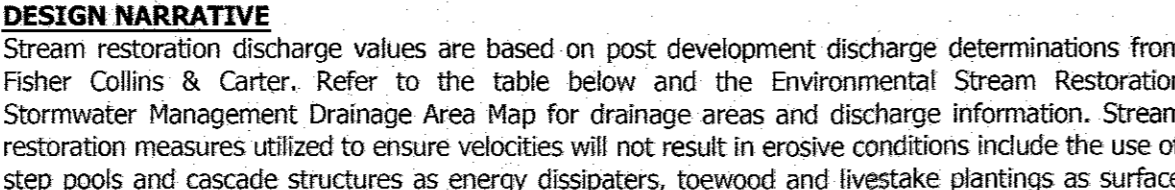
DEVELOPER'S CERTIFICATE

I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary.

Signature of Developer: *[Signature]* Date: 9/23/17

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

Signature of District Engineer: *[Signature]* Date: 9/27/17



SCALE: 1" = 200'

DESIGN NARRATIVE

Stream restoration discharge values are based on post development discharge determinations from Fisher Collins & Carter. Refer to the table below and the Environmental Stream Restoration Stormwater Management Drainage Area Map for drainage areas and discharge information. Stream restoration measures utilized to ensure velocities will not result in erosive conditions include the use of step pools and cascade structures as energy dissipaters, toewood and livestock plantings as surface protection and coir matting to provide immediate soil stabilization. Approximately 522 square feet of the project area is located within the 100-year floodplain at the downstream end of the project area. Stream monitoring post construction will be completed in accordance with MDE and COE permit conditions. Refer to permit # 2015-61942-M37 for specific monitoring requirements.

STREAM REACH	STATION	DISCHARGE (cfs)	DRAINAGE AREA (SF)
1	0+00-1+80	12.5	12.42
1	1+80-3+06	20	19.1
1	3+06-6+50	20	22.8
1	6+50-7+50	45	44.42
1	7+50-8+81	45	45.42
2	0+00-2+57	12.5	5.25
3	0+00-2+54	20	20.03

SEQUENCE OF CONSTRUCTION

1. Beginning with sufficient time prior to construction, the ponded areas shall be drained by systematically removing or puncturing the riser structures in each pond at one half foot intervals.
2. Contractor shall notify owner and Howard County Soil Conservation District at least 48 hours prior to beginning any work and the Maryland Department of the Environment Inspection and Compliance Program (410 537-3510) at least 5 days prior to beginning any work. Miss Utility must be contacted at least 72 hours prior to beginning work. A pre-construction meeting is required with the developer, contractor, and Howard SCD prior to construction starting.
3. All necessary approvals and permits must be obtained prior to start of construction.
4. Clear and grub for the installation of sediment and erosion control measures or devices.
5. Install stabilized construction entrances and all sediment control devices.
6. Notify Howard County Soil Conservation District upon completion of soil installation.
7. With the approval of Howard County Soil Conservation District, clear and grub for in-stream work. The stream is in the South Branch (Patapsco River) watershed, designated as Use I by the Maryland Department of the Environment. No in-stream work is to be completed between March 1 and June 15.
8. Install pump around practices in unnamed tributary. All pump around diversions shall be set up and running before in-stream work will be permitted to start. See Pump-Around Note, this Sheet.
9. Begin stream work starting at the upstream end of the project and work downstream. Complete installation of all in-stream structures. Remove any accumulated sediment in the stream channel at the end of each working day and prior to the removal of the pump around practice.
10. Stabilize all disturbed areas at the end of each working day or within a 3-day dry weather forecast.
11. Once stream restoration is complete, seed and stabilize any remaining work areas.
12. Upon stabilization of site with established vegetation and with permission of the Howard County Soil Conservation District field technician, remove sediment control measures and stabilize those areas disturbed by this process, including any spoils areas.
13. Install plant material during appropriate planting dates.

HOWARD COUNTY STANDARD NOTE

All vegetative and structural practices are to be installed according to the provisions of this plan are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

100-YEAR FLOODPLAIN NOTE

FEMA mapped floodplain is not present on-site according to FEMA mapping and County GIS data. FIRM panel #24027C0035D.

MAINTENANCE NOTE

Contractor shall inspect and maintain all sediment control measures and devices after every storm event. Maintenance shall include, but not be limited to the removal of all accumulated sediment. Geotextile fabric shall be replaced as needed to ensure proper function.

PUMP-AROUND NOTE

Pump around shows the maximum extents of stream to be diverted. Actual pump around length will be the length which can be completed in a working day.

TEMPORARY STOCKPILE NOTE

If necessary, a temporary stockpile shall be provided within the limits of disturbance. The stockpile shall be located such that any runoff will drain to an existing sediment control device (i.e., super silt fence). The stockpile may not protrude upon nor alter drainage divides to the sediment control device at any time.

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27189, expiration date: 03/26/18.

Signature: *[Signature]* Date: 9/11/17

COORDINATE NOTE

PLAN IS IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

UTILITY NOTIFICATION

"Ecotone, Inc. makes no representation as to the existence or non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities. It is suggested that Miss Utility be contacted at: 1-800-257-7777."

APPROVED: DEPARTMENT OF PUBLIC WORKS	<i>[Signature]</i>	DATE
CHIEF, BUREAU OF HIGHWAYS	<i>[Signature]</i>	3-16-17
APPROVED: DEPARTMENT OF PLANNING AND ZONING	<i>[Signature]</i>	3-16-17
CHIEF, DIVISION OF LAND DEVELOPMENT	<i>[Signature]</i>	3-16-17
APPROVED: DEPARTMENT OF ENGINEERING	<i>[Signature]</i>	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	<i>[Signature]</i>	

TEMPORARY BENCHMARKS

17127	591.28
17128	586.46
17129	569.14
17130	566.96
17131	564.24
17132	547.73
17133	572.65

INDEX OF SHEETS

SHEET NO.	TITLE
32	STREAM RESTORATION COVER
33	STREAM RESTORATION GRADING AND EROSION AND SEDIMENT CONTROL
34	STREAM RESTORATION PROFILES AND CROSS SECTIONS
35-36	STREAM RESTORATION DETAILS

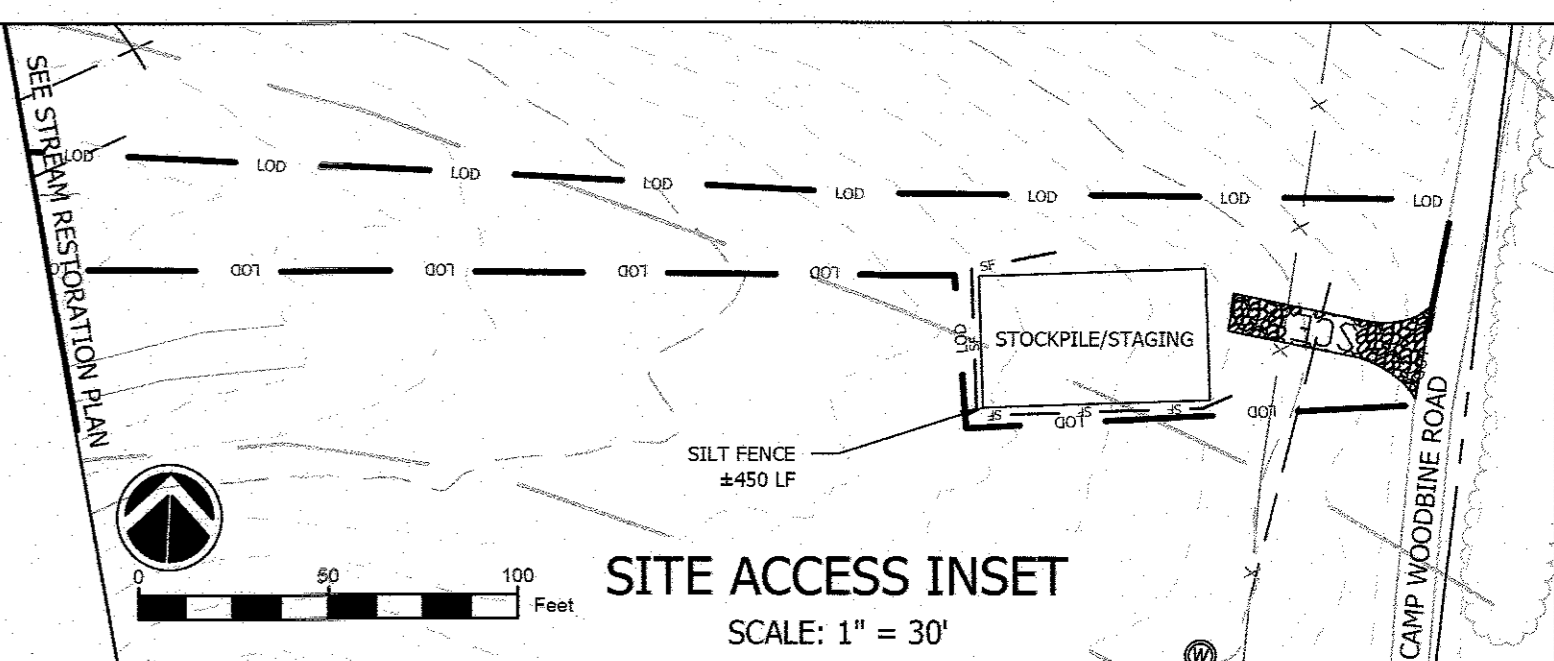
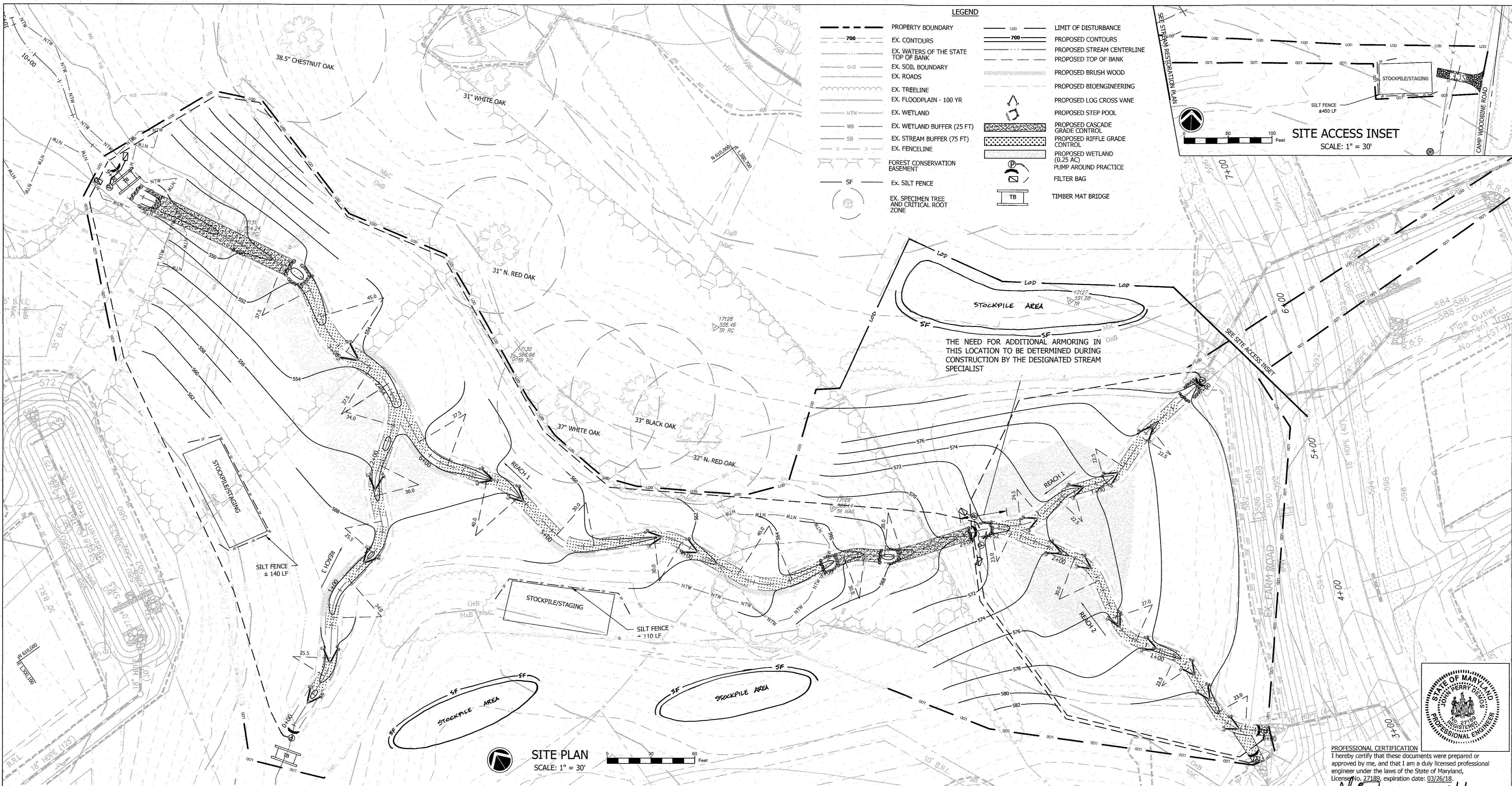
FAIRLANE FARM STREAM RESTORATION COVER

15320 & 15250 OLD FREDERICK RD, WOODBINE, MD 21797

2120 High Point Road • Forest Hill, Maryland 21050
(410) 420 2600 • Fax (410) 420 6983 • www.ecotoneinc.com

REVISIONS			
NO.	DATE	DESCRIPTION	REV. BY
1	01/20/2016	COMMENTS FROM HOWARD COUNTY SCD	SGM
2	11/23/2016	COMMENTS FROM HOWARD COUNTY SCD	SGM
3	1/20/2017	REVISION PER ESD COMMENTS	SGM

CHECKED BY: SGM
DESIGNED: CEH/CTS
DRAWN: CTS
PROJECT NO.: 1541
DATE: 2/28/2017
SHEET: 32 of 36



LEGEND

---	PROPERTY BOUNDARY	---	LIMIT OF DISTURBANCE
---	EX. CONTOURS	---	PROPOSED CONTOURS
---	EX. WATERS OF THE STATE TOP OF BANK	---	PROPOSED STREAM CENTERLINE
---	EX. SOIL BOUNDARY	---	PROPOSED BRUSH WOOD
---	EX. TREELINE	---	PROPOSED BIOENGINEERING
---	EX. FLOODPLAIN - 100 YR	---	PROPOSED LOG CROSS VANE
---	EX. WETLAND	---	PROPOSED STEP POOL
---	EX. WETLAND BUFFER (25 FT)	---	PROPOSED CASCADE GRADE CONTROL
---	EX. STREAM BUFFER (75 FT)	---	PROPOSED RIFFLE GRADE CONTROL
---	EX. FENCELINE	---	PROPOSED WETLAND (0.25 AC)
---	FOREST CONSERVATION EASEMENT	---	PUMP AROUND PRACTICE
---	EX. SILT FENCE	---	FILTER BAG
---	EX. SPECIMEN TREE AND CRITICAL ROOT ZONE	---	TIMBER MAT BRIDGE

1	EXPAND LIMIT OF DISTURBANCE	3/23/18
No.	REVISIONS	

REALIGNMENT	REALIGNMENT STATIONING	RADIUS OF CURVATURE
REACH 1	0+45.1 - 0+53.9	22.5 FT
REACH 1	0+77.5 - 0+93.9	22.5 FT
REACH 1	1+15.7 - 1+28.4	22.5 FT
REACH 1	1+45.2 - 1+60.1	24.5 FT
REACH 1	2+44.2 - 2+56.6	30 FT
REACH 1	2+70.4 - 2+84.6	30 FT
REACH 1	3+23.3 - 3+62.5	40 FT
REACH 1	4+06.9 - 4+26.2	30 FT
REACH 1	4+67.6 - 4+95.4	30 FT
REACH 1	5+32.0 - 5+57.6	40 FT
REACH 1	5+86.3 - 6+12.2	37.5 FT
REACH 1	6+52.8 - 6+72.9	75 FT
REACH 1	6+93.3 - 7+23.3	45 FT
REACH 1	7+42.8 - 7+69.0	37.5 FT

STREAM CROSSING NOTE:
TIMBER MATS SHALL BE USED TO BRIDGE THE EXISTING STREAM CHANNEL WHERE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.

REALIGNMENT	REALIGNMENT STATIONING	RADIUS OF CURVATURE
REACH 2	0+16.7 - 0+39.9	23 FT
REACH 2	0+76.1 - 0+88.8	22.5 FT
REACH 2	1+17.6 - 1+39.8	27 FT
REACH 2	1+67.4 - 1+91.0	30 FT
REACH 2	2+37.2 - 2+51.5	23 FT
REALIGNMENT	REALIGNMENT STATIONING	RADIUS OF CURVATURE
REACH 3	0+39.5 - 0+52.6	25.5 FT
REACH 3	0+80.0 - 1+09.6	34 FT
REACH 3	1+34.0 - 1+57.2	25.5 FT
REACH 3	1+75.0 - 1+96.4	30 FT
REACH 3	2+25.0 - 2+54.0	34 FT

TEMPORARY BENCHMARKS

17127	591.28
17128	586.46
17129	569.14
17130	566.96
17131	564.24
17132	547.73
17133	572.65

SOILS LEGEND

SYMBOL	SOIL DESCRIPTION
GgB	Glenelg loam, 3-8% slopes
GnB	Glenville-Balle silt loams, 0-8% slopes
MaB	Manor loam, 3-8% slopes
MaC	Manor loam, 8-15% slopes

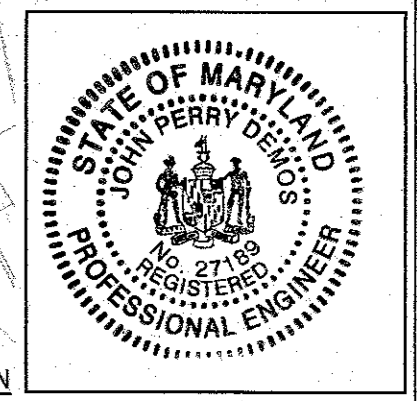
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved: *[Signature]*
Howard SCD 3/17/17

COORDINATE NOTE
PLAN IS IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

UTILITY NOTIFICATION
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APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS *[Signature]* DATE *[Blank]*
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* DATE 3-16-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* DATE 3-16-17

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27189, expiration date: 03/26/18.
[Signature] DATE 3/17/17



FAIRLANE FARM
STREAM RESTORATION GRADING AND EROSION AND SEDIMENT CONTROL
15320 & 15250 OLD FREDERICK RD, WOODBINE, MD 21797

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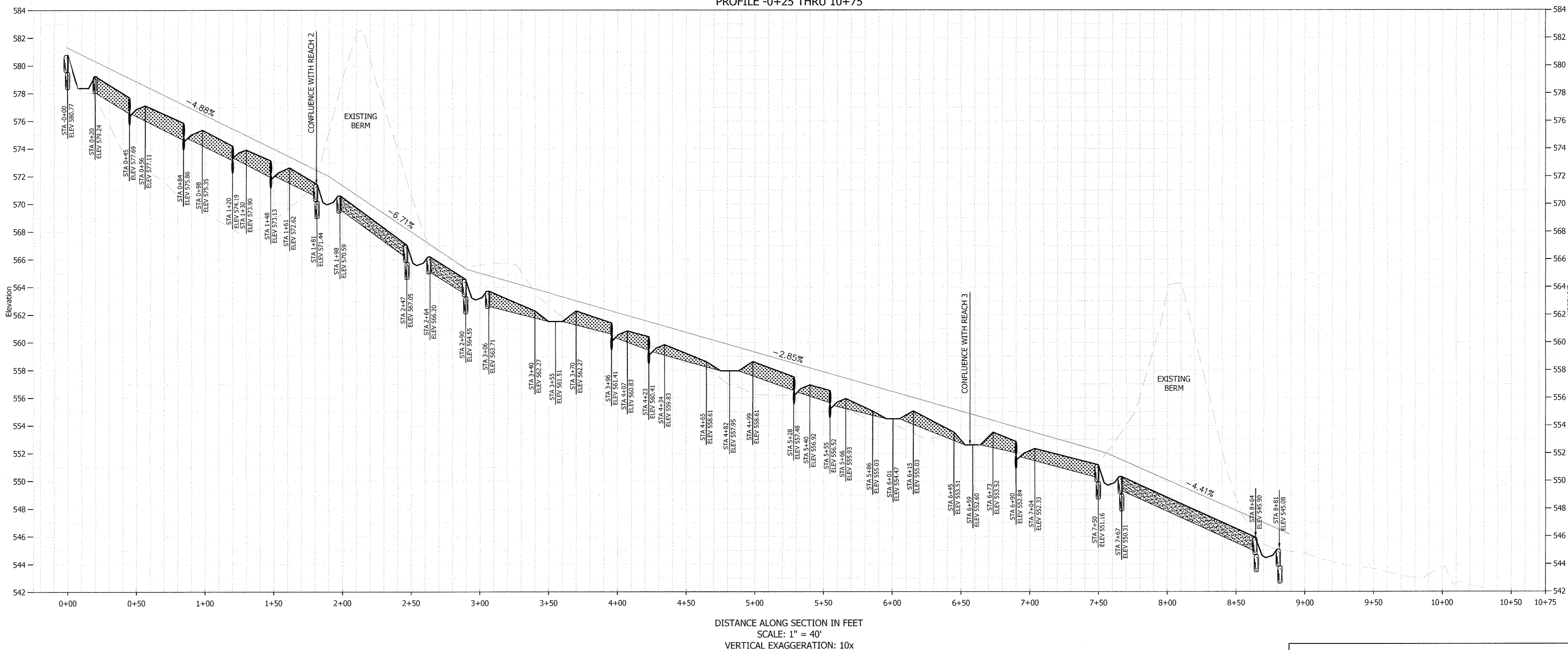
REVISIONS

NO.	DATE	DESCRIPTION	REV. BY
1	03/13/2018	COMMENTS FROM HOWARD COUNTY SCD	JPM
2	03/22/2018	COMMENTS FROM HOWARD COUNTY SCD	JPM
3	03/28/2018	REVISIONS PER DEB COMMENTS	CM

CHECKED BY: SGM
DESIGNED: CEH/CTS
DRAWN: CTS
PROJECT No.: 1541
DATE: 2/28/2017
SHEET: 33 of 36

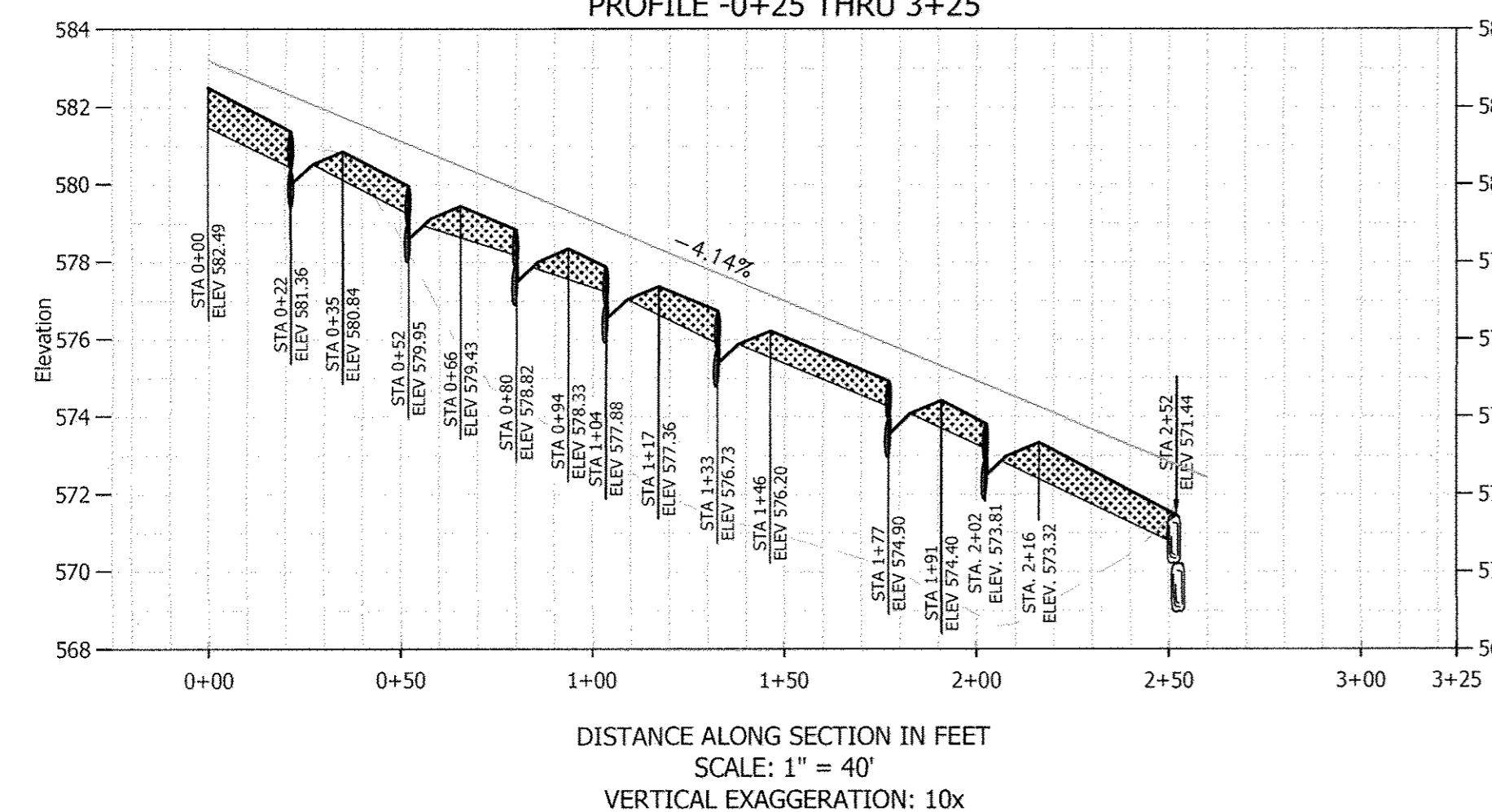
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PROFILE -0+25 THRU 10+75

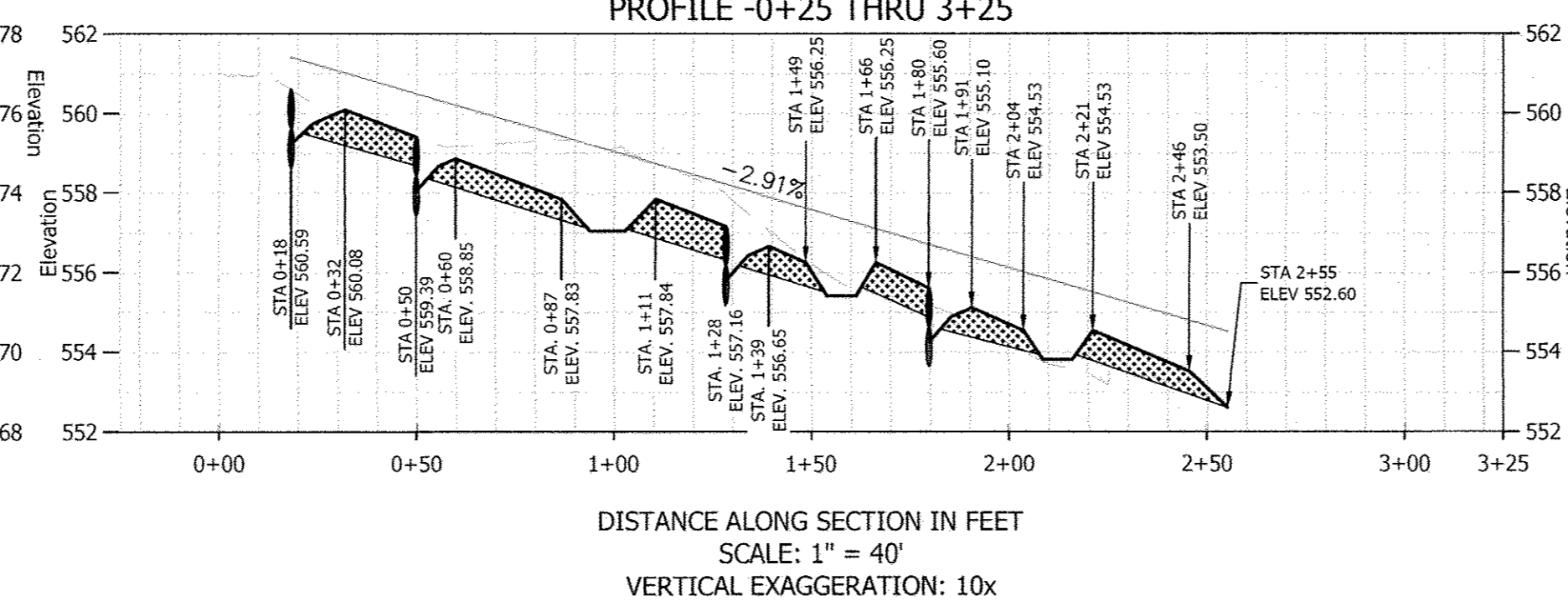


- LEGEND**
- EXISTING ELEVATION
 - PROPOSED ELEVATION
 - BANKFULL ELEVATION
 - STEP POOL
 - CASCADE STRUCTURE
 - WOODY RIFFLE STRUCTURE
 - LOG CROSS VANE STRUCTURE

PROFILE -0+25 THRU 3+25



PROFILE -0+25 THRU 3+25



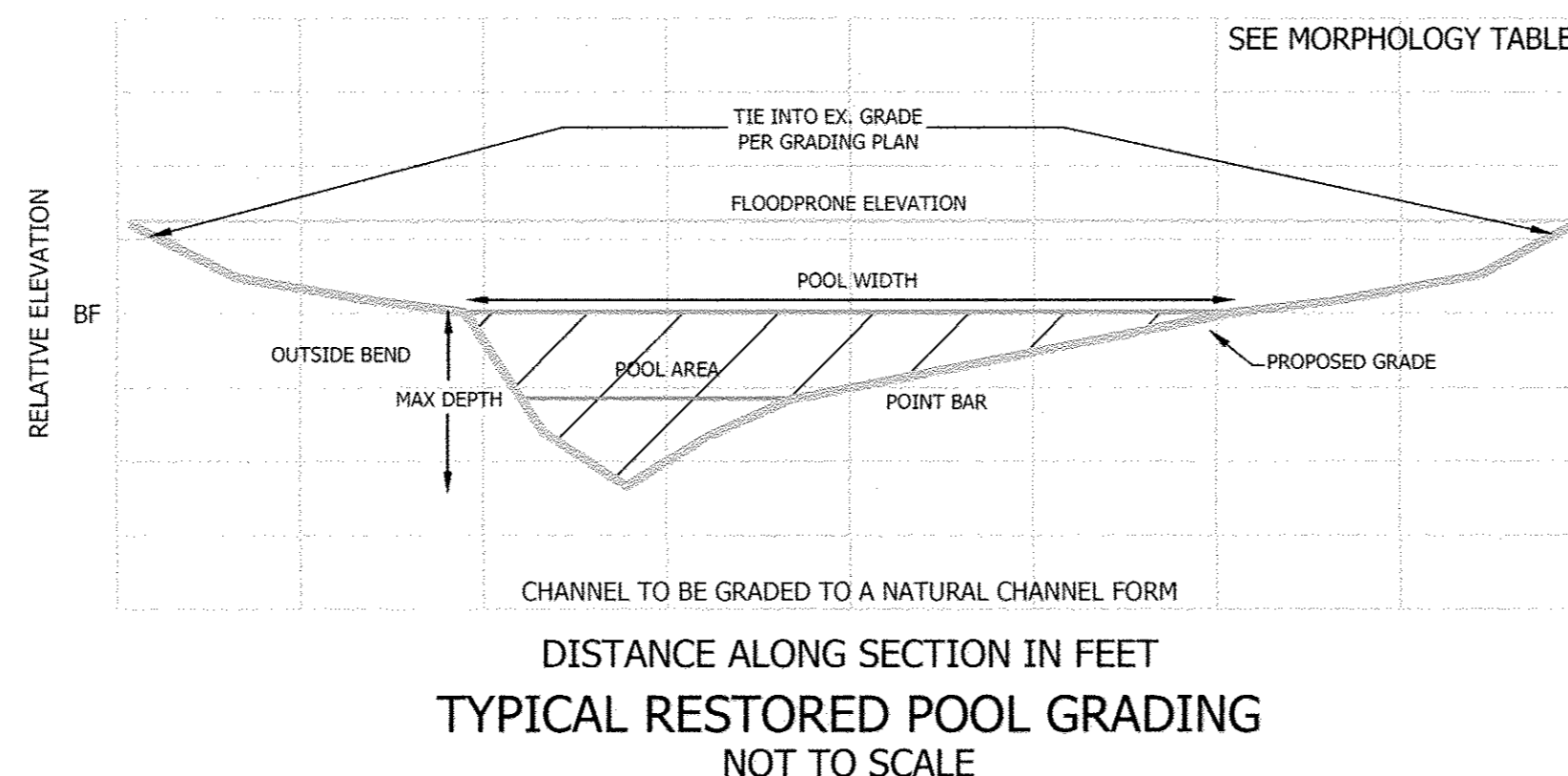
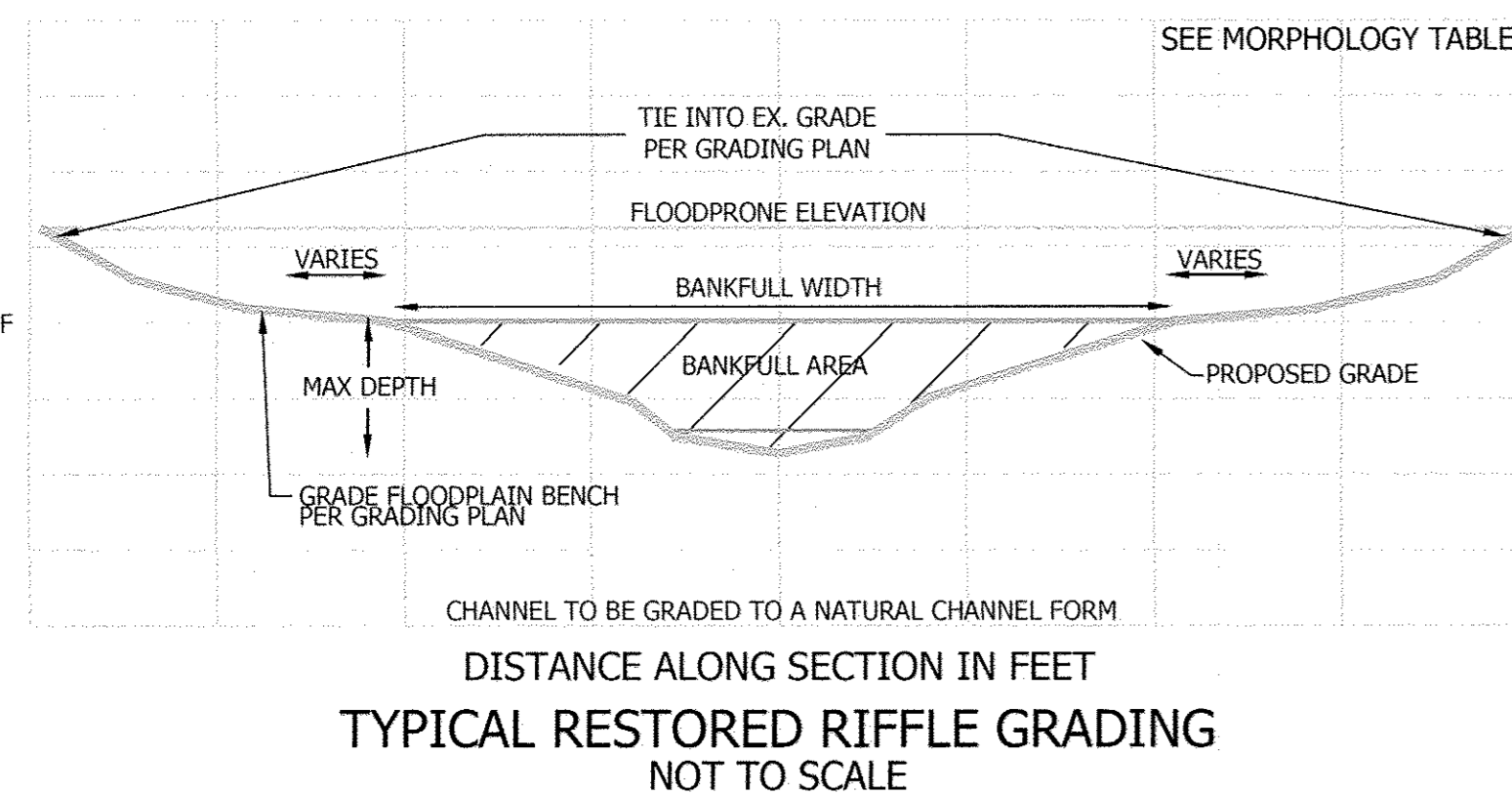
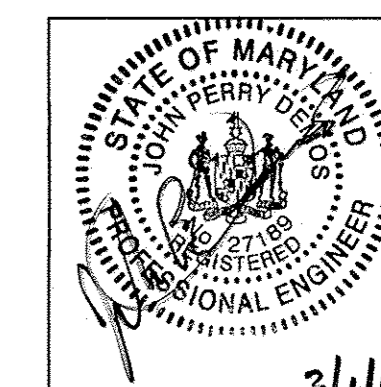
Morphology Table

Reach Stationing	Reach 1 0+00-1+80	Reach 1 1+80-3+06	Reach 1 3+06-6+50	Reach 1 6+50-7+50	Reach 1 7+50-8+81	Reach 2 0+00-2+57	Reach 3 0+00-2+54
Bankfull Width (ft)	7.25	8.5	8.5	11.75	12	7.25	8.5
Bankfull Mean Depth (ft)	0.5	0.55	0.6	0.8	0.8	0.5	0.55
Bankfull Max Depth (ft)	0.7 - 0.9	0.75 - 1.0	0.8 - 1.1	1.0 - 1.4	1.0 - 1.4	0.7 - 0.9	0.75 - 1.0
Bankfull Area (sq ft)	3.6	4.7	5.1	9.4	9.6	3.6	4.7
Pool Width (ft)	8.25 - 9.75	9.35 - 11	9.35 - 11	12.9 - 15.3	13.2 - 15.6	8.25 - 9.75	9.35 - 11
Pool Max Depth (ft)	1.25 - 1.75	1.4 - 1.9	1.4 - 1.9	2.0 - 2.8	2.0 - 2.8	1.25 - 1.75	1.4 - 1.9
Pool Area (sq ft)	3.95 - 4.7	5.2 - 6.1	5.6 - 6.6	10.3 - 12.2	10.6 - 12.5	3.95 - 4.7	5.2 - 6.1
Bankfull Slope (ft/ft)	0.0488	0.0671	0.0285	0.0285	0.0394	0.0414	0.0291
Bankfull Discharge (cfs)	12.5	20	20	45	45	12.5	20
Drainage Area (ft²)	12.4	19.1	22.8	44.47	45.42	5.3	20.03

*MEAN DEPTH CALCULATED AS AREA/WIDTH

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Approved: *[Signature]*
Howard SCD 3/17/17



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CHIEF, BUREAU OF HIGHWAYS *[Signature]* DATE: 3-16-17

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* DATE: 3-16-17

CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* DATE: 3-16-17

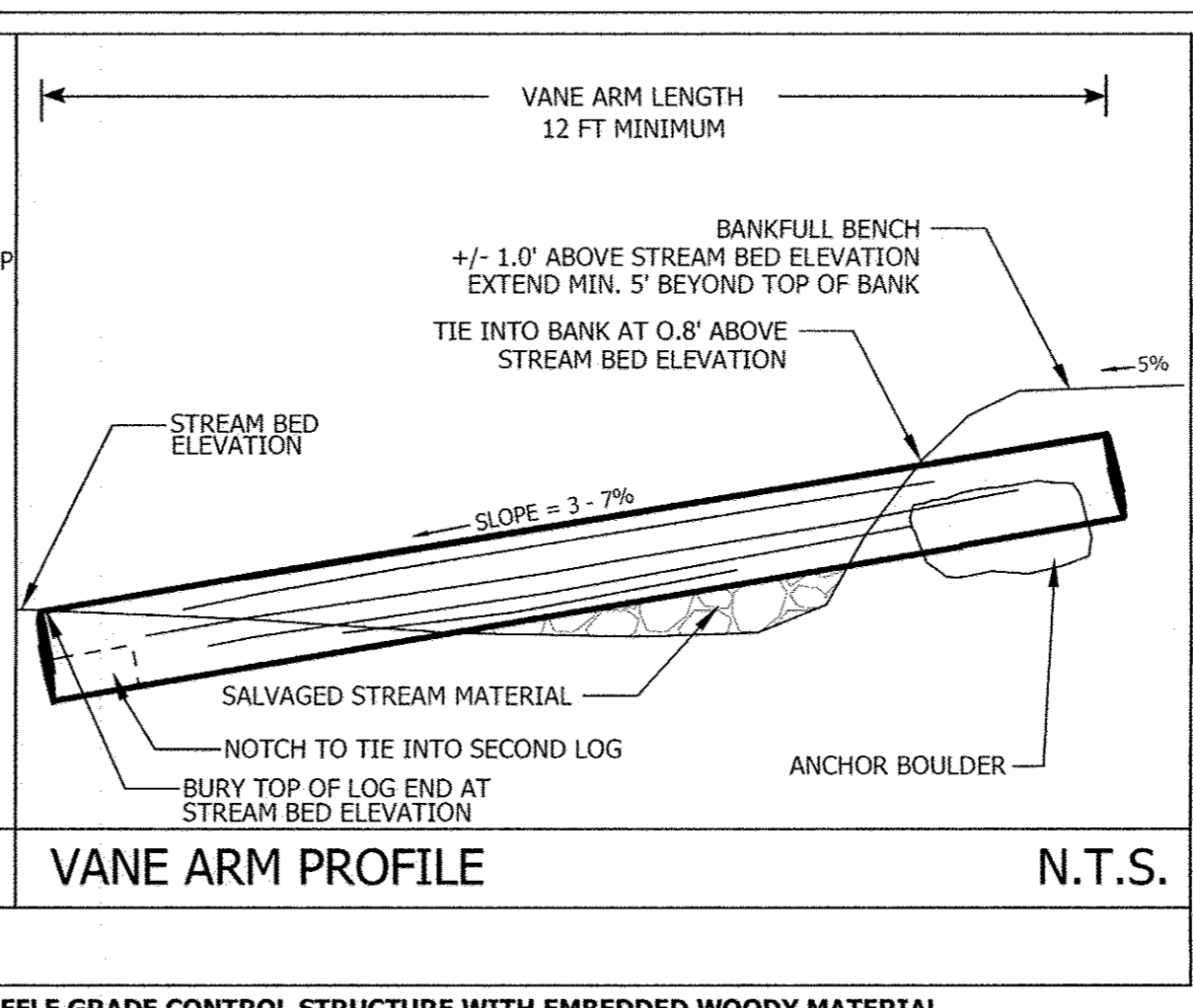
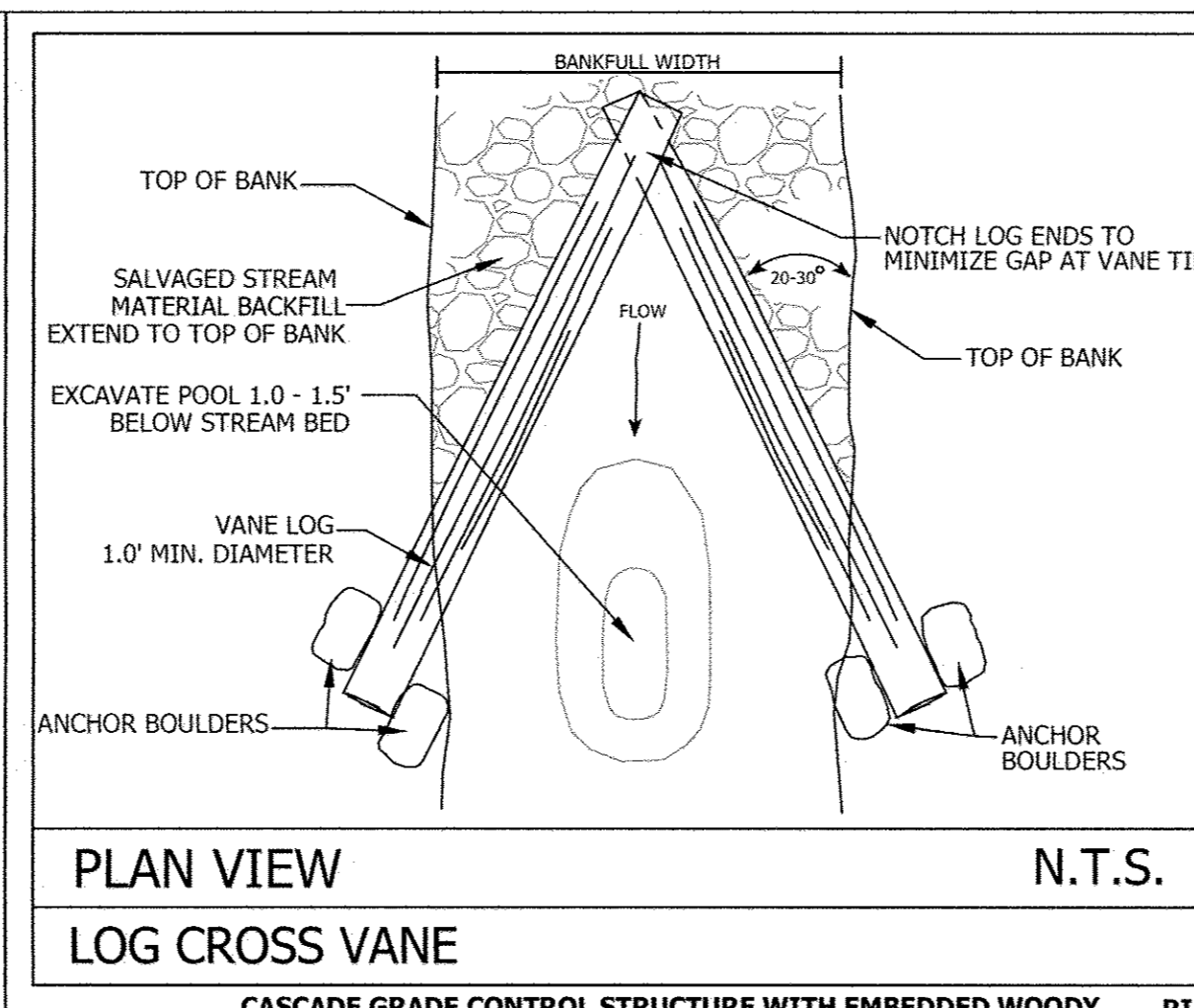
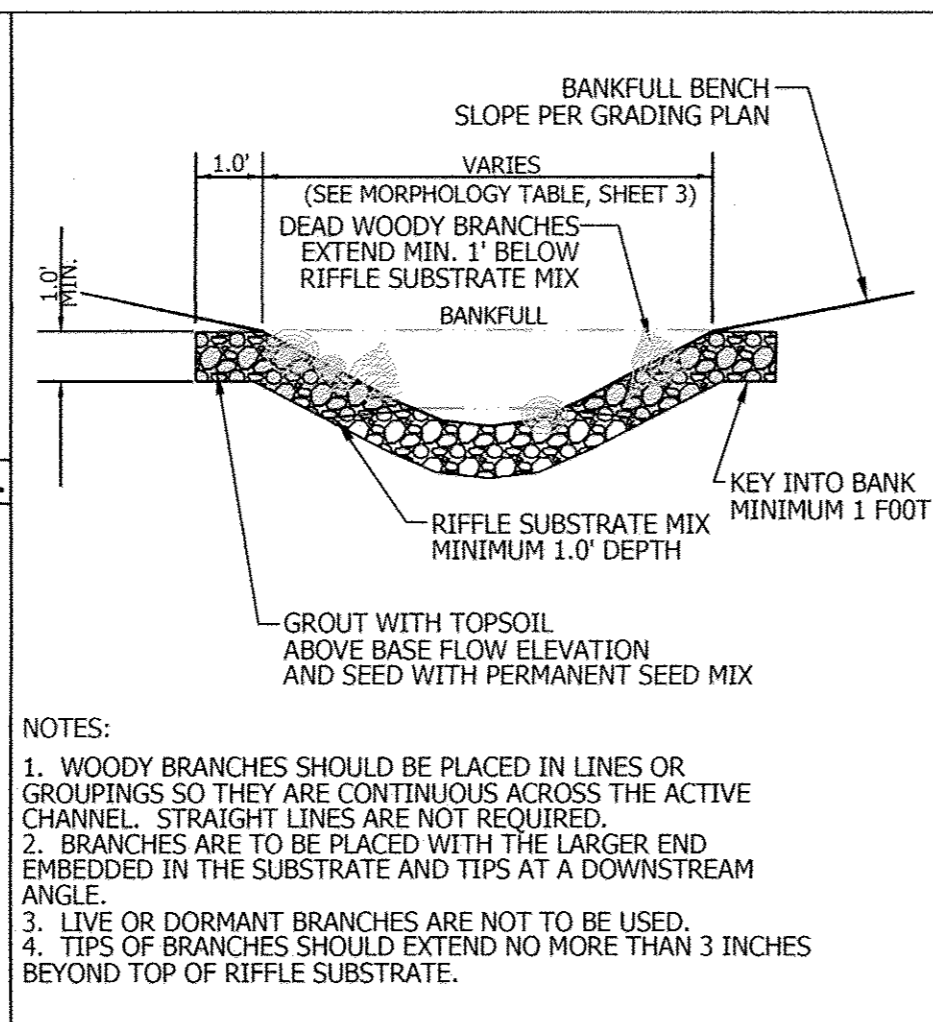
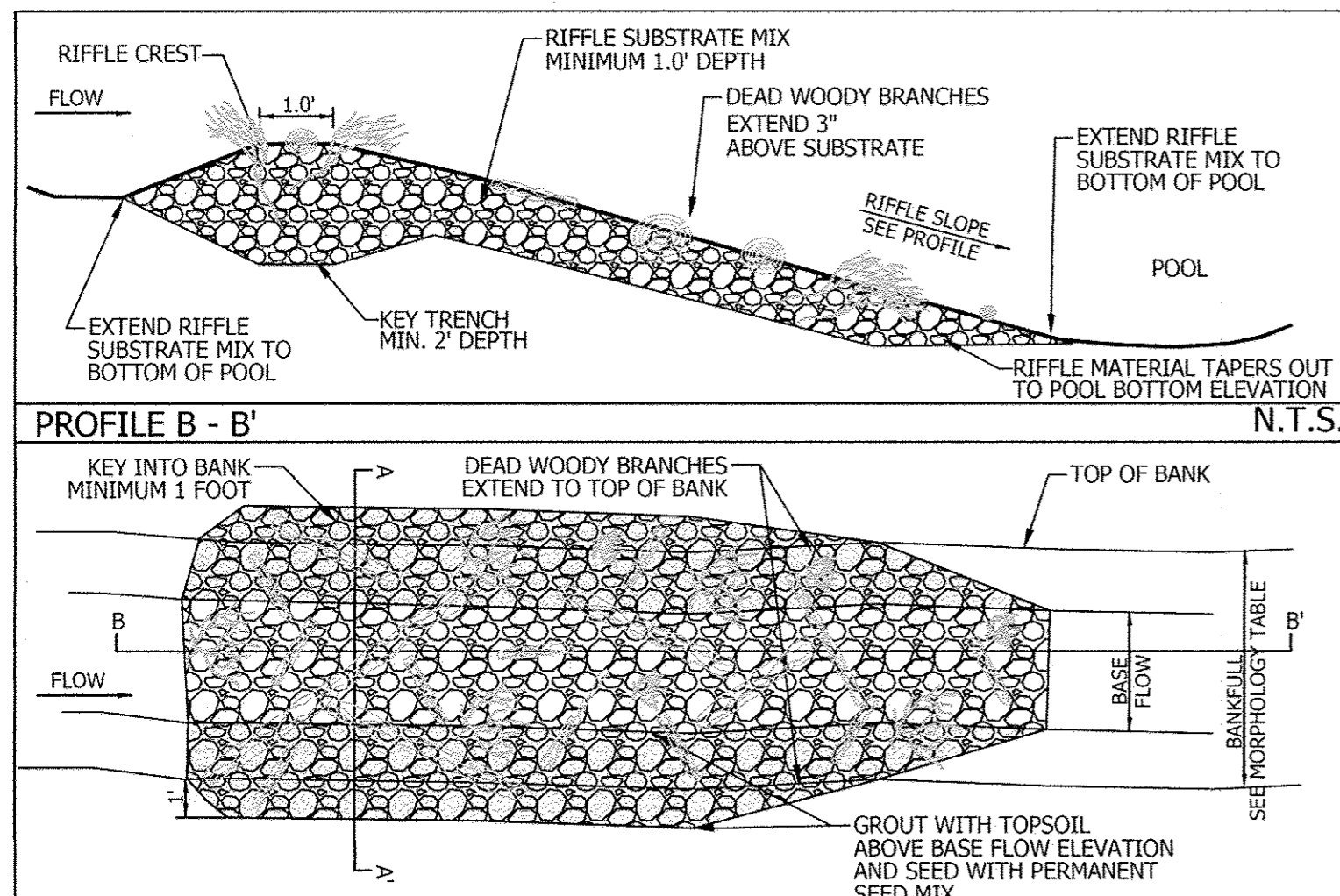
FAIRLANE FARM
STREAM RESTORATION PROFILES AND CROSS SECTIONS
15320 & 15250 OLD FREDERICK RD, WOODBINE, MD 21797

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(410) 420 2600 • Fax (410) 420 6983 • www.ecotoneinc.com

REVISIONS

NO.	DATE	DESCRIPTION	REV. BY
1	11/12/16	COMMENTS FROM HOWARD COUNTY ESD	JHL
2	11/23/16	COMMENTS FROM HOWARD COUNTY SCD	JHL
3	12/08/17	REVISIONS PER ESD COMMENTS	CEH

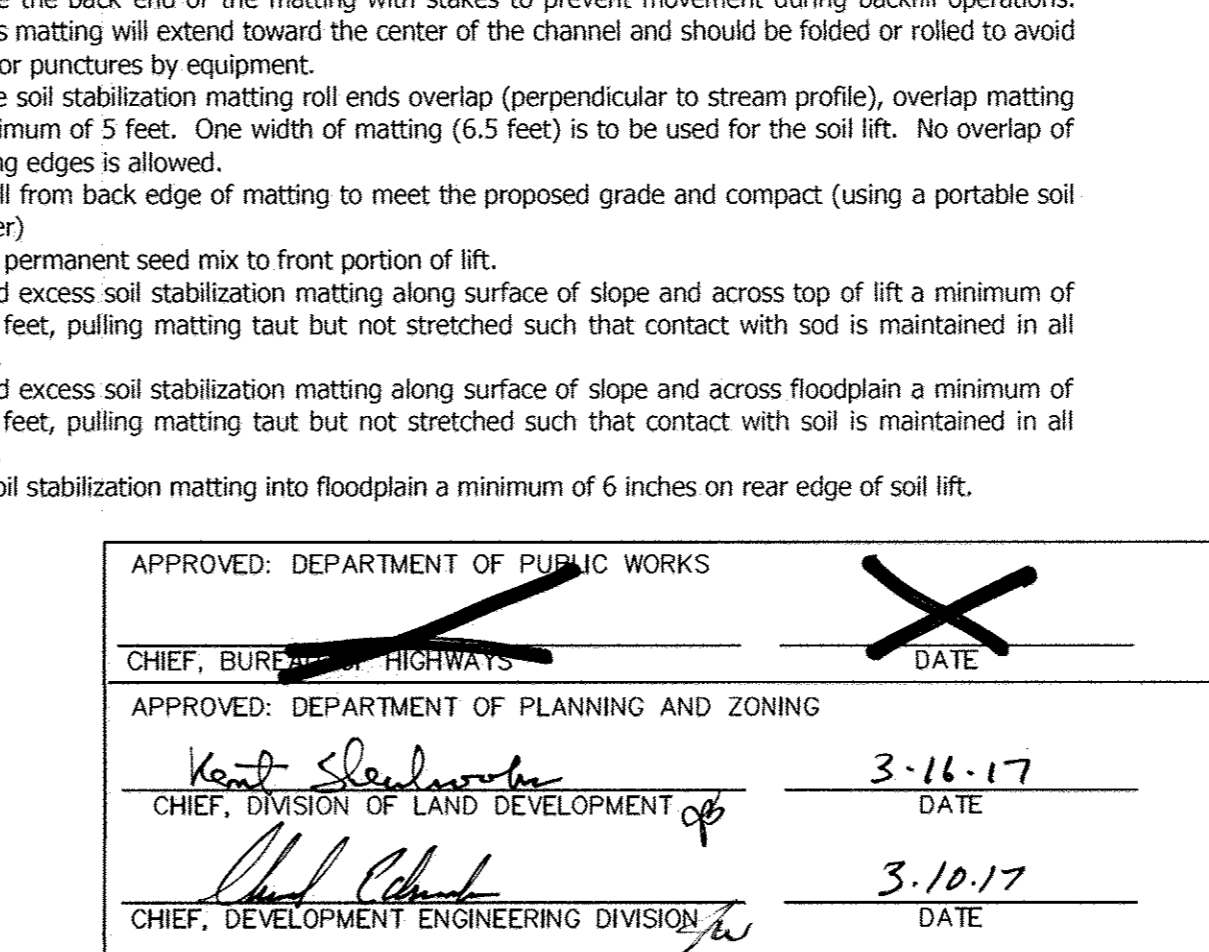
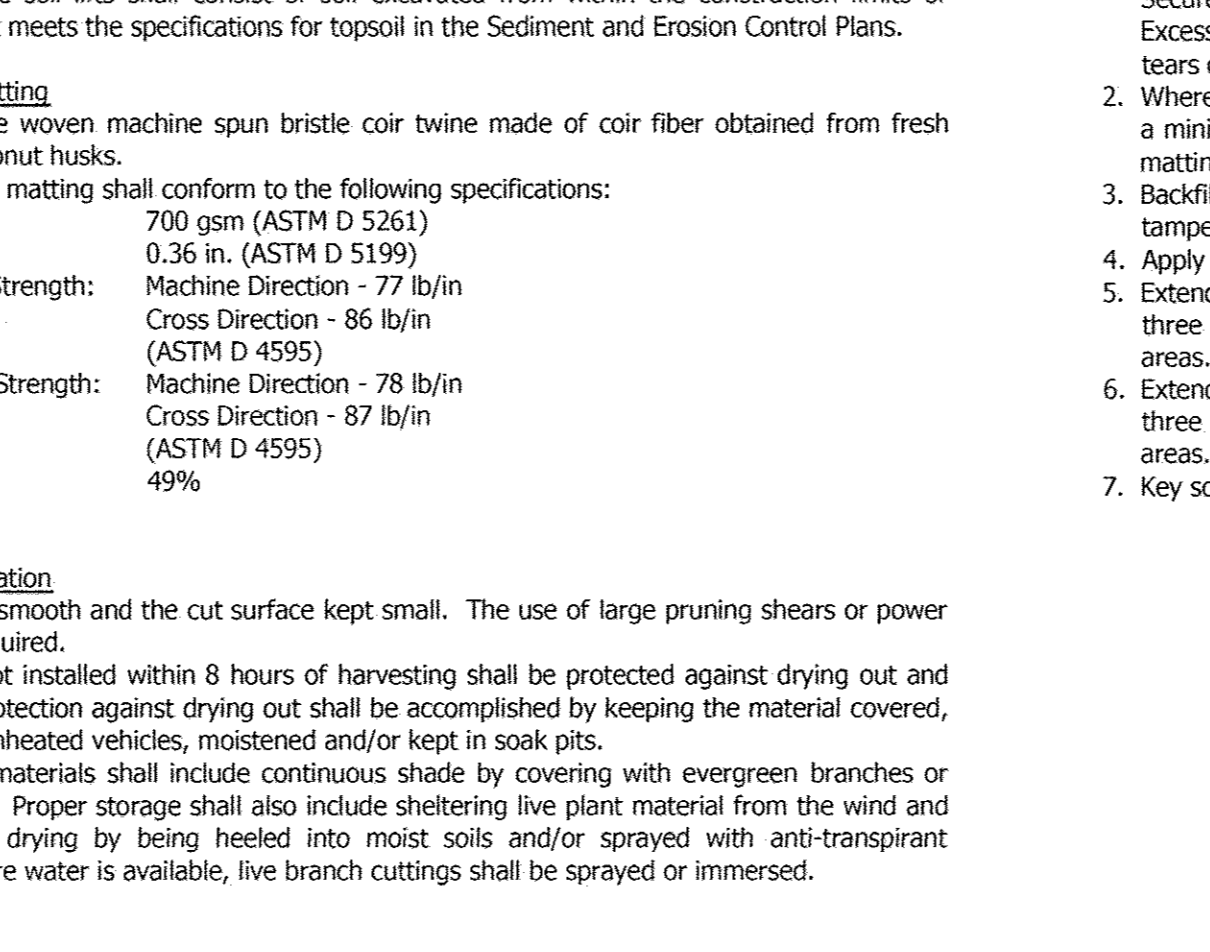
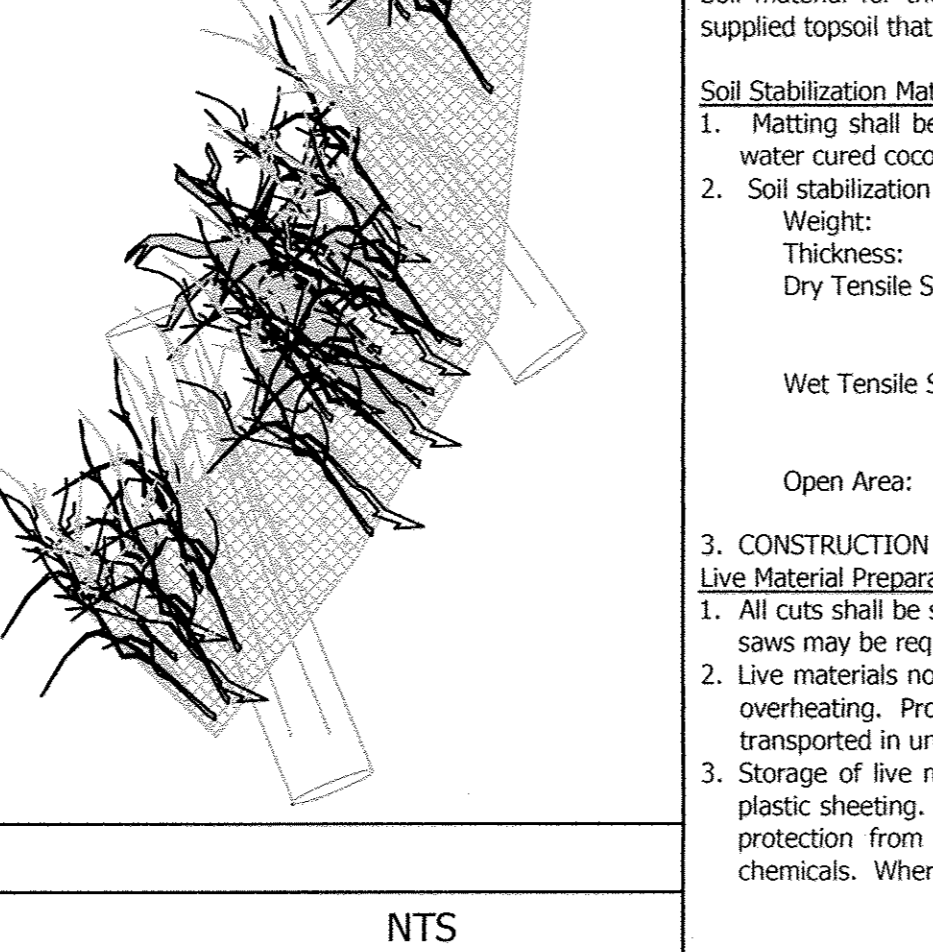
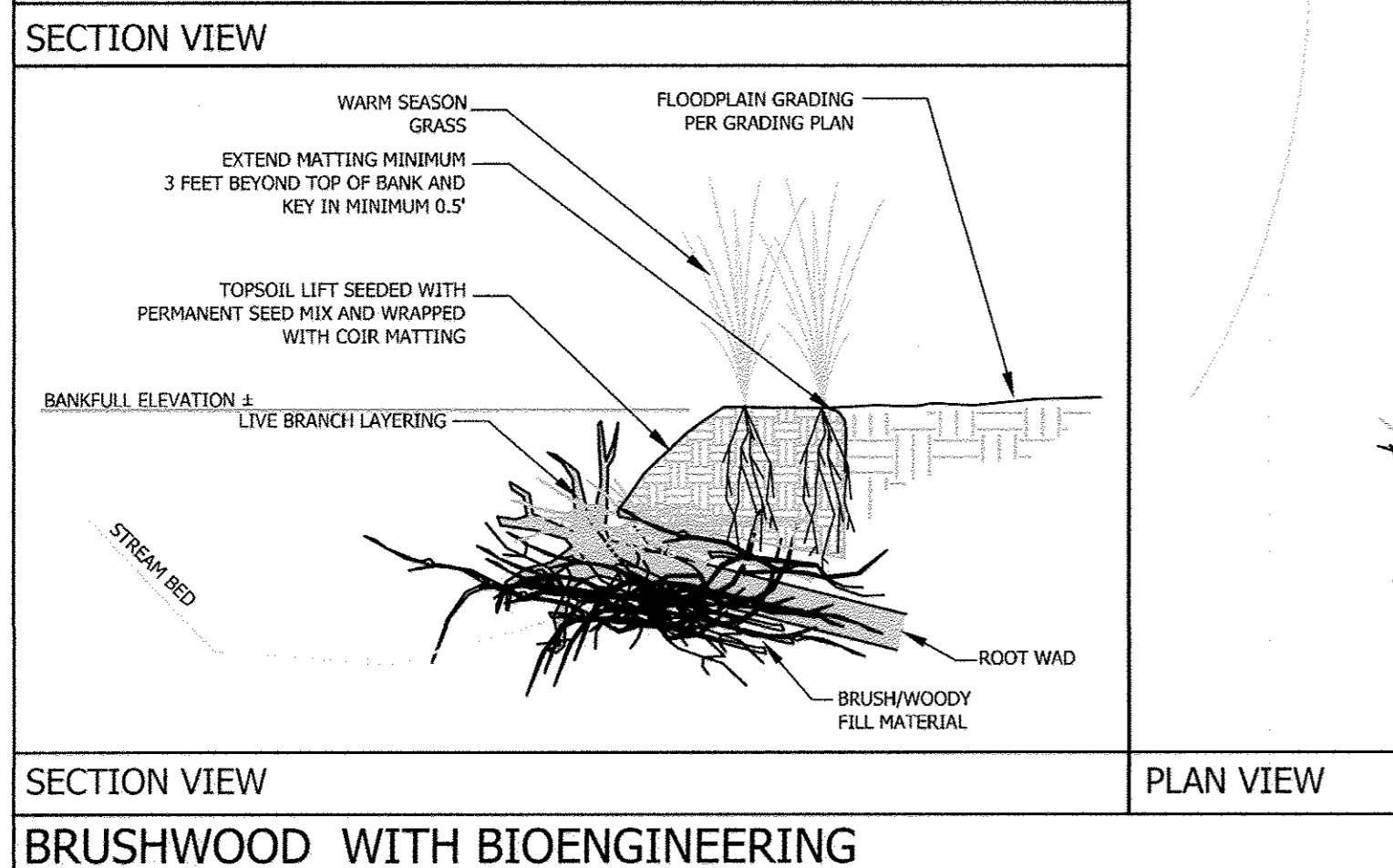
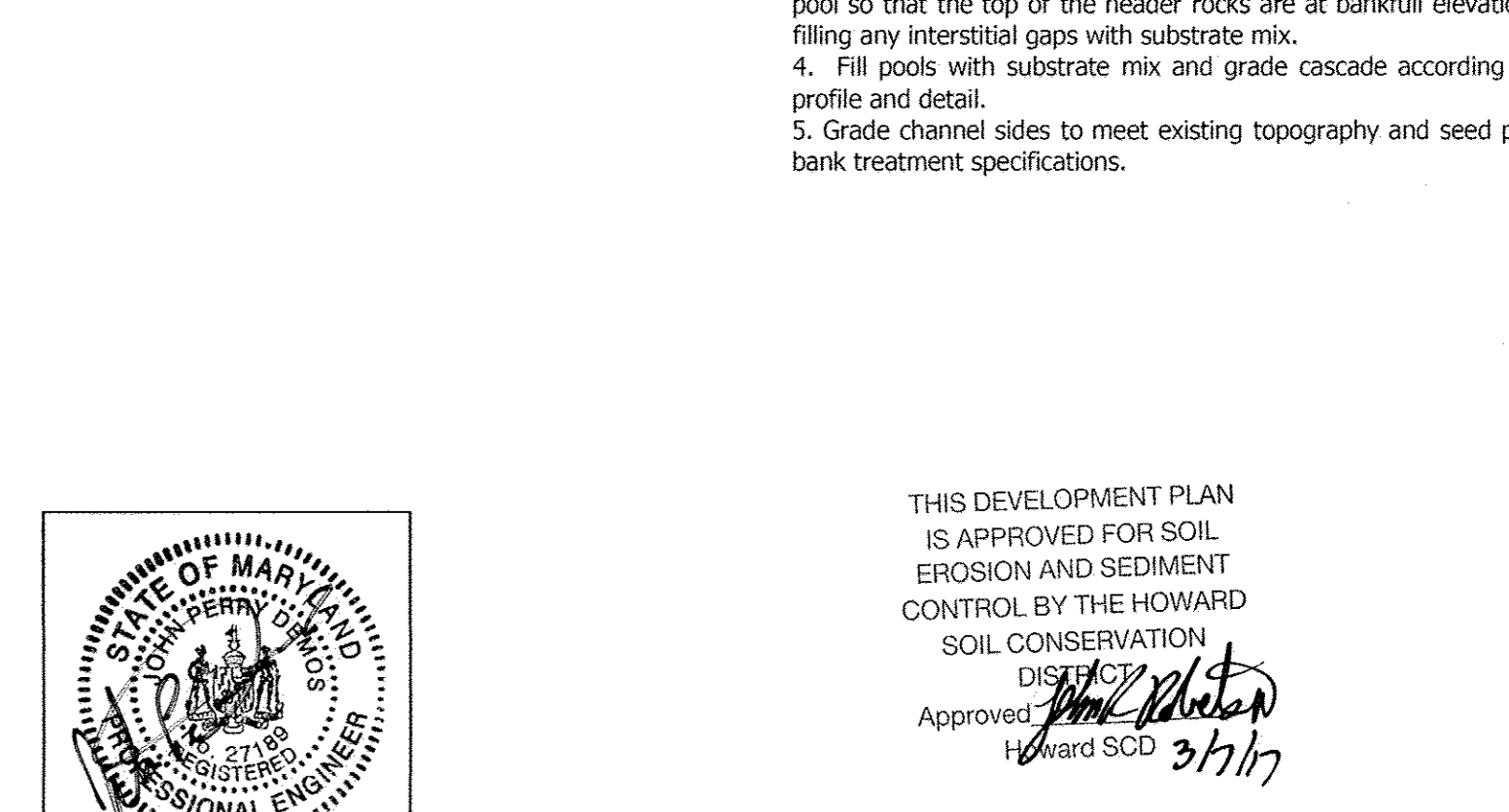
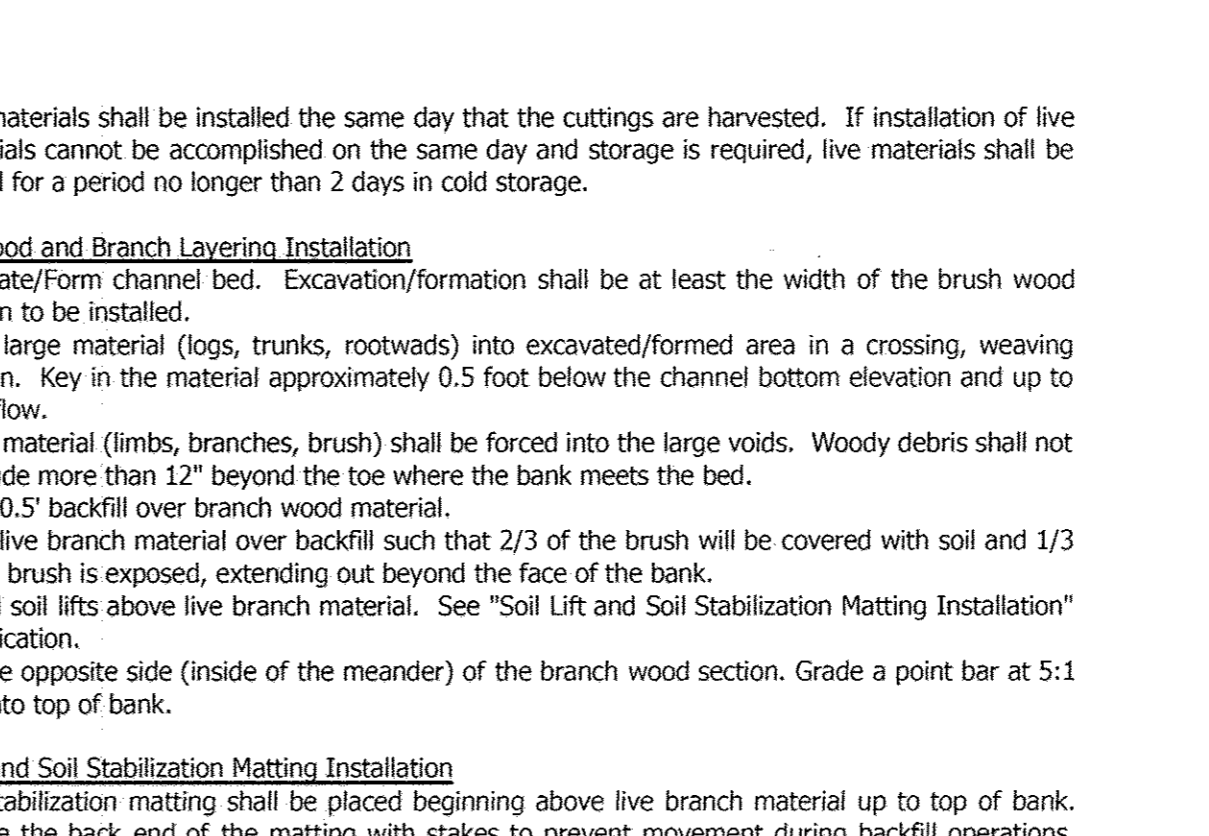
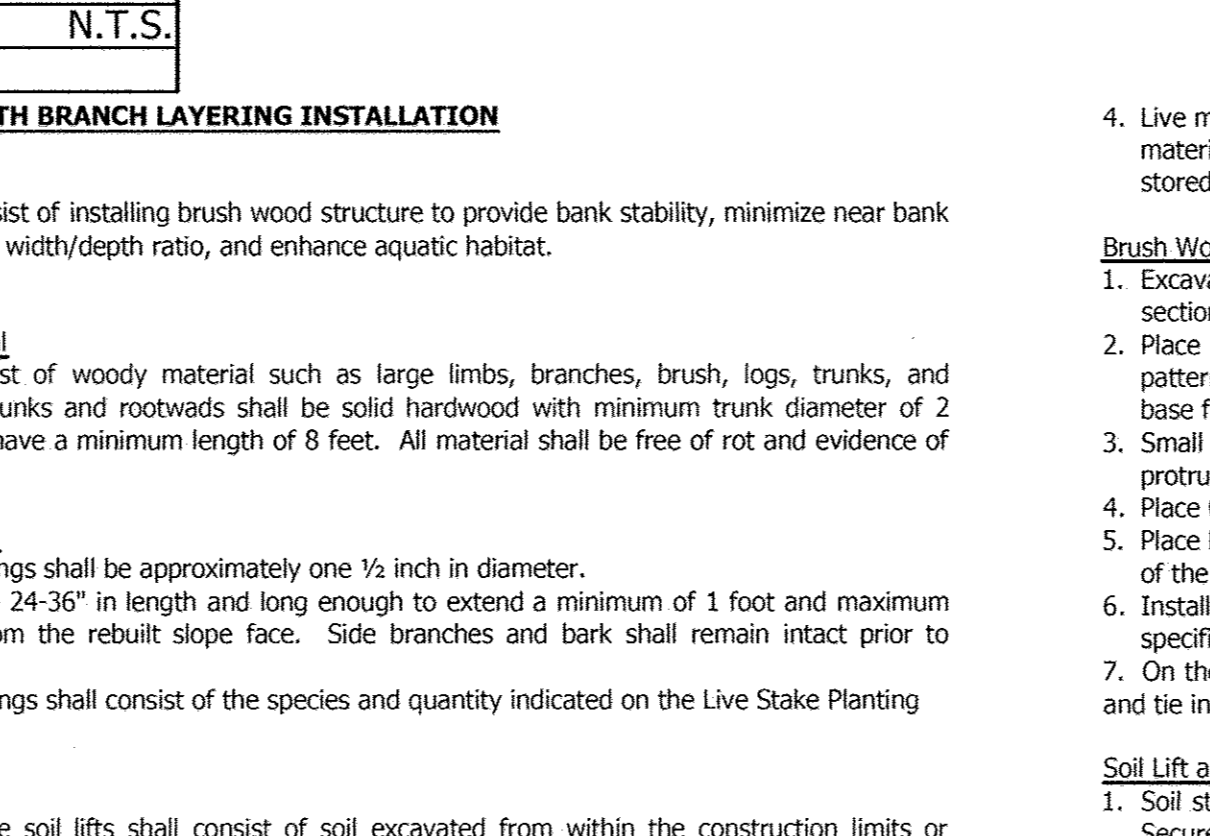
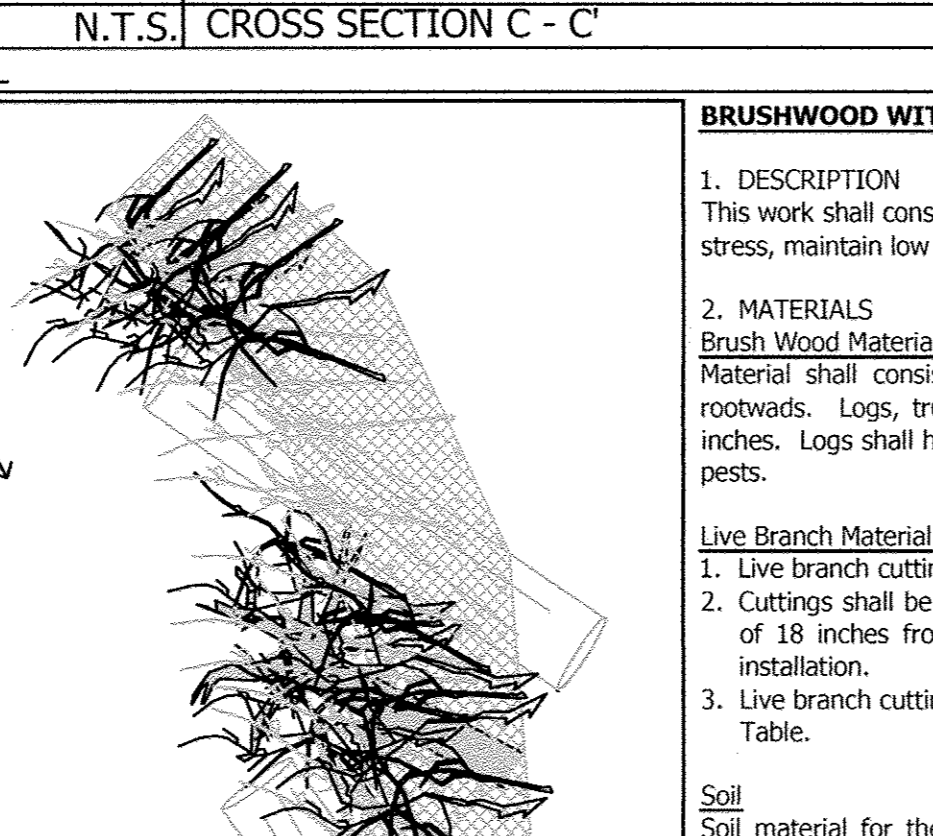
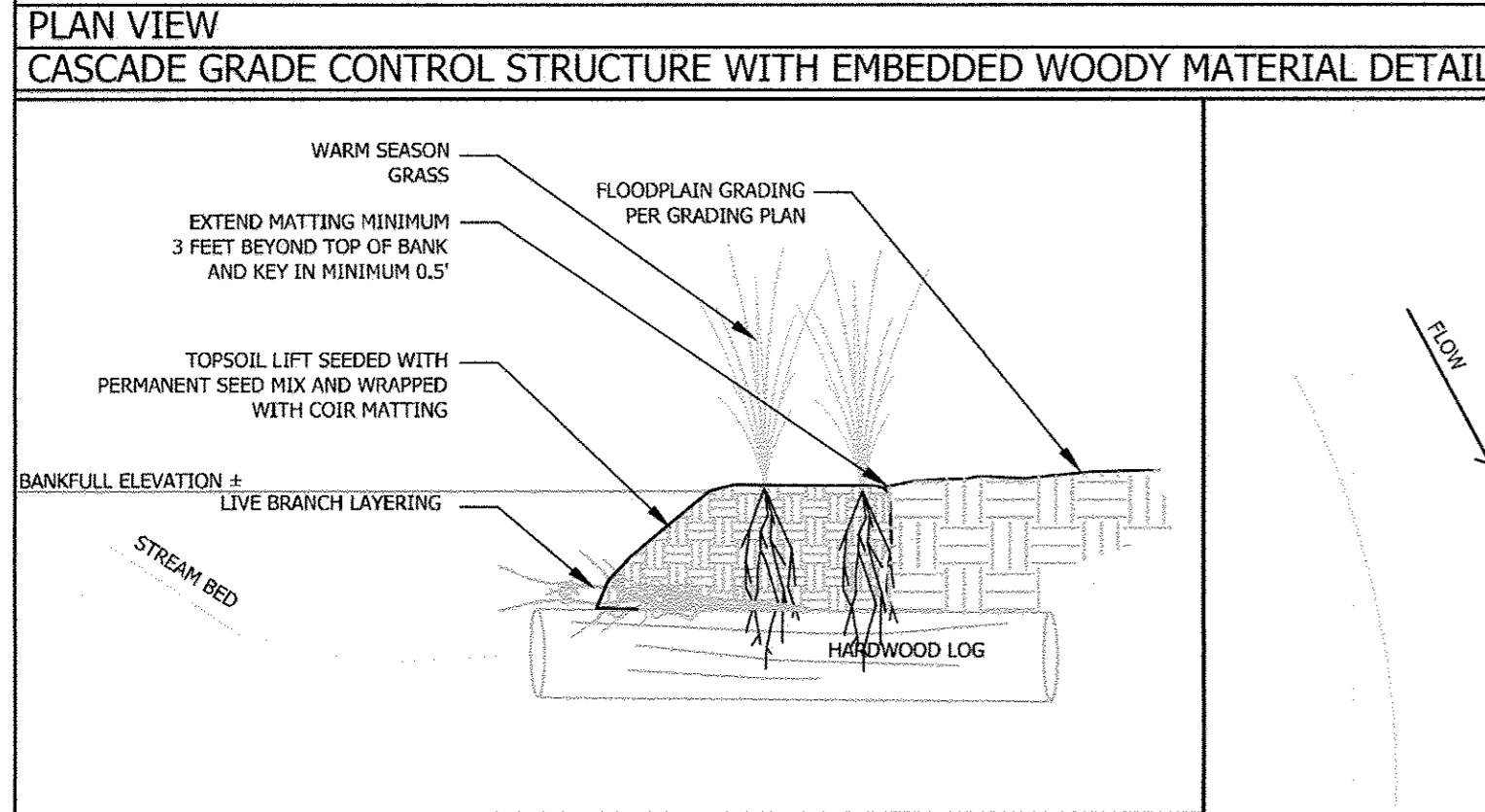
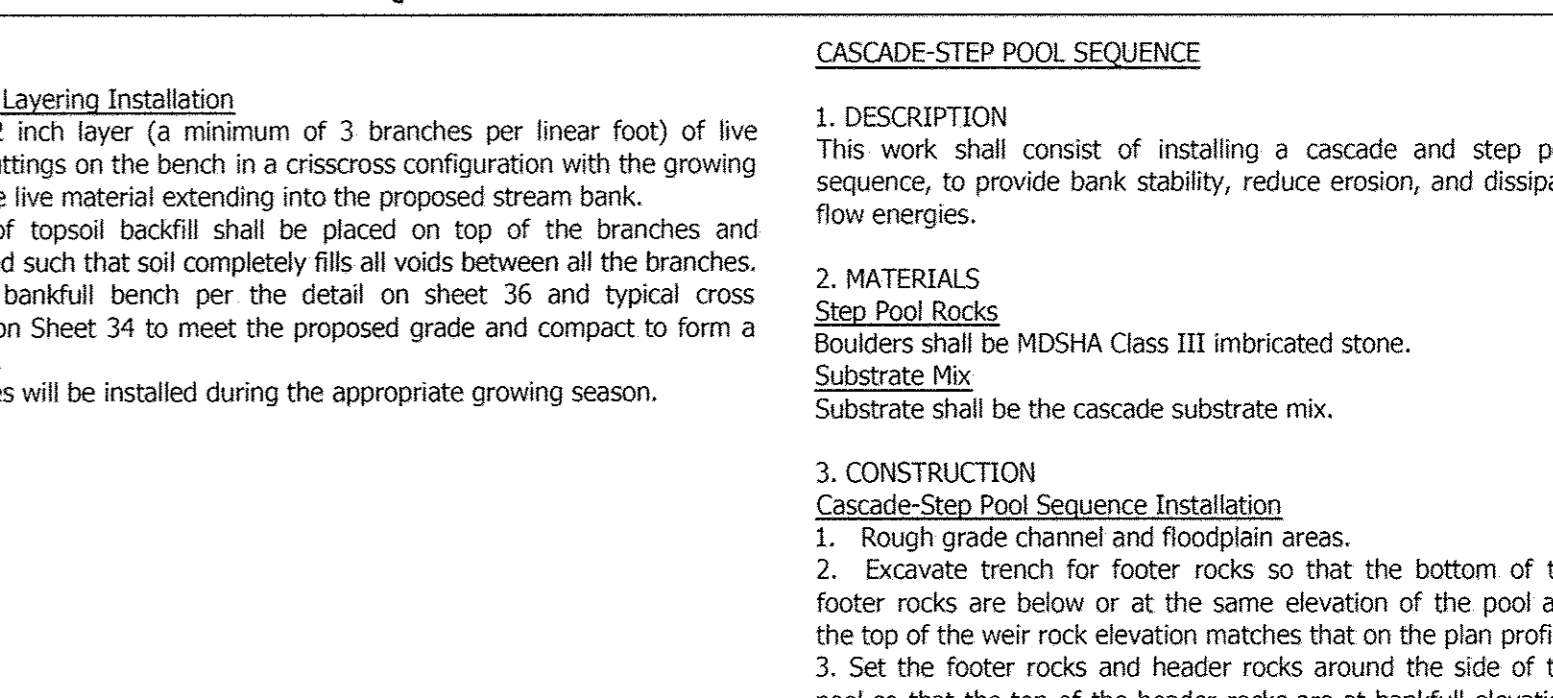
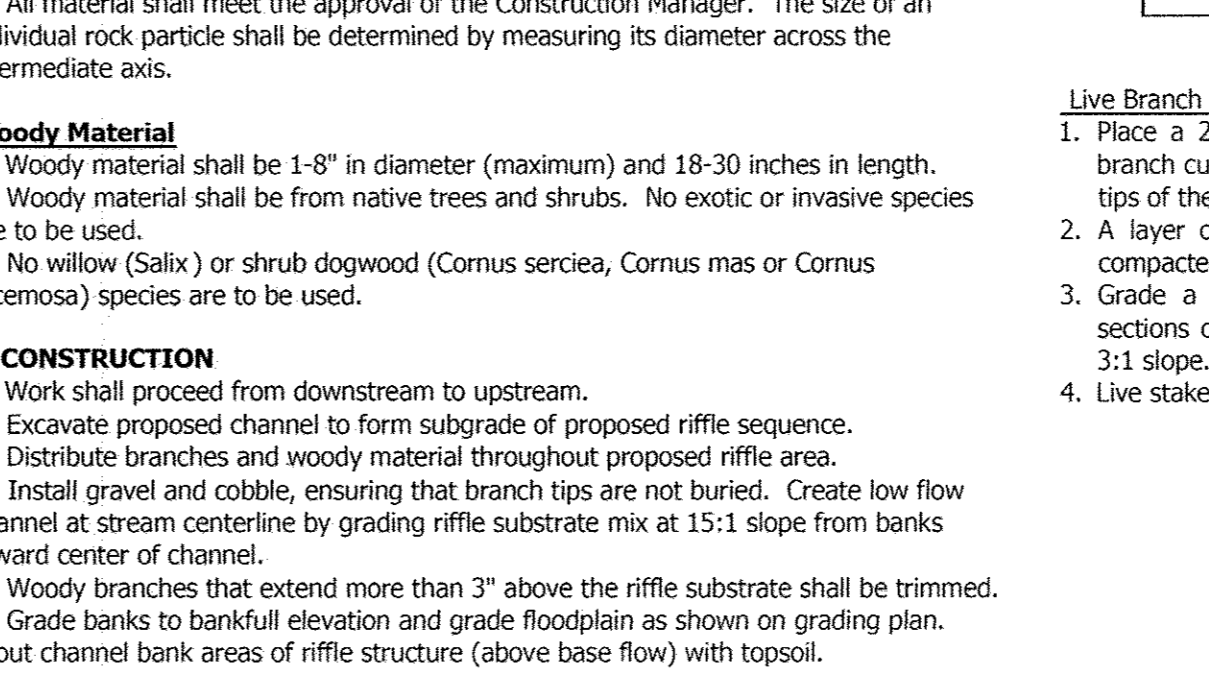
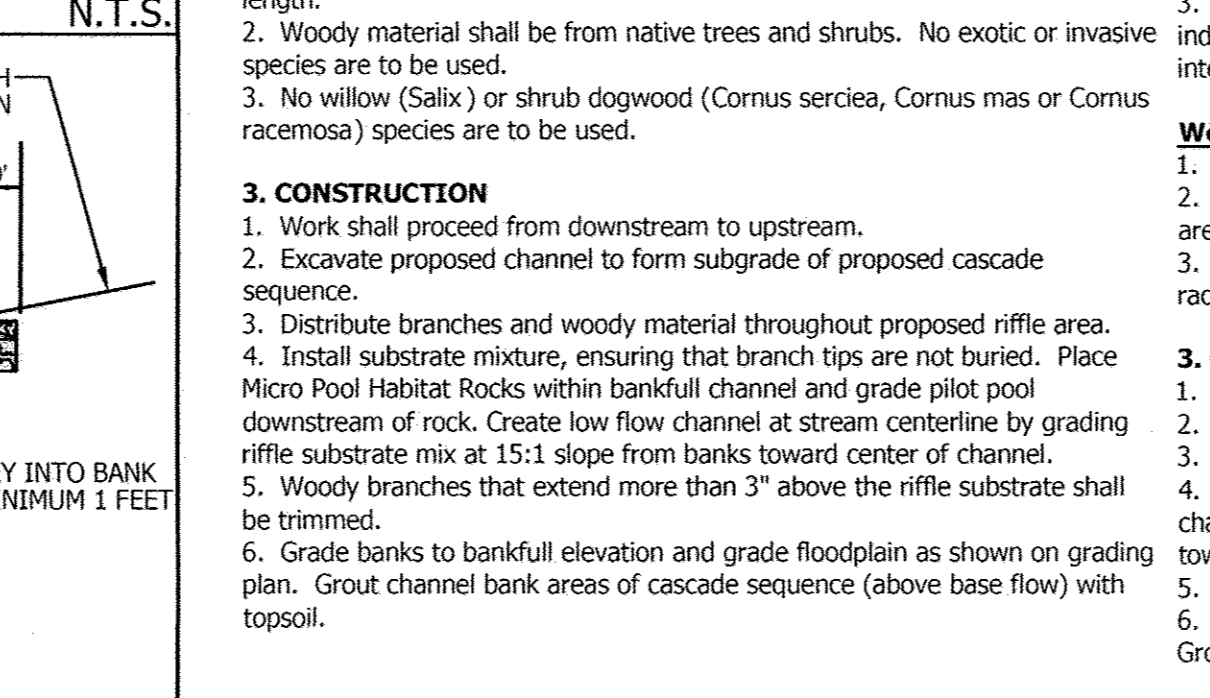
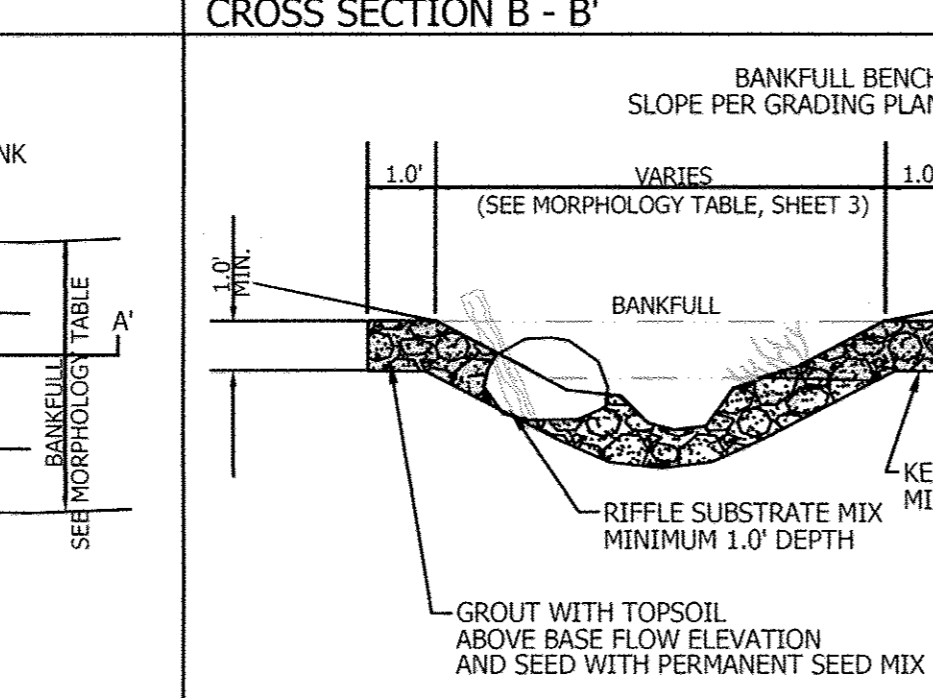
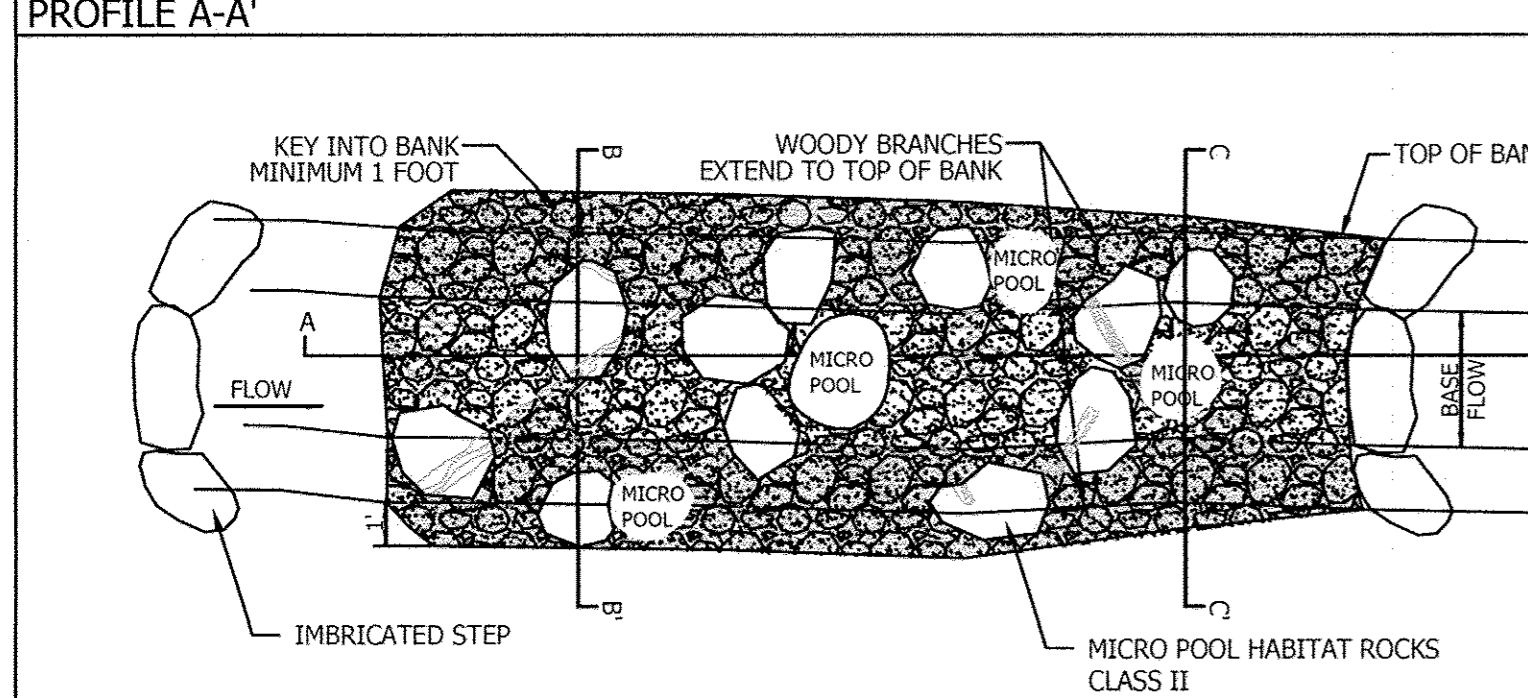
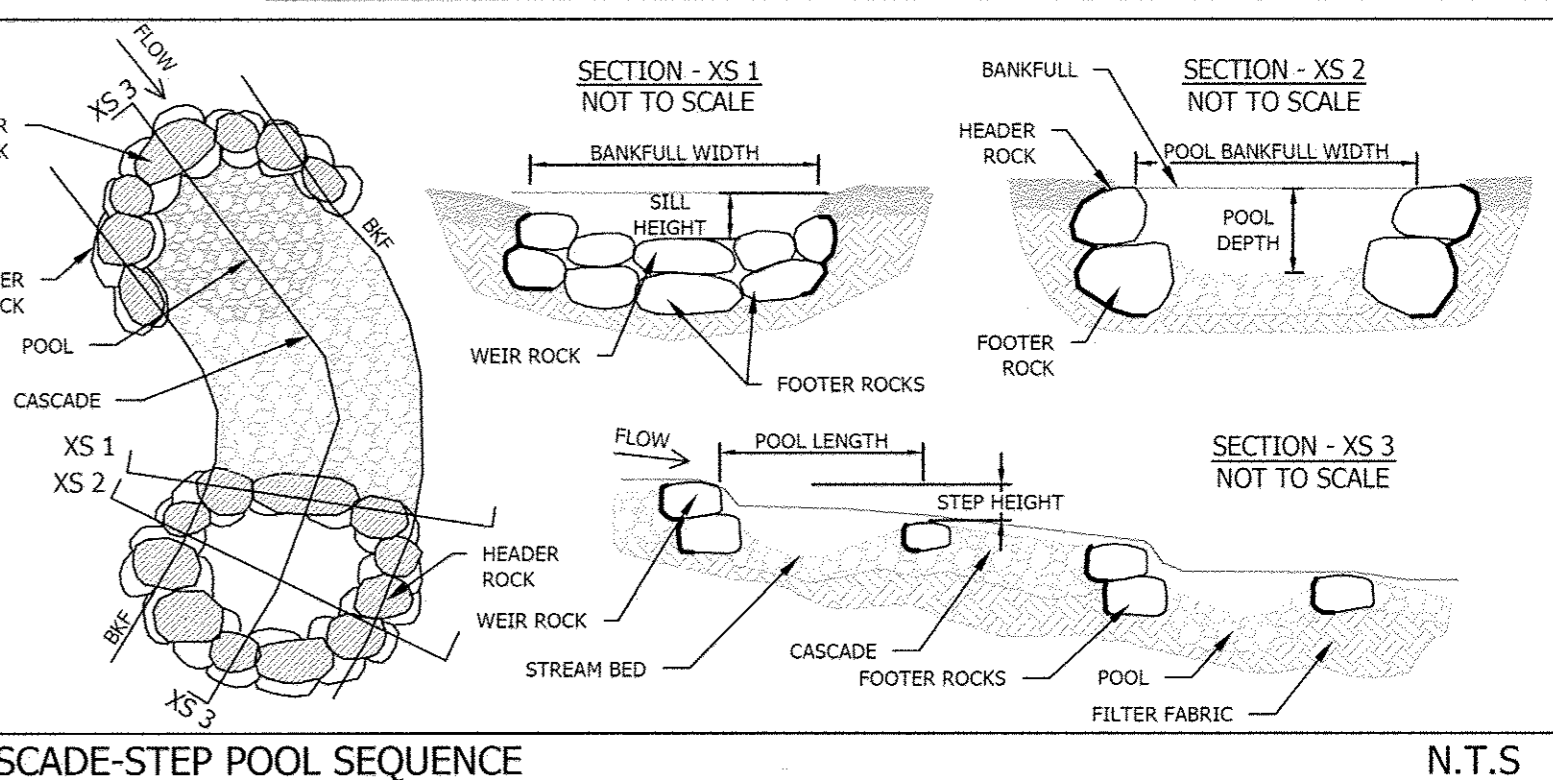
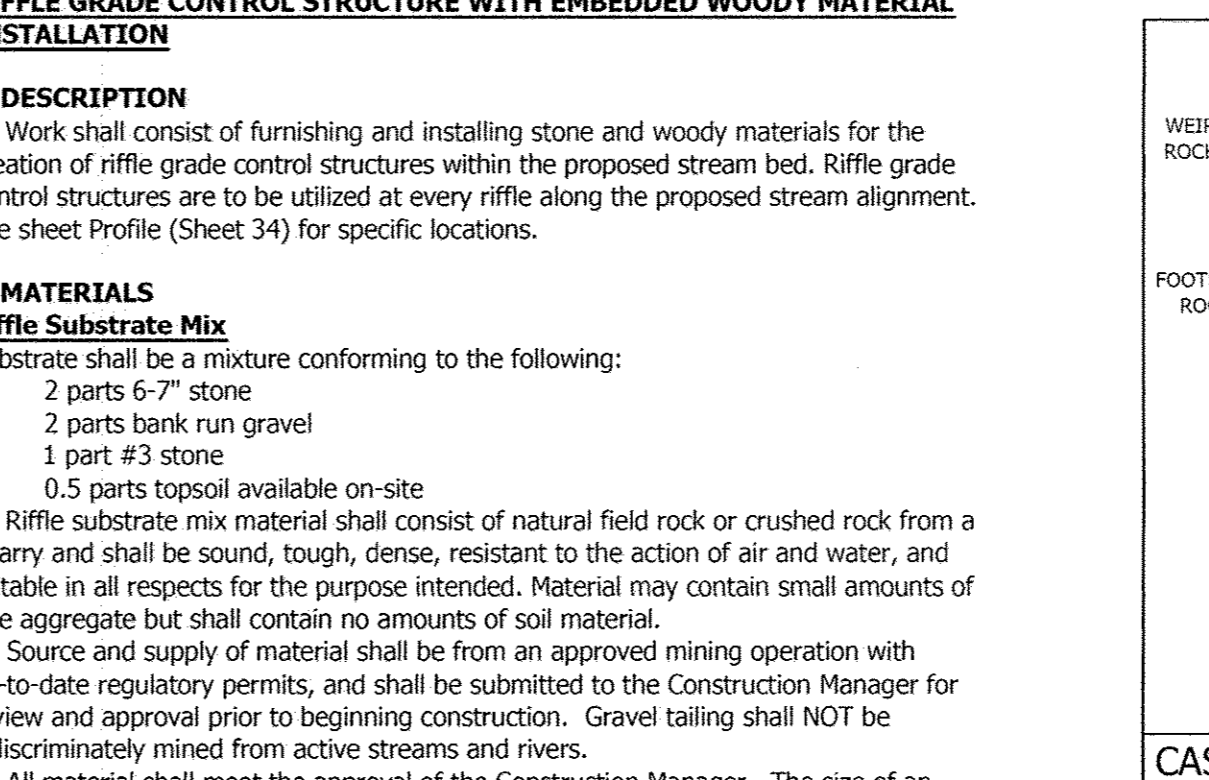
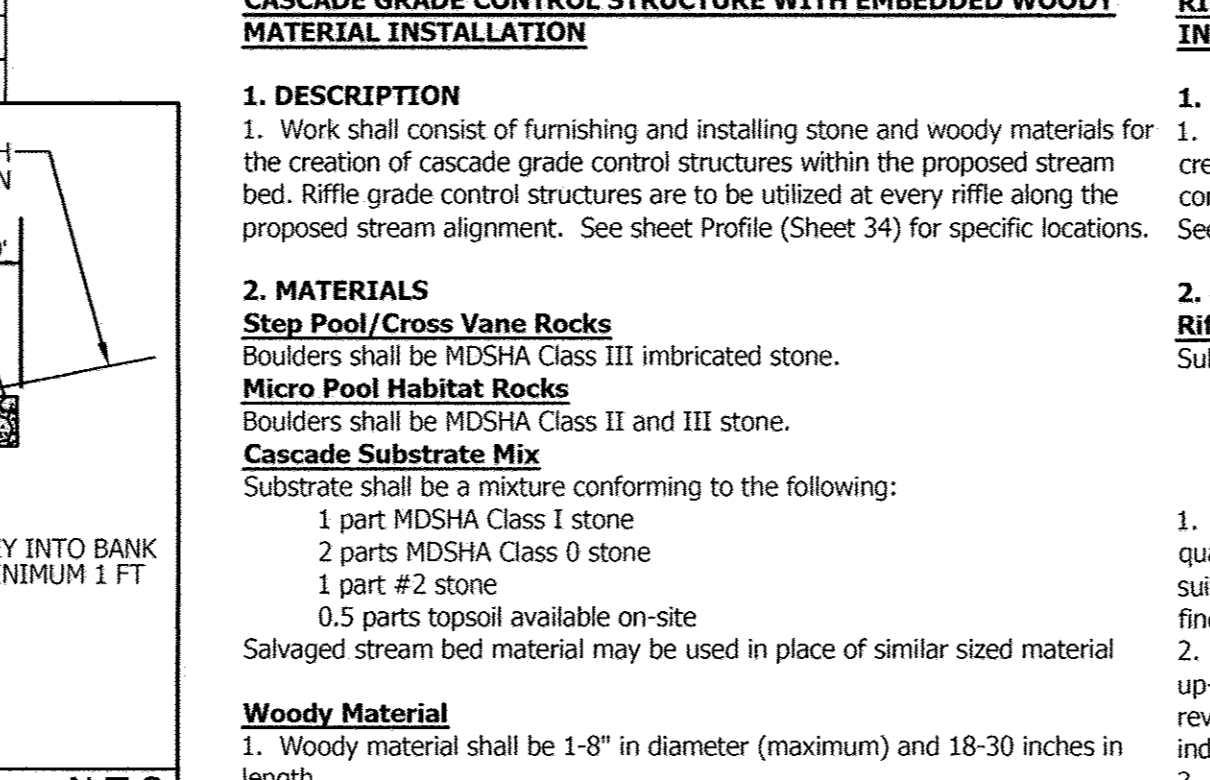
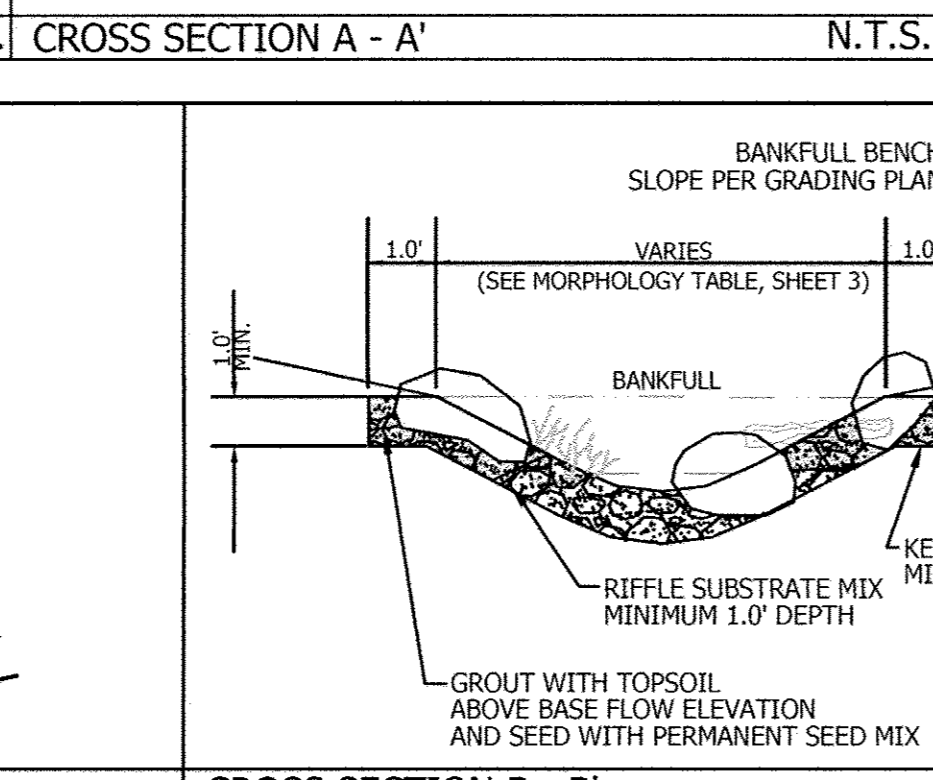
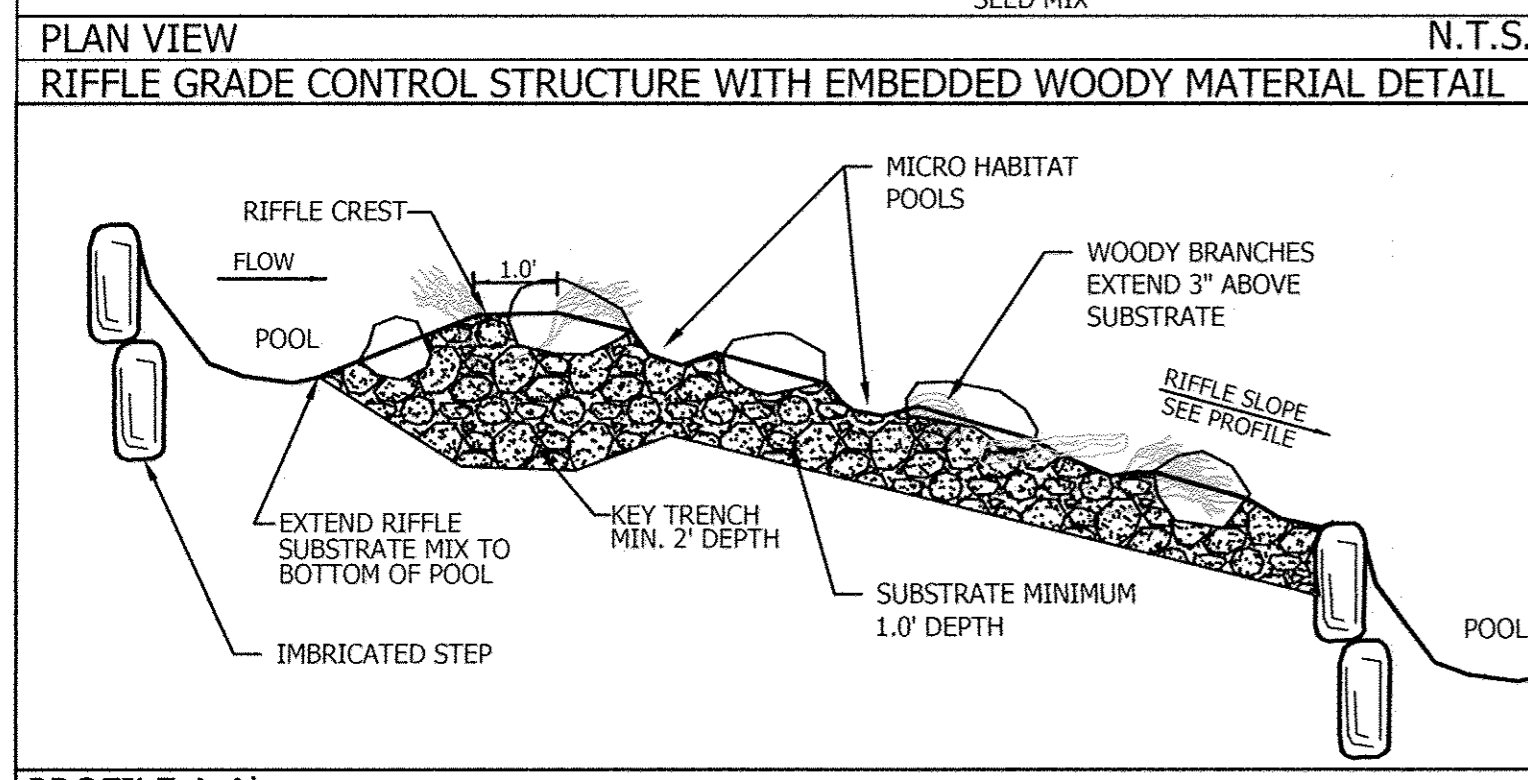
CHECKED BY: SGM/CEH
DESIGNED: CEH/CTS
DRAWN: CTS
PROJECT No.: 1541
DATE: 2/28/2017
SHEET: 34 of 36



LIVE BRANCH LAYERING PLANT LIST			
Botanical Name	Common Name	Spacing	Quantity
Salix interior	Sandbar Willow		
Salix nigra	Black Willow		
Cornus amomum	Silky Dogwood		
Salix sericea	Silky Willow		

WARM SEASON GRASSES PLANT LIST			
Botanical Name	Common Name	Spacing	Quantity
Panicum virgatum	Switchgrass	5' triangular	470
Schizachyrium scoparium	Little Bluestem	5' triangular	470

LIVE STAKE PLANT LIST			
Botanical Name	Common Name	Spacing	Quantity
Cornus sericea	Red Osier Dogwood	2-3' triangular	250
Cornus amomum	Silky Dogwood	2-3' triangular	250
Salix nigra	Black Willow	2-3' triangular	250



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Approved: *[Signature]*
Howard SCD 3/1/17

3/1/17

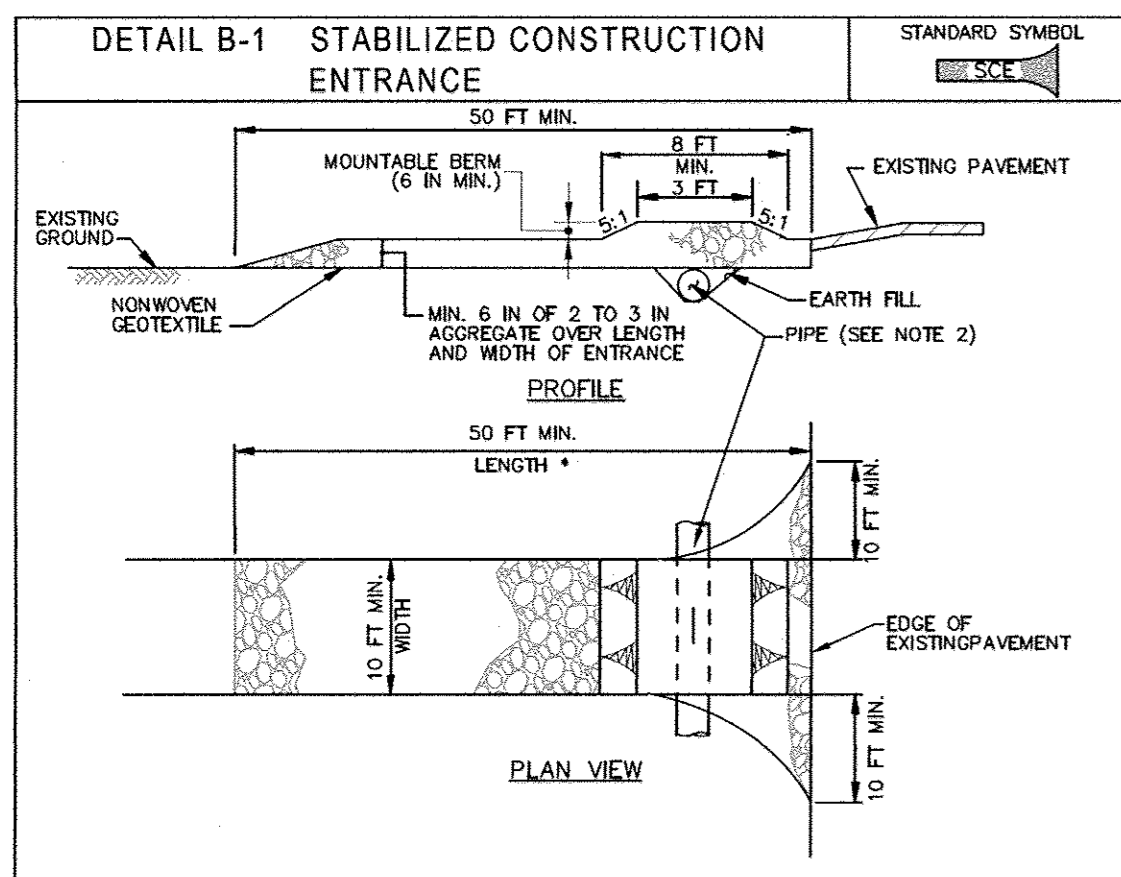
FAIRLANE FARM
STREAM RESTORATION DETAILS
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REVISIONS			
NO.	DATE	DESCRIPTION	REV. BY
1	1/11/2014	COMMENTS FROM HOWARD COUNTY DEC	SGM
2	1/12/2014	COMMENTS FROM HOWARD COUNTY AGD	SGM
3	1/28/2015	REVISIONS FOR AGD COMMENTS	CGM

CHECKED BY: SGM
DESIGNED: CEH/CTS
DRAWN: CTS
PROJECT No.: 1541
DATE: 2/28/2017
SHEET: 35 of 36

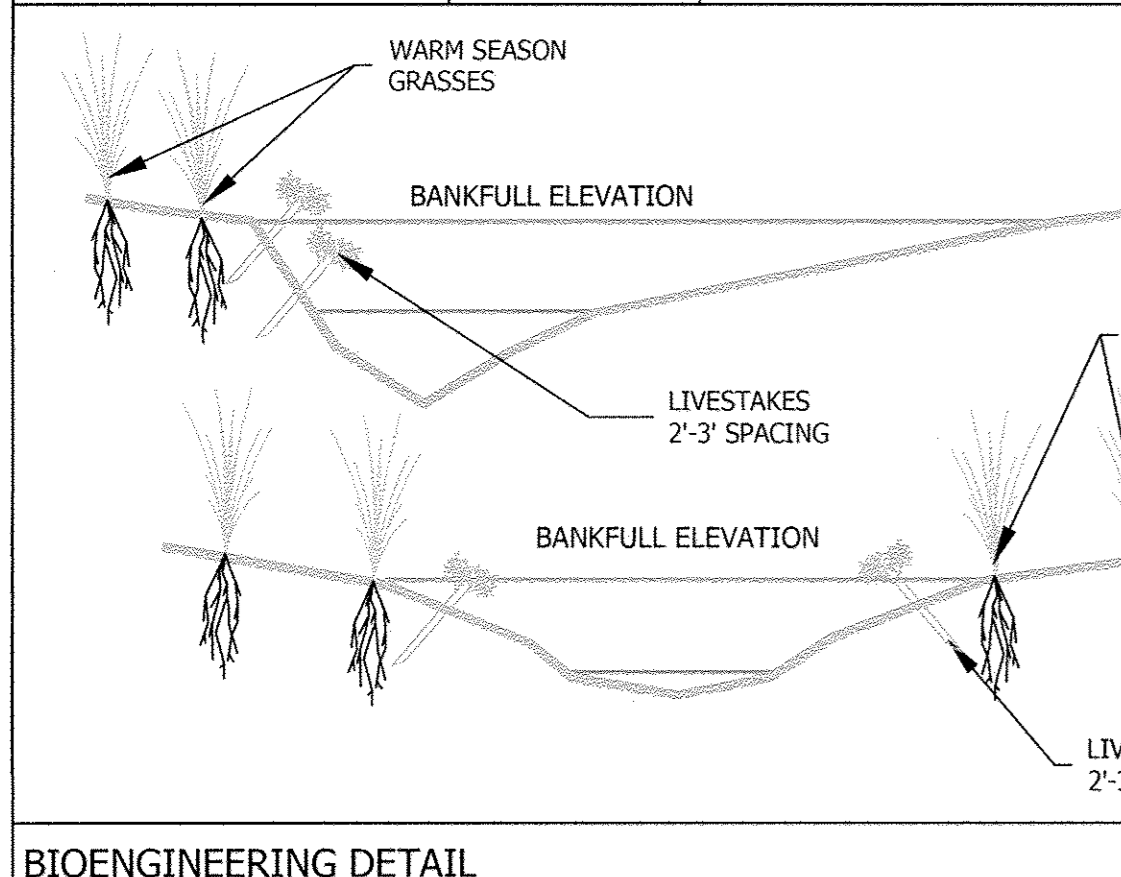
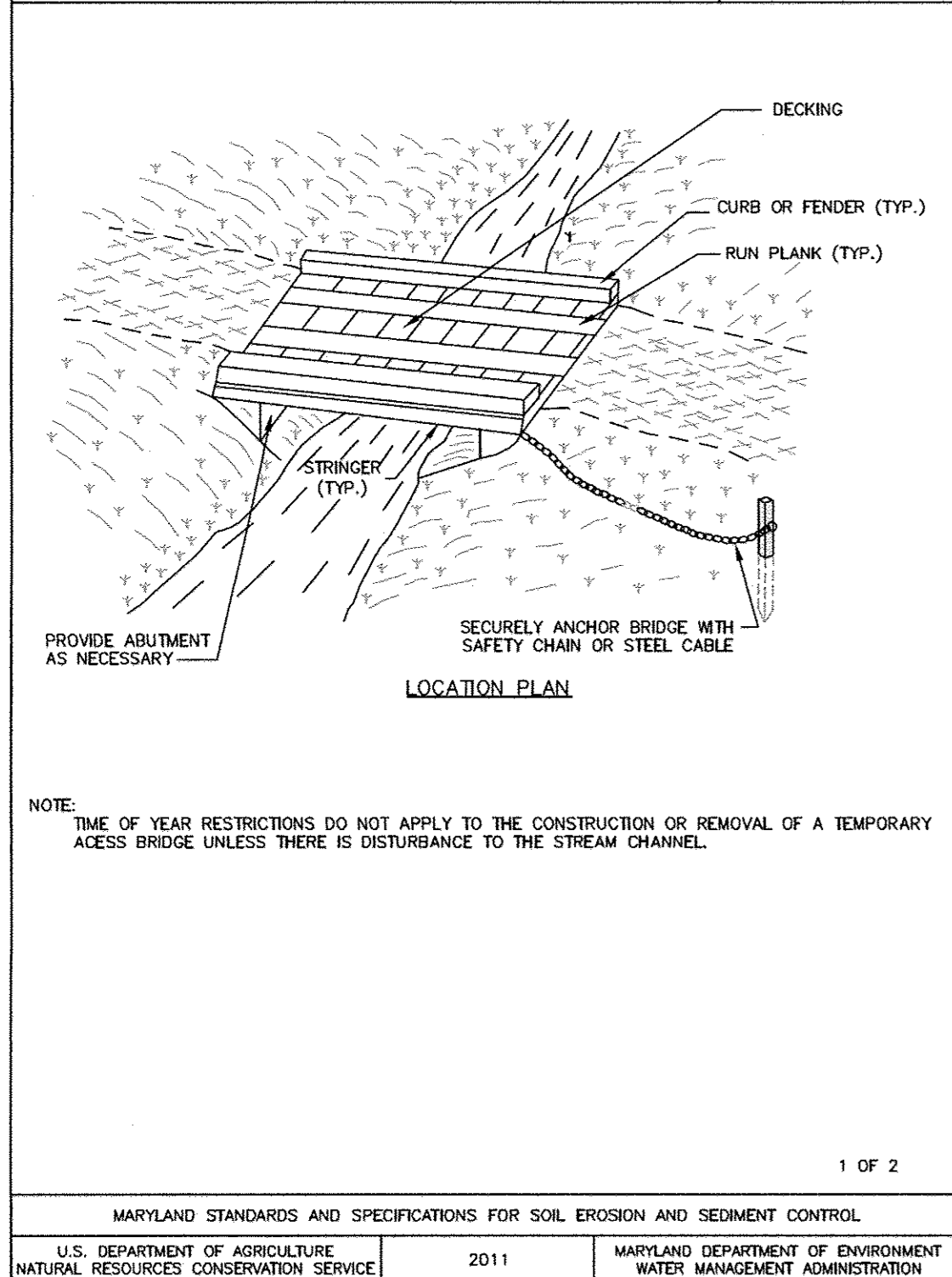
© Project 2015 Project 1541 - Fairlane Farm aka Schulte Stream Restoration/CD/1541/Druid Restoration Layout.dwg



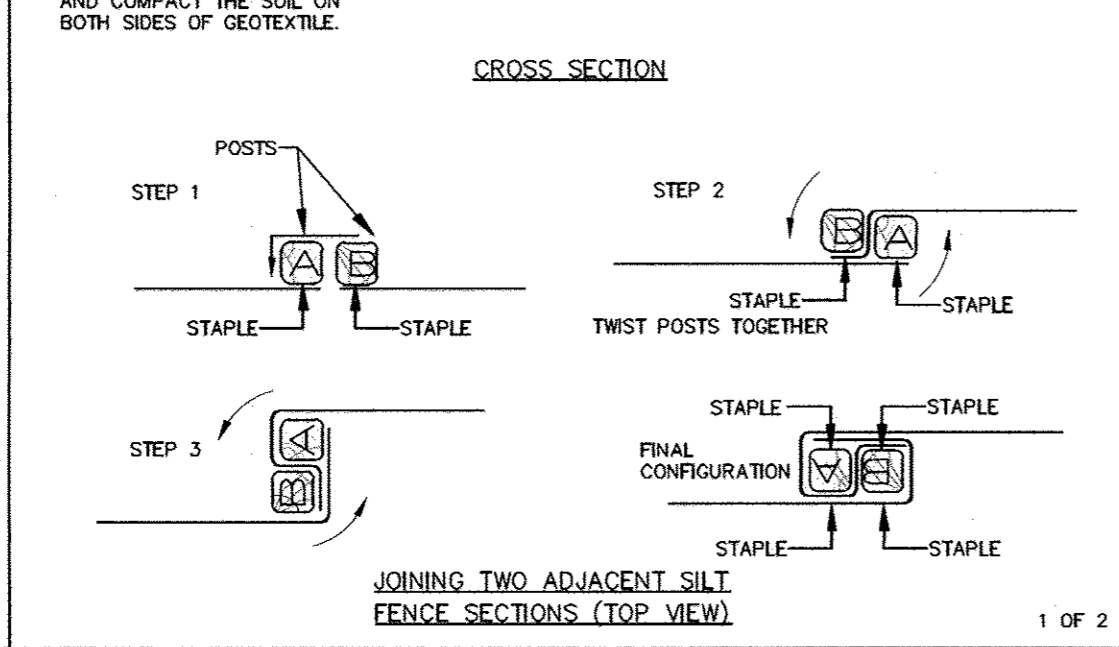
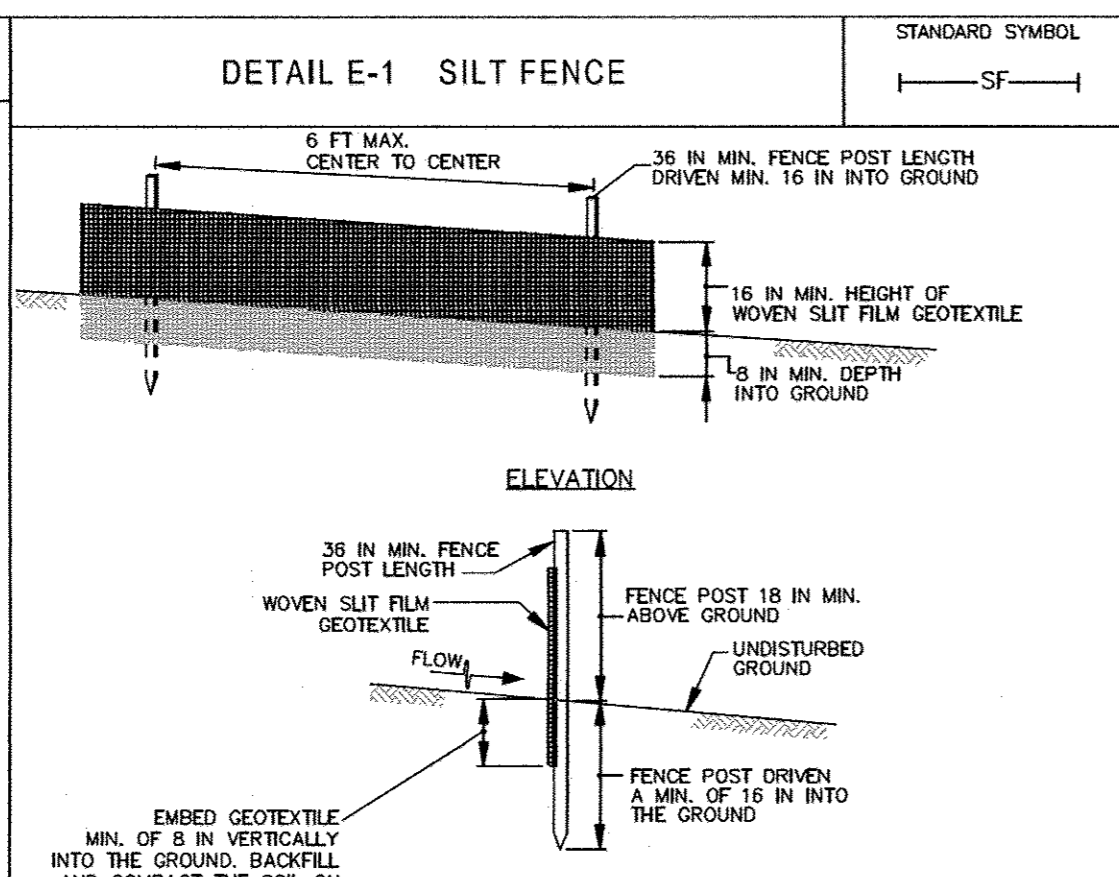
CONSTRUCTION SPECIFICATIONS

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

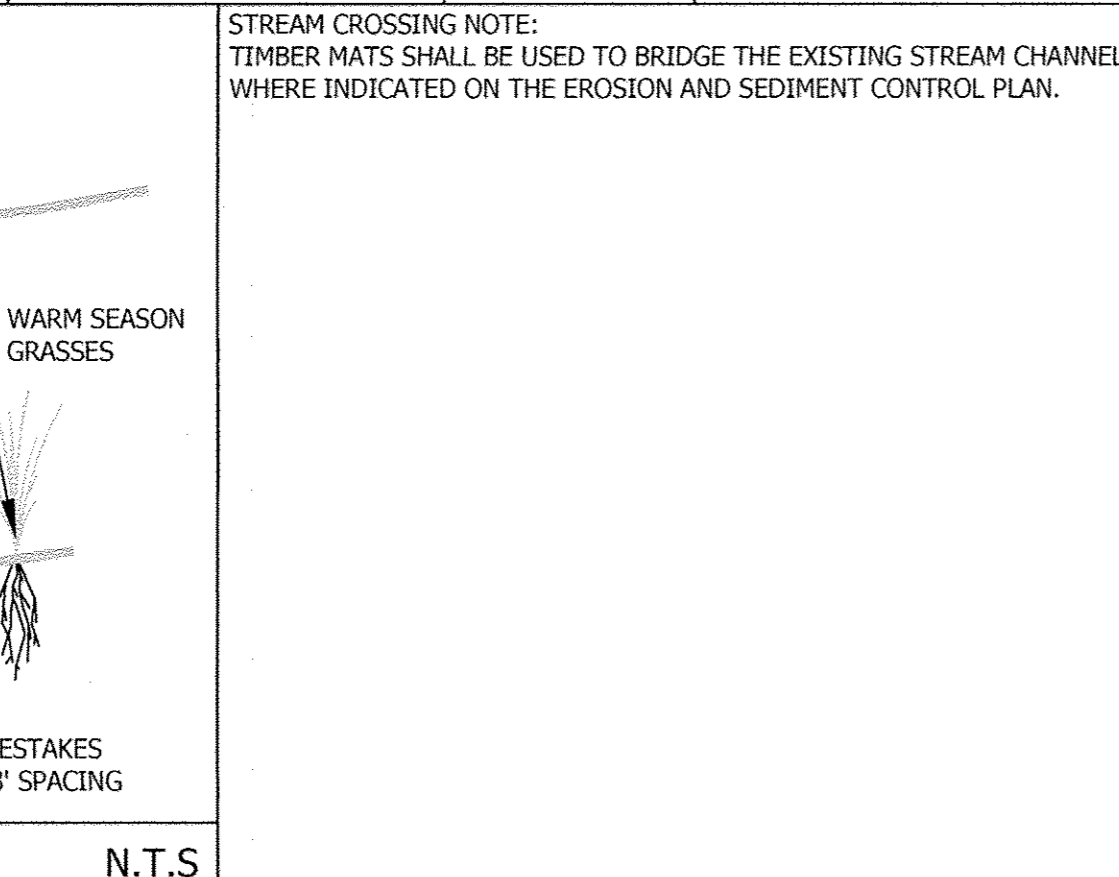
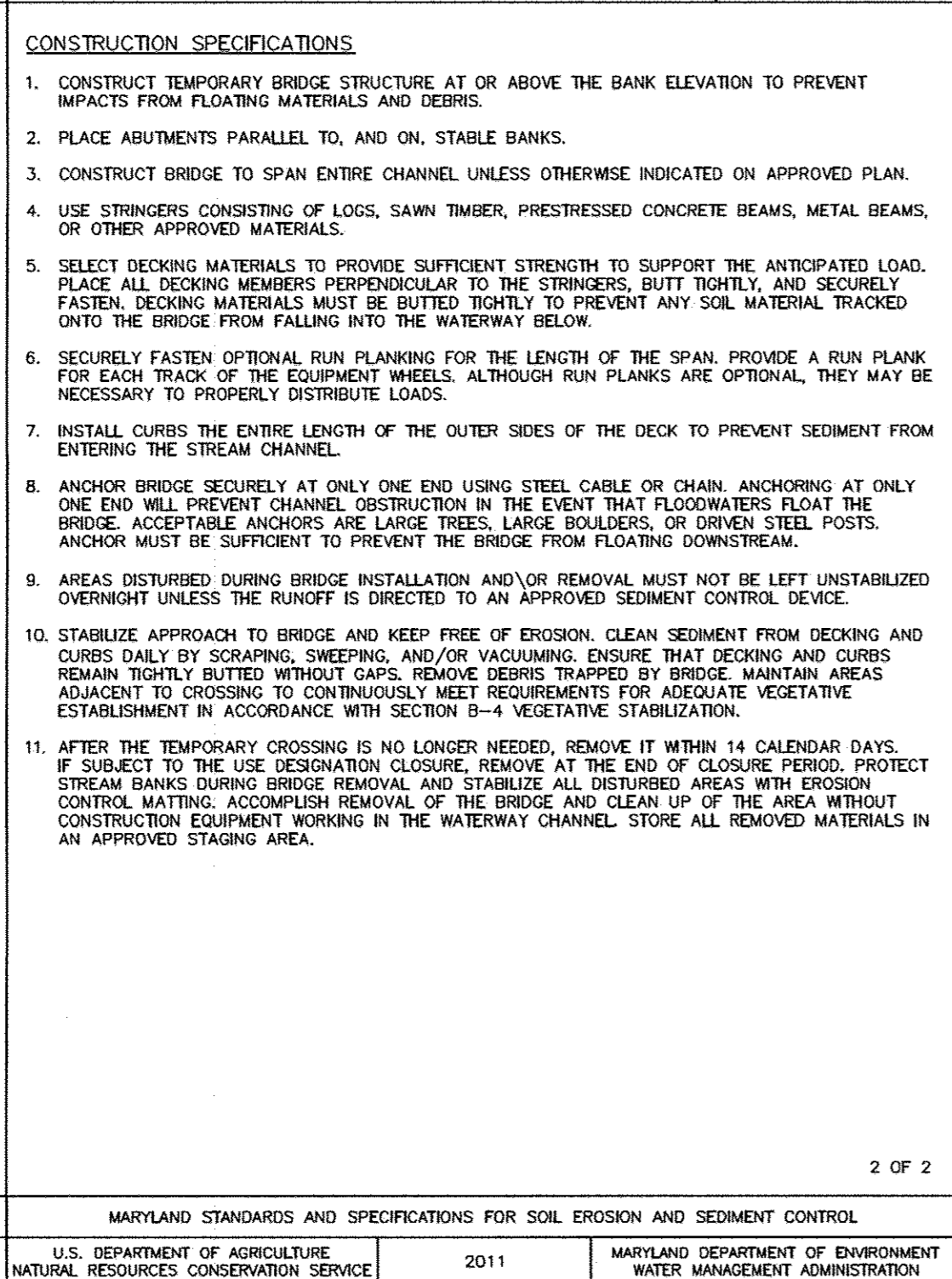
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL			
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	



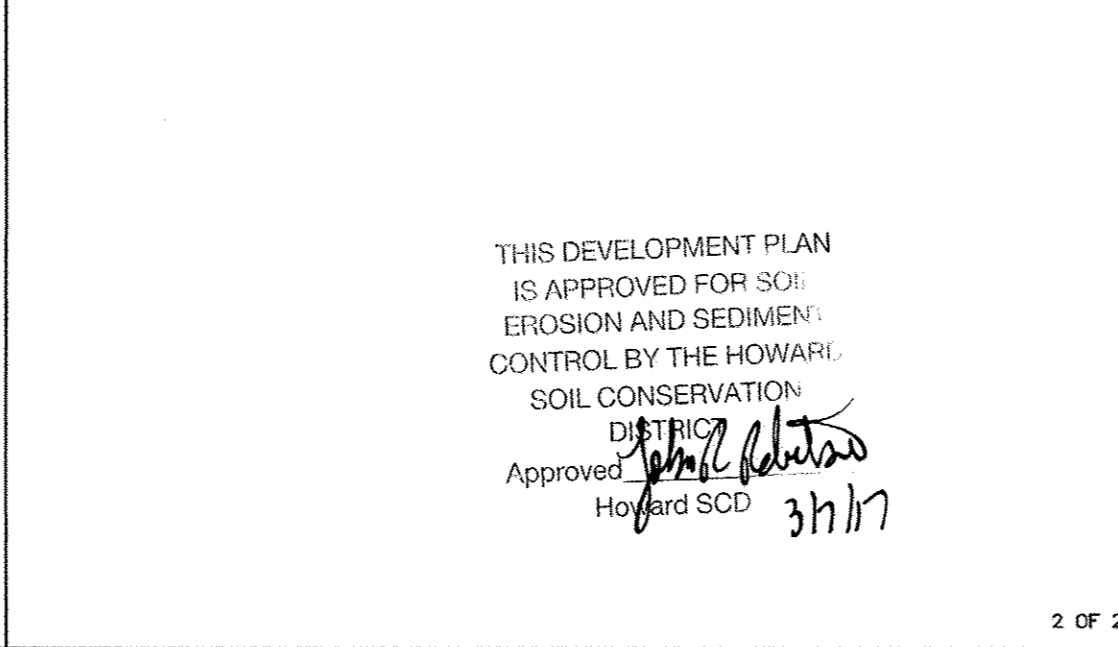
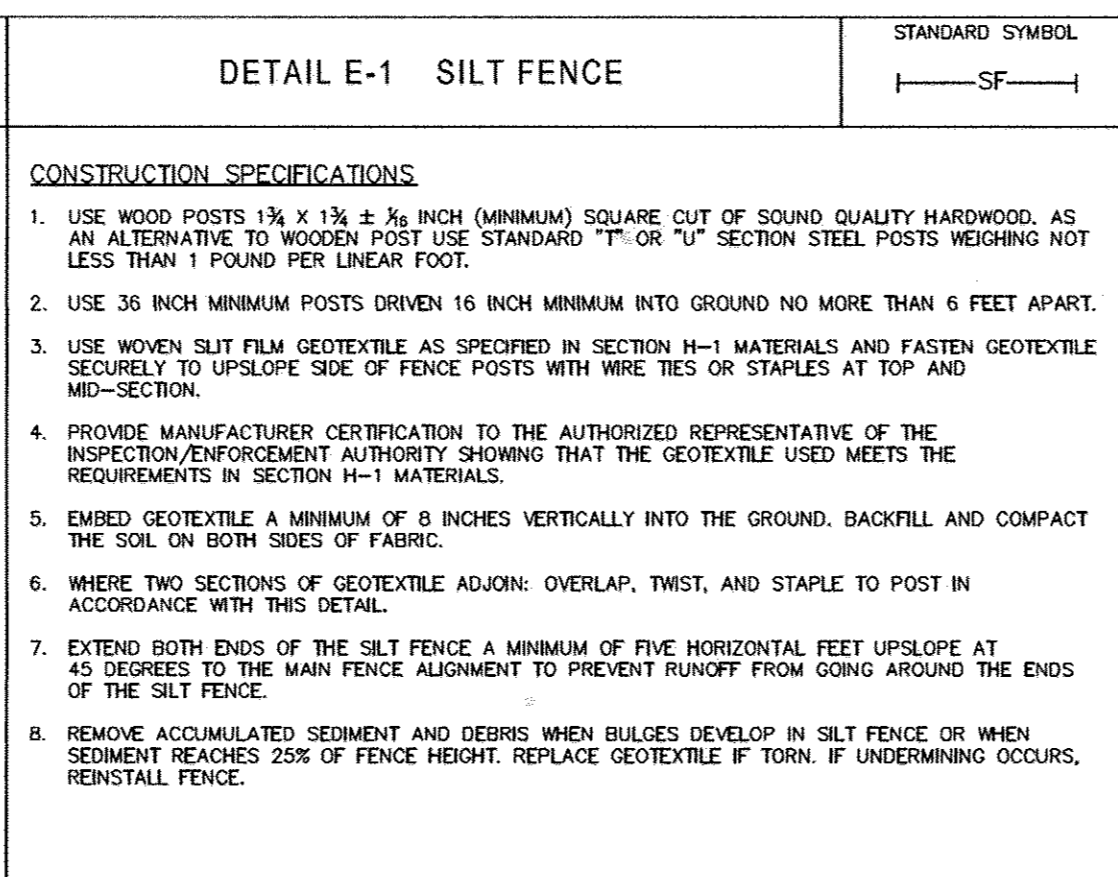
BIOENGINEERING DETAIL N.T.S.



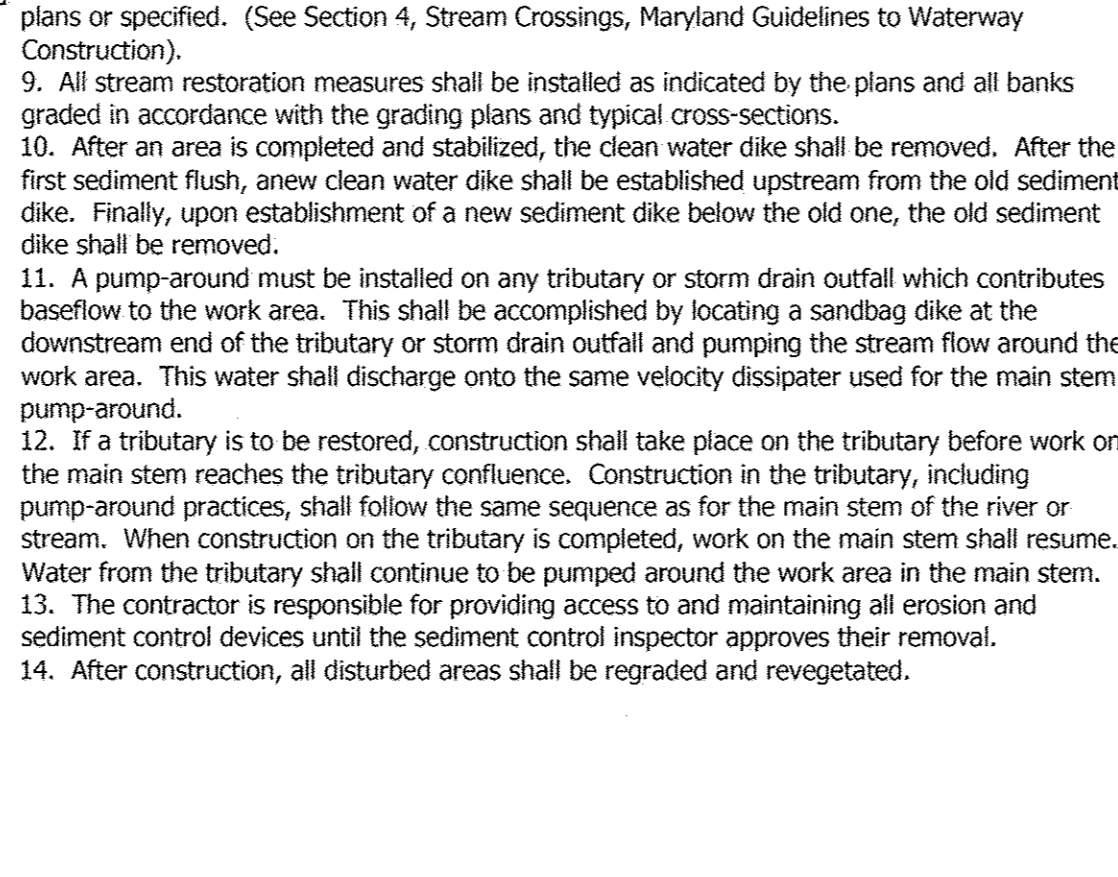
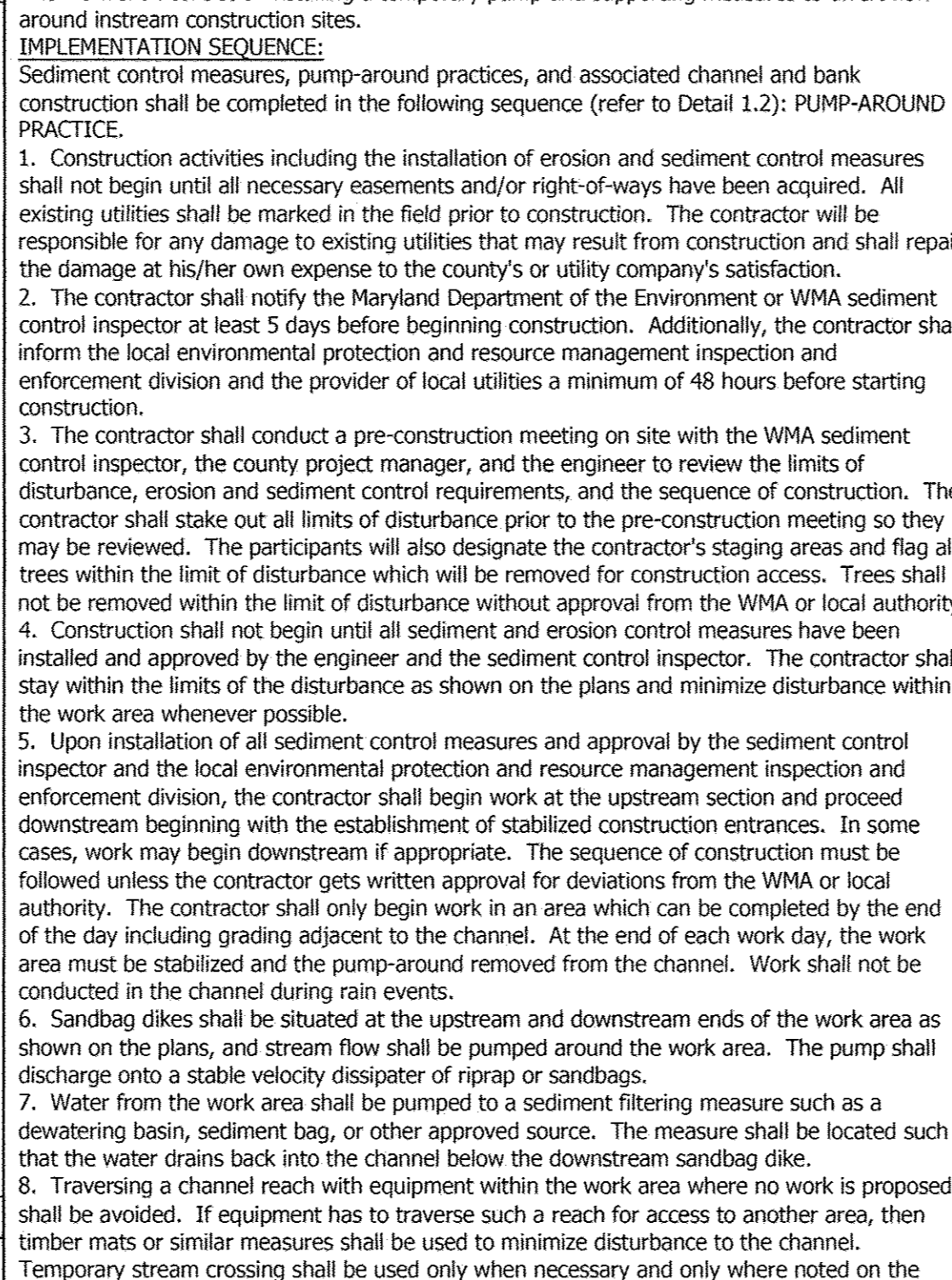
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL			
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	



BIOENGINEERING DETAIL N.T.S.



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



BIOENGINEERING DETAIL N.T.S.

B.4.5. STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition: To stabilize disturbed soils with permanent vegetation.

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

Conditions Where Practice Applies: Exposed soils where ground cover is needed for 6 months or more.

Criteria:

- General Use:
 - Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site conditions or purpose from Table B.2. Enter selected mixtures, application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
 - Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
 - For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil testing agency.
 - For areas receiving low maintenance, apply urea from fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (50 pounds per acre) at the time of seeding to increase the soil microclimate during the Permanent Seeding Summary.
- Vegetation Mixture:
 - Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
 - Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixtures, application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

B.4.6. STANDARDS AND SPECIFICATIONS 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 discharge to drainage patterns.

Conditions Where Practice Applies: Stockpile areas are utilized when it is necessary to stockpile and store soil for later use.

Criteria:

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The location of the stockpile must be placed 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 H-1 Land Grading.
- Benches from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the up-drain side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile, fit, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 3-7 day stabilization requirement as well as Standard B.4.4 Erosion/Sediment Stabilization and Standard B.4.4 Temporary Stabilization.
- 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 be covered with impervious sheeting.

PUMP-AROUND PRACTICE DESCRIPTION: The work shall consist of installing a temporary pump and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE: Sediment control measures, pump-around practices, and associated channel and bank construction shall be completed in the following sequence (refer to Detail 1.2): PUMP-AROUND PRACTICE.

- Construction activities including the installation of erosion and sediment control measures shall not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities shall be marked in the field prior to construction. The contractor will be responsible for any damage to existing utilities that may result from construction and shall repair the damage at his/her own expense to the county's or utility company's satisfaction.
- The contractor shall notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor shall inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor shall conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review the limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor shall stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees shall not be removed within the limit of disturbance without approval from the WMA or local authority.
- Traversing a channel reach until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor shall stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor shall begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor shall only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump-around removed from the channel. Work shall not be conducted in the channel during rain events.
- Sandbag dikes shall be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow shall be pumped around the work area. The pump shall discharge onto a stable velocity dissipater or riprap or sandbags.
- Water from the work area shall be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure shall be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor shall stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).
- All stream restoration measures shall be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections.
- After an area is completed and stabilized, the clean water dike shall be removed. After the first sediment flush, anew clean water dike shall be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike shall be removed.
- A pump-around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This shall be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water shall discharge onto the same velocity dissipater used for the main stem pump-around.
- If a tributary is to be restored, construction shall take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump-around practices, shall follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem shall resume. Water from the tributary shall continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
- After construction, all disturbed areas shall be regraded and revegetated.

B.4.7. STANDARDS AND SPECIFICATIONS FOR TEMPORARY SEED MIX

Definition: A mixture of seeds used for temporary stabilization of disturbed soils.

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

Criteria:

- General Specifications:
 - Class of turfgrass and seed must be Maryland State Certified. Seed labels must be made available to the job foreman and inspector.
 - Seed must be moisture wet or a minimum soil thickness of 1/4 inch, plus one minus 1/4 inch, at the time of seeding. Measurements for thickness must exclude top growth and duff. Broken pine and tan or inverts seeds will not be acceptable.
 - Standard mixtures of seed must be using controls to support their own weight and retain their size and shape until suspended vertically with a fan spray on the upper 10 percent of the seed.
 - Seed must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect to survival.
 - Seed must be harvested, stored, and installed within a period of 36 hours. Seed not transplanted within this period must be approved by an agronomist or soil scientist given its installation.
- Seed Installation:
 - During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the seed.
 - Use the first row of seed in a straight line with subsequent rows placed parallel to it and slightly offset against each other. Support lateral joints to promote more uniform growth and strength. Ensure that seed is not stretched or overpacked and that all joints are bedded tight in order to prevent voids which would cause air drying of the seed.
 - Whenever possible, lay seed with the long edges parallel to the contour and with staggered joints. Roll and tamp, peg or otherwise secure the seed to prevent slippage on slopes. Ensure solid contact exists between the seed and the underlying soil.
 - Water the seed immediately following rolling and tamping with the underside of the rear end pad and soil surface below the seed are thoroughly wet. Complete the operation of laying, tamping and watering for any area of seed within eight hours.
- Seed Maintenance:
 - In the absence of adequate rainfall, water daily during the first week or so often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water seed during the heat of the day to prevent wilting.
 - After the first week, soil watering is required as necessary to maintain adequate moisture content.
 - Do not mow until the seed is firmly rooted. No more than 1/3 of the grass seed must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

PERMANENT WETLAND SEED MIX

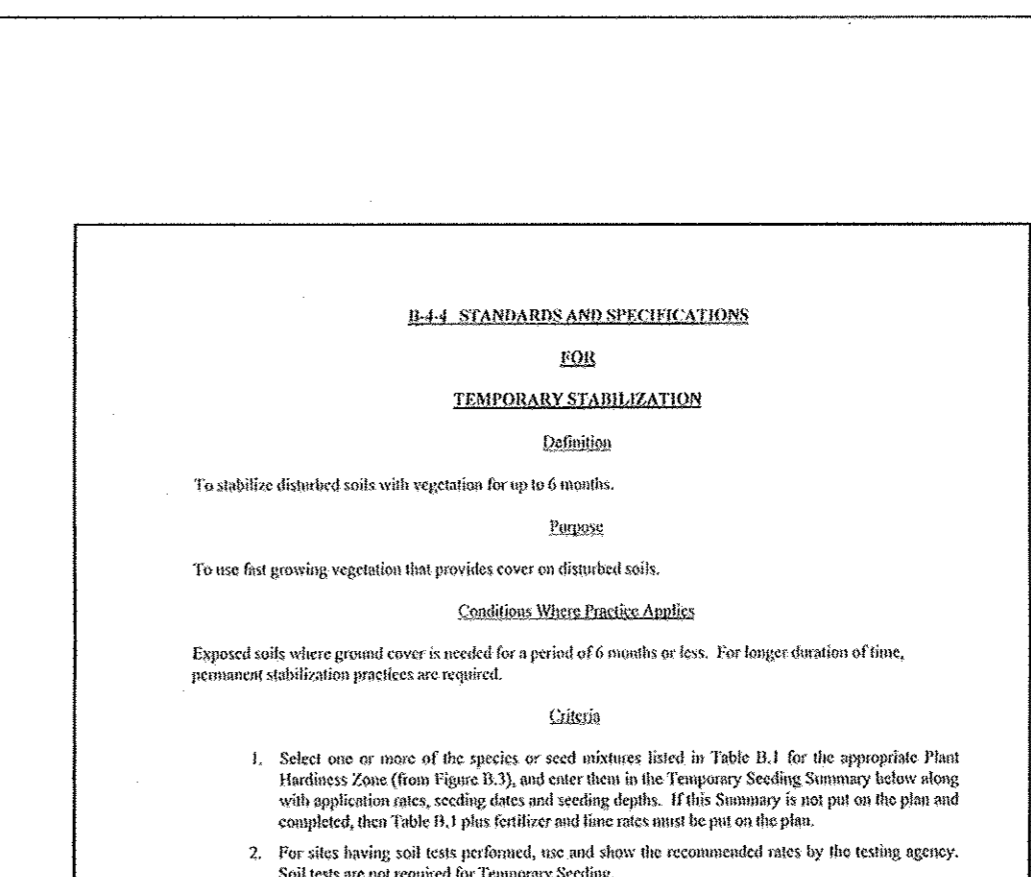
Common Name	Botanical Name	Indicator	Min. % Purity	Min. % Germ.	Seeding Rate (lbs/ac)
Soft Rush	Juncus effusus	FACW	90	85	1
Wool Grass	Scirpus cyperinus	FACW	90	85	1
Bluejoint	Calamagrostis canadensis	FACW	90	85	1
Switchgrass	Panicum virgatum	FAC	90	85	4
Rice cut grass	Leersia orizoides	OBL	90	85	1.5
Fowl Bluegrass	Poa palustris	FACW	90	85	1.5
Total					10 lbs/ac

APPROVED: DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

3-16-17 DATE

3-10-17 DATE



B.4.8. STANDARDS AND SPECIFICATIONS 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 discharge to drainage patterns.

Conditions Where Practice Applies: Stockpile areas are utilized when it is necessary to stockpile and store soil for later use.

Criteria:

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The location of the stockpile must be placed 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 H-1 Land Grading.
- Benches from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the up-drain side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile, fit, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 3-7 day stabilization requirement as well as Standard B.4.4 Erosion/Sediment Stabilization and Standard B.4.4 Temporary Stabilization.
- 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 be covered with impervious sheeting.

B.4.9. STANDARDS AND SPECIFICATIONS 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 discharge to drainage patterns.

Conditions Where Practice Applies: Stockpile areas are utilized when it is necessary to stockpile and store soil for later use.

Criteria:

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The location of the stockpile must be placed 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 H-1 Land Grading.
- Benches from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the up-drain side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile, fit, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 3-7 day stabilization requirement as well as Standard B.4.4 Erosion/Sediment Stabilization and Standard B.4.4 Temporary Stabilization.
- 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 be covered with impervious sheeting.

TEMPORARY SEED MIX

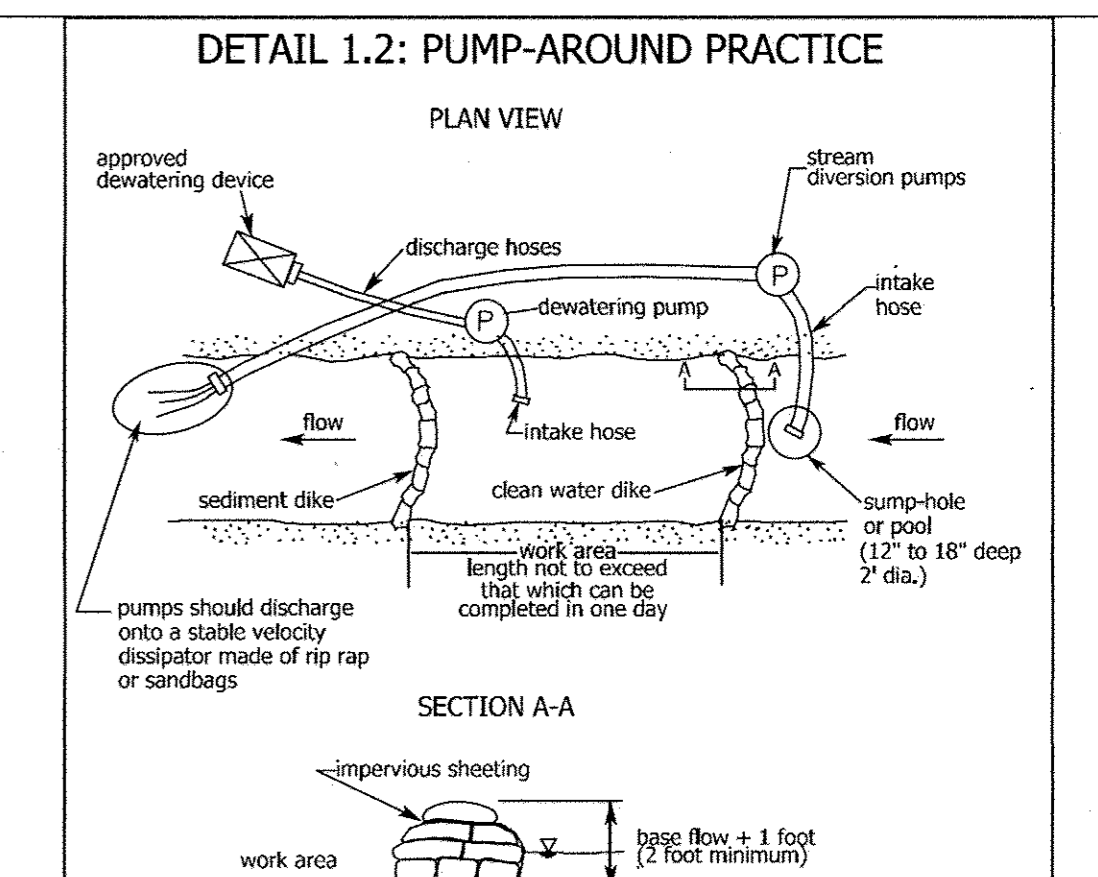
No.	Species	Application Rate (lbs/ac)	Seeding Dates	Seeding Depth	Fertilizer Rate (10-20-20)	Lime Rate
Annual Ryegrass	40 LBS/AC	8/1-8/15 and 8/15-8/31	0.5 inches	435 lbs/ac (10 lbs/1000 sq ft)	2 tons/ac (50 lbs/1000 sq ft)	
Perennial Ryegrass	40 LBS/AC	8/15-8/31	0.5 inches			

PERMANENT SEED MIX

No.	Species	Application Rate (lbs/ac)	Seeding Dates	Seeding Depth	Fertilizer Rate (10-20-20)	Lime Rate
Switchgrass	10 lbs/ac	2/1-2/15	1/2-1/2 in	90 lbs/ac (10 lbs/1000 sq ft)	2 tons/ac (50 lbs/1000 sq ft)	
Virginia Wild Rice	5 lbs/ac	2/1-2/15	1/2-1/2 in	45 pounds per acre (10 lbs/1000 sq ft)		
Rice Fescue	15 lbs/ac	2/1-2/15	1/2-1/2 in	10 lbs/1000 sq ft		

PERMANENT WETLAND SEED MIX

Common Name	Botanical Name	Indicator	Min. % Purity	Min. % Germ.	Seeding Rate (lbs/ac)
Soft Rush	Juncus effusus	FACW	90	85	1
Wool Grass	Scirpus cyperinus	FACW	90	85	1
Bluejoint	Calamagrostis canadensis	FACW	90	85	1
Switchgrass	Panicum virgatum	FAC	90	85	4
Rice cut grass	Leersia orizoides	OBL	90	85	1.5
Fowl Bluegrass	Poa palustris	FACW	90	85	1.5
Total					10 lbs/ac



STRENGTH	TEST METHOD	WOMEN SILT FILM GEOTEXTILE		WOMEN MONOLAYER GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	290 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		500 lb		450 lb	
Apparent Opening Size	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permeability	ASTM D-4491	0.05 sec ⁻¹		0.28 sec ⁻¹		1.1 sec ⁻¹	
UV Resistance Retained at 500 hours	ASTM D-4335	70% strength		70% strength		70% strength	

1. All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

2. Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPPE) and conform to the values in Table H.1.

The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95 percent by weight of polyolefins or polyesters, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including selvages.

When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled taut over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

BIOENGINEERING INSTALLATION

1. DESCRIPTION

This work shall consist of: 1) placing, harvesting, transporting, installing and maintaining live stake materials and warm season grass plugs

2. MATERIALS

Live Stakes

- Live stakes shall be between 0.5 inches and 2 inches in diameter.
- Stakes shall be 3 to 5 feet in length and all side branches shall be clipped flush with stem.
- Live stakes shall consist of the species and quantity per the "Live Stake Planting List" table found on Sheet 35.

WARM SEASON GRASSES

- Warm season grasses shall be plug size.
- Grasses shall be installed in two offset rows with 5 ft spacing.

3. CONSTRUCTION

Live Stakes:

- Live stakes shall be installed two to three (2-3) feet apart using random, triangular spacing. The density of the spacing will range from two (2) to four (4) stakes per square yard. Site variations may require spacing adjustments.
- The basal end of the live stake shall be cleanly cut at an angle immediately before insertion into the soil. The top of the stake shall be cut square for tamping.
- Install the live stakes top side up, with any buds pointing upward. The live stakes shall be tamped into the ground for approximately four-fifths (4/5) of their length. The stakes shall be tamped into the ground at vertical angle of ninety (90) degrees to the slope and at a horizontal angle of forty-five (45) degrees downstream. A three-eighths (3/8) of an inch iron bar can be used to make a pilot hole in compacted or rocky soils, or between imbricated rip rap boulders.
- Foot compact around each live stake after it has been installed. Any live stakes that split during tamping shall be pulled out and replaced.
- The top of the live stake shall be cut square again after installation, to remove the damaged mushroom top.
- See "Live Stake Planting List", on Sheet 35 for species and quantity specifications.

REVISIONS			
NO.	DATE	DESCRIPTION	REV. BY
1	5/11/2016	COMMENTS FROM HOWARD COUNTY SCD	SGM
2	11/12/2016	COMMENTS FROM HOWARD COUNTY SCD	SGM
3	1/20/2017	REVISIONS PER SCD COMMENTS	CGM

CHECKED BY: SGM

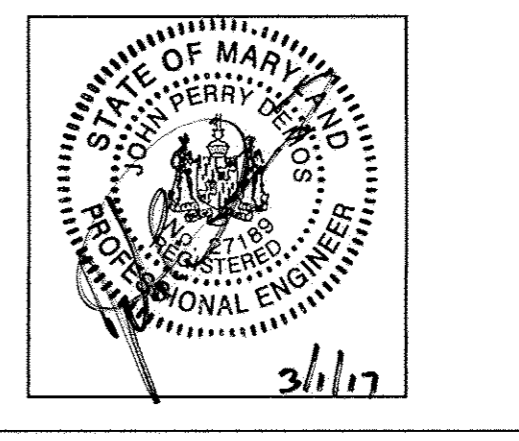
DESIGNED BY: CEH/CTS

DRAWN BY: CTS

PROJECT No.: 1541

DATE: 2/28/2017

SHEET: 36 OF 36



FAIRLANE FARM

STREAM RESTORATION DETAILS

15320 & 15250 OLD FREDERICK RD, WOODBINE, MD 21797

Ecotone Inc.

FORESTS • WETLANDS • RIVERS • WILDLIFE

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